

Supplemental Materials

Molecular Biology of the Cell

Adames et al.

Experimental testing of a new integrated model of the budding yeast START transition reveals functional differences between Bck2 and Cln3

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Table S1. Cell size ratios in galactose, raffinose and glucose from live-cell and cell counter measurements of *BCK2* and *CLN2* over-expression strains.

| Genotype | <i>wt</i> | <i>GAL-BCK2</i> | <i>cln3Δ mbp1Δ</i> | <i>cln3Δ mbp1Δ GAL-BCK2</i> | <i>cln3Δ mbp1Δ swi6Δ GAL-BCK2</i> | <i>GAL-CLN2</i> | <i>cdh1Δ</i> | <i>cdh1Δ GAL-CLN2</i> | <i>cln3Δ bck2Δ whi5Δ</i> | |
|--|-----------|-----------------|--------------------|-----------------------------|-----------------------------------|-----------------|--------------|-----------------------|--------------------------|-------|
| Live Cell Microscopy Measurements | | | | | | | | | | |
| Mean Cell Size glu (fL) ¹ | 28.10 | 28.10 | 45.30 | 45.30 | 69.63 | N.D. | 28.10 | 26.22 | 26.22 | N.D |
| Mean Cell Size raff (fL) | 23.32 | 28.42 | N.D. | 50.91 | N.D. | N.D. | 27.89 | N.D. | 30.00 | N.D |
| Mean Cell Size gal (fL) | 22.69 | 23.72 | N.D. | 43.80 | N.D. | N.D. | 23.10 | N.D. | 29.36 | N.D |
| | | | | | | | | | | |
| Mean gal:raff ³ | 0.97 | 0.83 | N.D. | 0.86 | N.D. | N.D. | 0.83 | N.D. | 0.98 | N.D |
| Mean gal:glu | 0.80 | 0.84 | N.D. | 0.97 | N.D. | N.D. | 0.82 | N.D. | 1.12 | N.D |
| Mean raff:glu | 0.83 | 1.01 | N.D. | 1.12 | N.D. | N.D. | 0.99 | N.D. | 1.14 | N.D |
| Cell Counter Measurements | | | | | | | | | | |
| Mean Cell Size glu (fL) ² | 42.34 | 42.45 | 60.85 | 64.35 | 102.23 | 106.10 | 46.38 | 34.71 | 31.57 | 51.35 |
| Mean Cell Size raff (fL) | 32.02 | 31.72 | 73.91 | 63.08 | 79.61 | 89.59 | 39.72 | 29.09 | 22.61 | 66.32 |
| Mean Cell Size gal (fL) | 37.43 | 27.14 | 60.90 | 59.53 | 85.49 | 66.46 | 58.03 | 28.10 | 74.71 | 63.07 |
| | | | | | | | | | | |
| Mean gal:raff | 1.17 | 0.99 | 0.82 | 0.94 | 1.07 | 0.74 | 1.46 | 0.97 | 3.30 | 0.95 |
| Mean gal:glu | 0.88 | 0.74 | 1.00 | 0.93 | 0.84 | 0.62 | 1.25 | 0.81 | 2.37 | 1.23 |
| Mean raff:glu | 0.76 | 0.64 | 1.21 | 0.98 | 0.78 | 0.84 | 0.86 | 0.84 | 0.72 | 1.29 |

1. Means are of at least three biological replicates.

2. Means are of two to three biological replicates.

3. Green indicates the ratio is much smaller than the equivalent wild-type ratio. Yellow indicates the ratio is much larger than the equivalent wild-type ratio.

Table S2. Cell size ratios in galactose, raffinose and glucose from live-cell and cell counter measurements of *WHI5* and *WHI512A* over-expression strains.

| Genotype | wt | GAL- <i>WHI5</i> | GAL- <i>WHI5^{12A}</i> | <i>bck2Δ</i> | <i>bck2Δ</i> GAL- <i>WHI5</i> | <i>bck2Δ</i> GAL- <i>WHI5^{12A}</i> | <i>mbp1Δ</i> | <i>mbp1Δ</i> GAL- <i>WHI5</i> | <i>mbp1Δ</i> GAL- <i>WHI5^{12A}</i> | <i>bck2Δ</i> <i>mbp1Δ</i> | <i>bck2Δ</i> <i>mbp1Δ</i> GAL- <i>WHI5</i> | <i>bck2Δ</i> <i>mbp1Δ</i> GAL- <i>WHI5^{12A}</i> | <i>swi6Δ</i> | <i>swi6Δ</i> GAL- <i>WHI5</i> | <i>cln3Δ</i> | <i>cln3Δ</i> GAL- <i>WHI5</i> | <i>cln3Δ</i> <i>swi6Δ</i> | <i>cln3Δ</i> GAL- <i>swi6Δ</i> <i>WHI5</i> | <i>cln3Δ</i> <i>mbp1Δ</i> <i>swi6Δ</i> GAL- <i>WHI5</i> | <i>cln3Δ</i> <i>mbp1Δ</i> <i>swi6Δ</i> GAL- <i>WHI5</i> |
|--------------------------------------|-------|---------------------|-----------------------------------|--------------|-------------------------------------|---|--------------|-------------------------------------|---|------------------------------|---|---|--------------|-------------------------------------|--------------|-------------------------------------|------------------------------|---|---|---|
| Live Cell Microscopy Measurements | | | | | | | | | | | | | | | | | | | | |
| Mean Cell Size glu (fL) ¹ | 28.10 | 28.10 | 28.10 | 38.88 | 38.88 | 38.88 | 29.74 | 29.74 | 29.74 | 36.67 | 36.67 | 36.67 | 74.73 | 74.73 | 46.08 | 46.08 | 62.00 | 62.00 | 69.63 | 69.63 |
| Mean Cell Size raff (fL) | 23.32 | 24.78 | 26.52 | N.D. | 56.52 | 55.38 | N.D. | 30.60 | 33.77 | N.D. | 54.66 | 62.27 | N.D. | 56.81 | N.D. | 45.32 | N.D. | 72.09 | N.D. | N.D. |
| Mean Cell Size gal (fL) | 22.69 | 28.47 | 27.98 | N.D. | 64.10 | 69.49 | N.D. | 41.00 | 55.41 | N.D. | 74.07 | 83.13 | N.D. | 63.73 | N.D. | 105.91 | N.D. | 82.13 | N.D. | N.D. |
| | | | | | | | | | | | | | | | | | | | | |
| Mean gal:raff | 0.97 | 1.15 | 1.05 | N.D. | 1.13 | 1.25 | N.D. | 1.34 | 1.64 | N.D. | 1.35 | 1.33 | N.D. | 1.12 | N.D. | 2.34 | N.D. | 1.14 | N.D. | N.D. |
| Mean gal:glu | 0.80 | 0.98 | 1.00 | N.D. | 1.65 | 1.80 | N.D. | 1.38 | 1.86 | N.D. | 2.02 | 2.27 | N.D. | 0.85 | N.D. | 2.30 | N.D. | 1.32 | N.D. | N.D. |
| Mean raff:glu | 0.83 | 0.88 | 0.94 | N.D. | 1.45 | 1.42 | N.D. | 1.03 | 1.14 | N.D. | 1.49 | 1.70 | N.D. | 0.76 | N.D. | 0.98 | N.D. | 1.16 | N.D. | N.D. |
| Cell Counter Measurements | | | | | | | | | | | | | | | | | | | | |
| Mean Cell Size glu (fL) ² | 42.34 | 44.60 | 37.72 | 51.93 | 56.33 | 54.35 | 48.64 | 63.99 | 65.77 | 50.54 | 58.52 | 54.50 | 98.90 | 97.19 | 49.04 | 61.40 | 105.52 | 101.93 | 102.23 | 105.31 |
| Mean Cell Size raff (fL) | 32.02 | 37.81 | 32.13 | 40.21 | 49.94 | 51.91 | 32.84 | 52.06 | 57.68 | 40.22 | 64.53 | 70.46 | 87.30 | 85.42 | 41.42 | 52.67 | 94.23 | 96.28 | 79.61 | 100.08 |
| Mean Cell Size gal (fL) | 37.43 | 43.22 | 46.90 | 47.13 | 62.13 | 113.24 | 43.78 | 84.25 | 117.20 | 47.13 | 70.06 | 122.26 | 100.80 | 100.84 | 53.79 | 188.90 | 107.27 | 142.98 | 85.49 | 124.32 |
| | | | | | | | | | | | | | | | | | | | | |
| Mean gal:raff | 1.17 | 1.14 | 1.46 | 1.17 | 1.24 | 2.18 | 1.33 | 1.61 | 2.03 | 1.17 | 1.09 | 1.74 | 1.15 | 1.19 | 1.30 | 3.59 | 1.14 | 1.49 | 1.07 | 1.09 |
| Mean gal:glu | 0.88 | 0.97 | 1.24 | 0.91 | 1.10 | 2.08 | 0.90 | 1.31 | 1.78 | 0.93 | 1.20 | 2.24 | 1.02 | 1.03 | 1.10 | 3.08 | 1.02 | 1.40 | 0.84 | 1.18 |
| Mean raff:glu | 0.76 | 0.85 | 0.85 | 0.77 | 0.89 | 0.96 | 0.68 | 0.81 | 0.88 | 0.80 | 1.10 | 1.29 | 0.87 | 0.84 | 0.84 | 0.86 | 0.89 | 0.94 | 0.78 | 1.08 |

1. Means are of at least three biological replicates.

2. Means are of two to three biological replicates.

3. Green indicates the ratio is much smaller than the equivalent wild-type ratio. Yellow indicates the ratio is much larger than the equivalent wild-type ratio.

Table S3. Yeast Strains

| Name | Relevant Genotype | Background | Source |
|-------------|---|-------------------|-------------------------|
| BY4741 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0</i> | S288C | (Winzeler et al., 1999) |
| BY4742 | <i>MAT^α ura3Δ0 leu2Δ0 his3Δ1 lys2Δ0</i> | S288C | (Winzeler et al., 1999) |
| BY4743 | <i>MATa/MAT^α ura3Δ0/ura3Δ0 leu2Δ0/leu2Δ0 his3Δ1/his3Δ1 LYS2/lys2Δ0 met15Δ0/MET15</i> | S288C | (Winzeler et al., 1999) |
| JPY962 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 bck2Δ::kanMX</i> | S288C | (Winzeler et al., 1999) |
| JPY969 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 cdh1Δ::kanMX</i> | S288C | (Winzeler et al., 1999) |
| JPY1015 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 cln1Δ::hphMX cln2Δ::kanMX</i> | S288C | This Study |
| JPY1320 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 cln3Δ::kanMX</i> | S288C | This Study |
| JPY1062 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 mbp1Δ::kanMX</i> | S288C | (Winzeler et al., 1999) |
| JPY1016 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 msn5Δ::kanMX</i> | S288C | This Study |
| JPY1150 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 swi4Δ::kanMX</i> | S288C | (Winzeler et al., 1999) |
| JPY966 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 swi6Δ::kanMX</i> | S288C | (Winzeler et al., 1999) |
| JPY967 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 whi5Δ::kanMX</i> | S288C | (Winzeler et al., 1999) |
| JPY1061 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 bck2Δ::kanMX mbp1Δ::natMX</i> | S288C | This Study |
| JPY1086 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln1Δ::hphMX cln2Δ::kanMX cdh1Δ::natMX</i> | S288C | This Study |
| JPY1500 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln1Δ::hphMX cln2Δ::kanMX mbp1Δ::natMX</i> | S288C | This Study |
| JPY1368 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX</i> | S288C | This Study |
| JPY1408 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX whi5Δ::hphMX</i> | S288C | This Study |
| JPY1409 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX swi6Δ::hphMX</i> | S288C | This Study |
| JPY1116 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::URA3MX whi5Δ::natMX bck2Δ::kanMX</i> | S288C | This Study |
| JPY1820 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 lys2Δ0 cln3Δ::kanMX swi4Δ::kanMX whi5Δ::URA3MX</i> | S288C | This Study |
| JPY1130 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX swi4Δ::URA3MX whi5Δ::natMX</i> | S288C | This Study |
| JPY1543 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX swi6Δ::natMX</i> | S288C | This Study |
| JPY1149 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 swi4Δ::natMX whi5Δ::kanMX</i> | S288C | This Study |
| JPY1469 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 swi6Δ::natMX whi5Δ::kanMX</i> | S288C | This Study |
| JPY1162 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 msn5Δ::kanMX swi4Δ::natMX</i> | S288C | This Study |
| JPY1415 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 msn5Δ::kanMX swi6Δ::natMX</i> | S288C | This Study |
| JPY1017 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 [GAL1pr-empty URA3 CEN]</i> | | |
| JPY1395 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 [GAL1pr-BCK2 URA3 CEN]</i> | S288C | This Study |
| JPY1445 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX [GAL1pr-empty URA3 CEN]</i> | S288C | This Study |
| JPY1451 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX [GAL1pr-BCK2 URA3 CEN]</i> | S288C | This Study |
| JPY1815 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX swi6Δ::hphMX [GAL1pr-empty URA3 CEN]</i> | S288C | This Study |
| JPY1817 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX swi6Δ::hphMX [GAL1pr-BCK2 URA3 CEN]</i> | S288C | This Study |
| JPY1020 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 [GAL1pr-CLN2 URA3 CEN]</i> | S288C | This Study |
| JPY1053 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 cdh1Δ::natMX [GAL1pr-empty URA3 CEN]</i> | S288C | This Study |
| JPY1052 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 cdh1Δ::natMX [GAL1pr-CLN2 URA3 CEN]</i> | S288C | This Study |
| JPY1486 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |

| | | | |
|---------|--|-------|------------|
| JPY1487 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 [GAL1pr-WHI5^{12A} HIS3 CEN]</i> | S288C | This Study |
| JPY1051 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 bck2Δ::kanMX [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |
| JPY1050 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 bck2Δ::kanMX [GAL1pr-WHI5^{12A} HIS3 CEN]</i> | S288C | This Study |
| JPY1056 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 mbp1Δ::natMX [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |
| JPY1057 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 mbp1Δ::natMX [GAL1pr-WHI5^{12A} HIS3 CEN]</i> | S288C | This Study |
| JPY1066 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 bck2Δ::kanMX mbp1Δ::natMX [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |
| JPY1071 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 bck2Δ::kanMX mbp1Δ::natMX [GAL1pr-WHI5^{12A} HIS3 CEN]</i> | S288C | This Study |
| JPY1054 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 swi6Δ::kanMX [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |
| JPY1812 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 cln3Δ::kanMX [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |
| JPY1582 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 cln3Δ::kanMX swi6Δ::natMX [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |
| JPY1816 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 cln3Δ::kanMX mbp1Δ::natMX swi6Δ::hphMX [GAL1pr-WHI5 HIS3 CEN]</i> | S288C | This Study |
| JPY1813 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 [GAL1pr-WHI5-FLAG LEU2 CEN]</i> | S288C | This Study |
| JPY1814 | <i>MATa ura3Δ0 leu2Δ0 his3Δ1 met15Δ0 bck2Δ::kanMX [GAL1pr-WHI5-FLAG LEU2 CEN]</i> | S288C | This Study |
| JPY1329 | <i>MATa/MAT^Δ ura3Δ0/ura3Δ0 leu2Δ0/leu2Δ0 his3Δ1/his3Δ1 LYS2/lys2Δ0 met15Δ0/MET15 bck2Δ::kanMX/BCK2 SWI6/swi6Δ::natMX</i> | S288C | This Study |
| JPY1411 | <i>MATa/MAT^Δ ura3Δ0/ura3Δ0 leu2Δ0/leu2Δ0 his3Δ1/his3Δ1 LYS2/lys2Δ0 met15Δ0/MET15 cln3Δ::kanMX/CLN3 BCK2/bck2Δ::kanMX mbp1Δ::natMX/MBP1 WHI5/whi5Δ::URA3MX</i> | S288C | This Study |
| JPY1331 | <i>MATa/MAT^Δ ura3Δ0/ura3Δ0 leu2Δ0/leu2Δ0 his3Δ1/his3Δ1 LYS2/lys2Δ0 met15Δ0/MET15 cln3Δ::kanMX/CLN3 SWI4/swi4Δ::natMX</i> | S288C | This Study |
| JPY1333 | <i>MATa/MAT^Δ ura3Δ0/ura3Δ0 leu2Δ0/leu2Δ0 his3Δ1/his3Δ1 LYS2/lys2Δ0 met15Δ0/MET15 swi4Δ::natMX/SWI4 SWI6/swi6Δ::hphMX</i> | S288C | This Study |
| JPY1334 | <i>MATa/MAT^Δ ura3Δ0/ura3Δ0 leu2Δ0/leu2Δ0 his3Δ1/his3Δ1 LYS2/lys2Δ0 met15Δ0/MET15 swi4Δ::natMX/SWI4 SWI6/swi6Δ::hphMX whi5Δ::kanMX/WHI5</i> | S288C | This Study |

Table S4. Plasmids

| Name | Relevant Genotype | Source |
|---------|---|-------------------------|
| pJP6612 | <i>GAL1pr-GATEWAY (ccdB)-6xHis-HA-prA AmpR URA3 CEN</i> | (Gelperin et al., 2005) |
| pJP6596 | <i>GAL1pr-BCK2-6xHis-HA-prA AmpR URA3 CEN</i> | (Gelperin et al., 2005) |
| pJP6600 | <i>GAL1pr-CLN2-6xHis-HA-prA AmpR URA3 CEN</i> | (Gelperin et al., 2005) |
| pMT3445 | <i>GAL1pr-WHI5 AmpR HIS3 CEN</i> | (Costanzo et al., 2004) |
| pMT3455 | <i>GAL1pr-WHI5^{12A} AmpR HIS3 CEN</i> | (Costanzo et al., 2004) |
| pMT3164 | <i>GAL1pr-c-FLAG AmpR LEU2 CEN</i> | (Ho et al., 2002) |
| pMT3586 | <i>GAL1pr-WHI5-FLAG AmpR LEU2 CEN</i> | (Costanzo et al., 2004) |

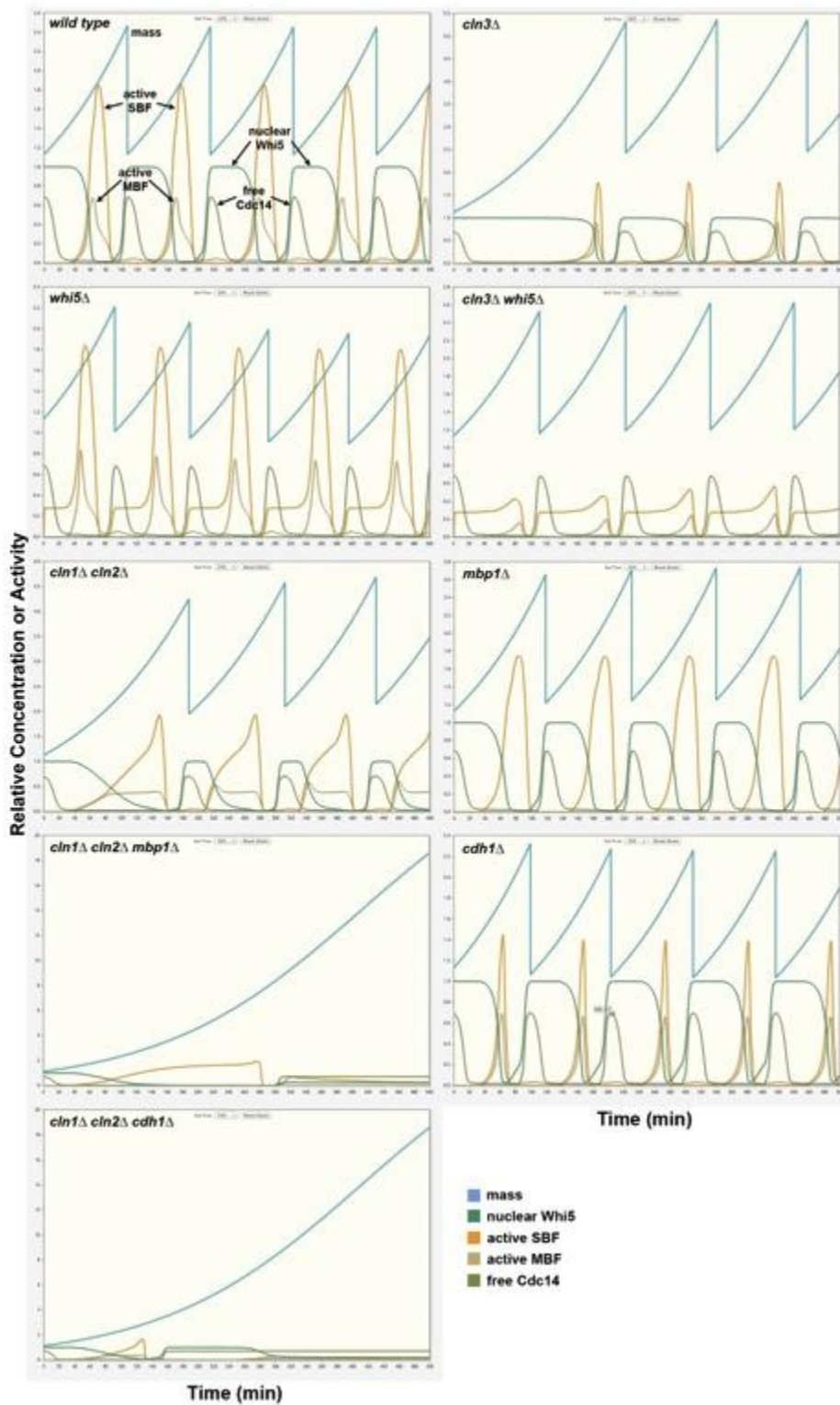


Figure S1. START-2013 simulations of representative cell cycle mutants. All simulations last for 500 min. The y-axis scale varies depending on maximum cell sizes attained for each mutant. Images are taken from screen shots of the online simulator available at http://tysonlab.biol.vt.edu/research/start_transition.

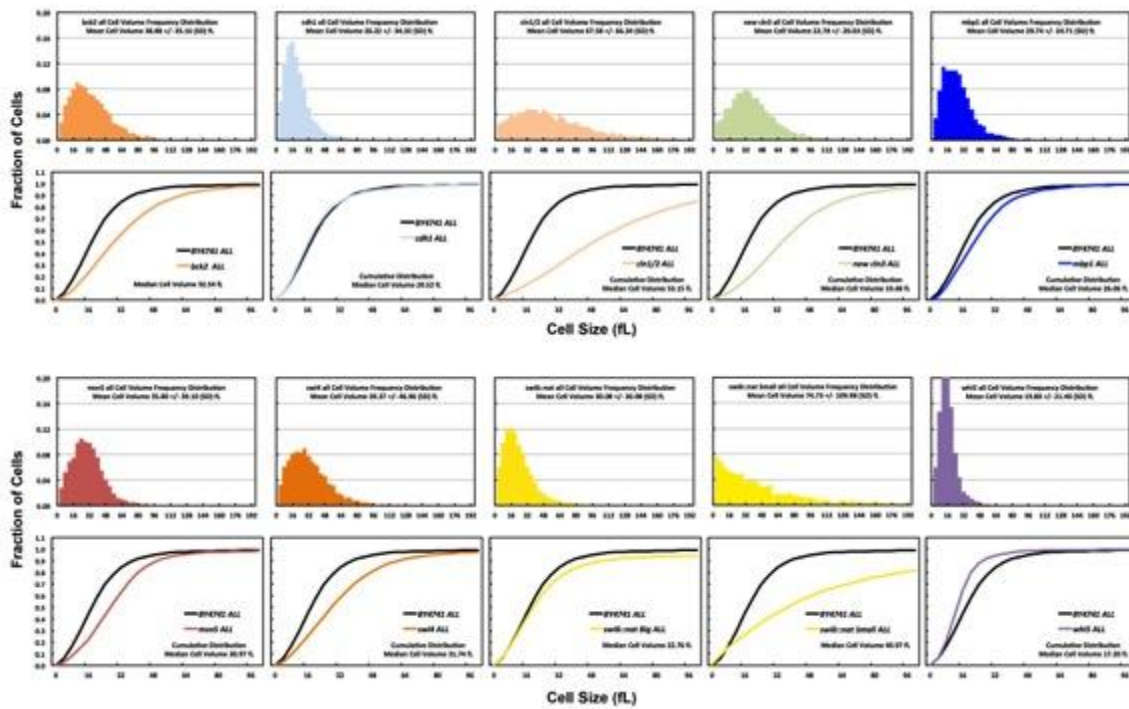


Figure S2. Cell size distributions from live-cell microscopy experiments using single mutant strains.

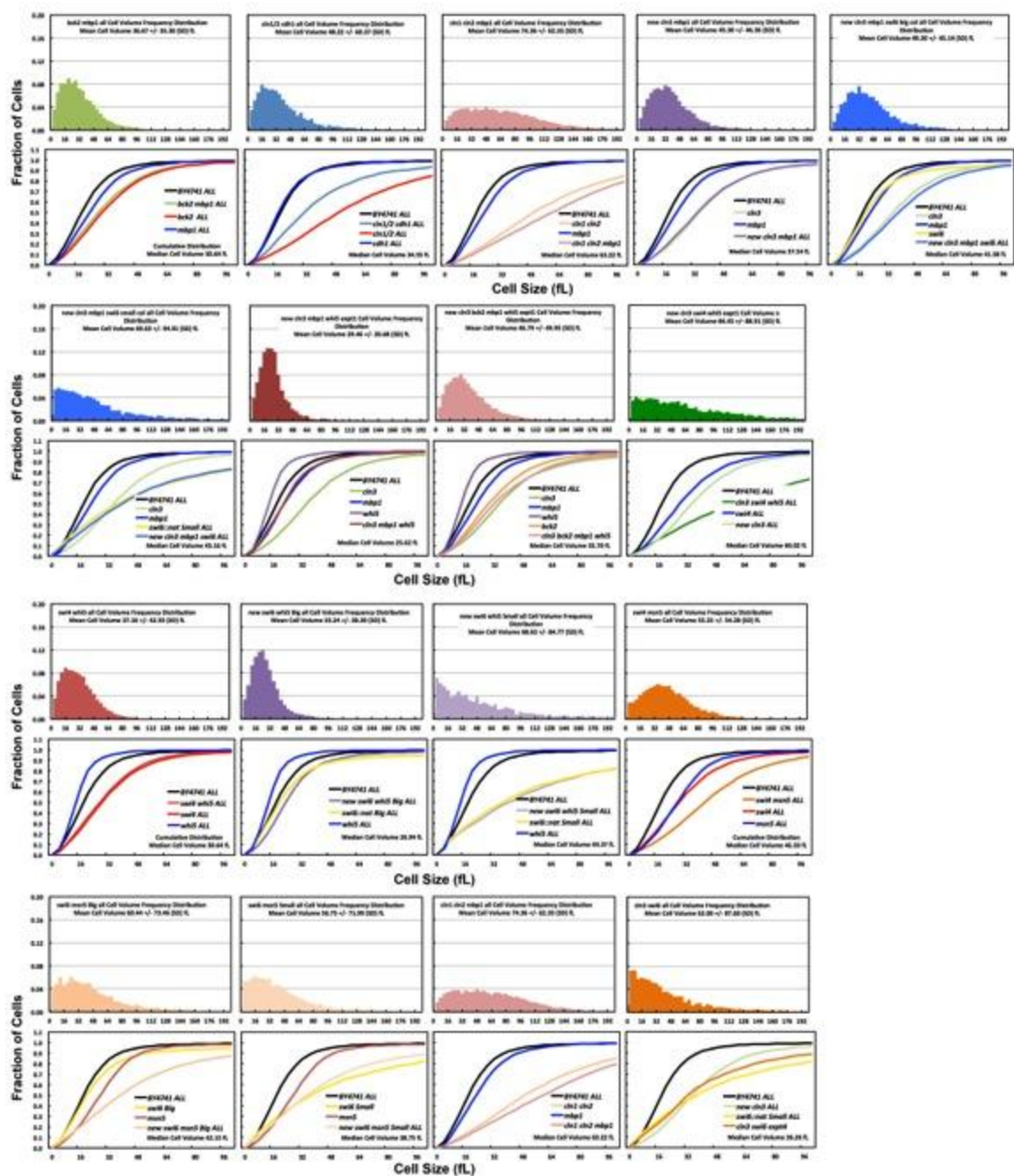


Figure S3. Cell size distributions from live-cell microscopy experiments using strains carrying multiple cell cycle mutations.

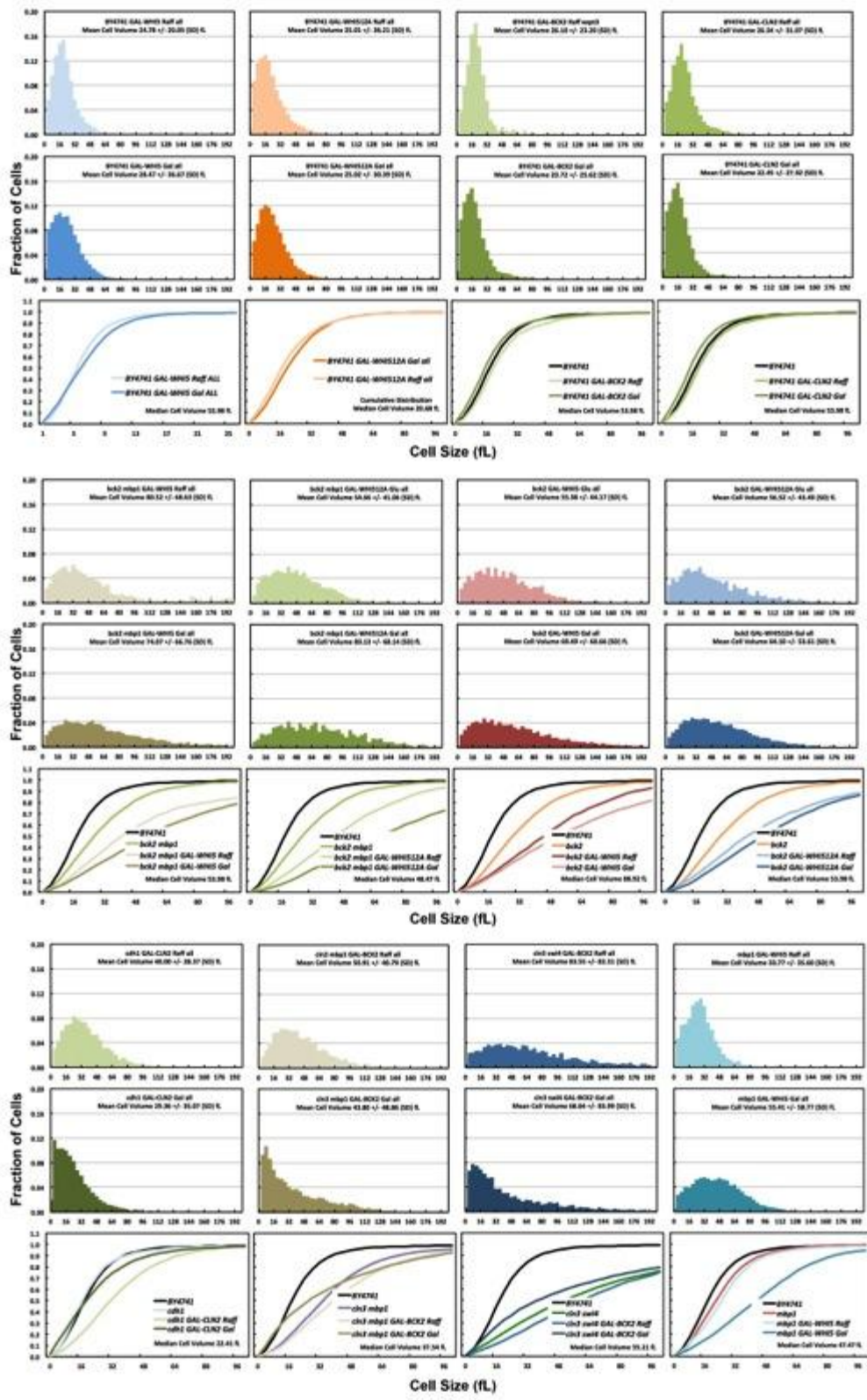


Figure S4. Cell size distributions from live-cell microscopy experiments using mutant strains over expressing cell cycle genes from an inducible promoter.

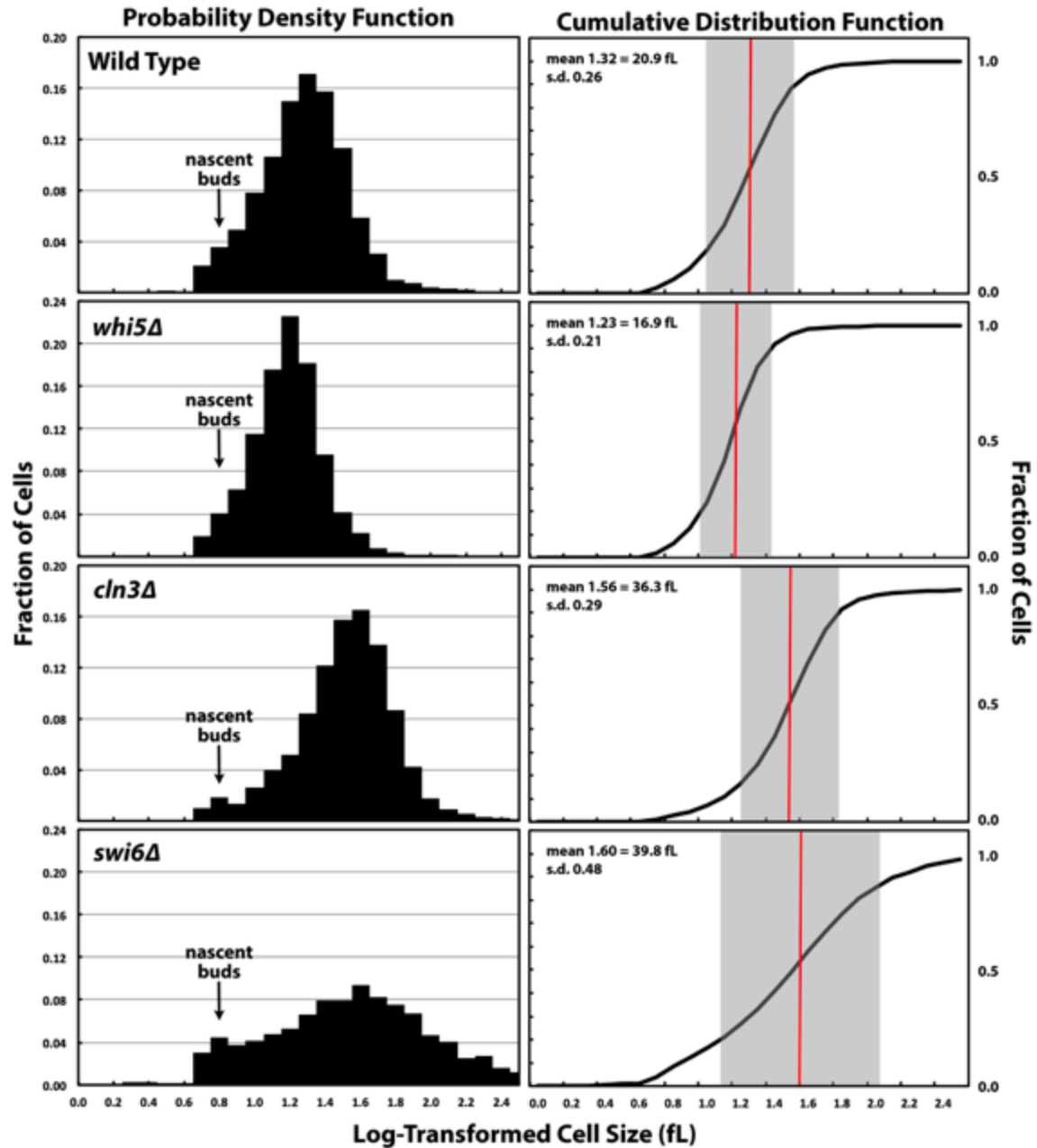


Figure S5. Cell size distributions in representative single mutant strains using log-transformed data from live-cell microscopy experiments. Red line = mean. Grey area = mean \pm 1 standard deviation

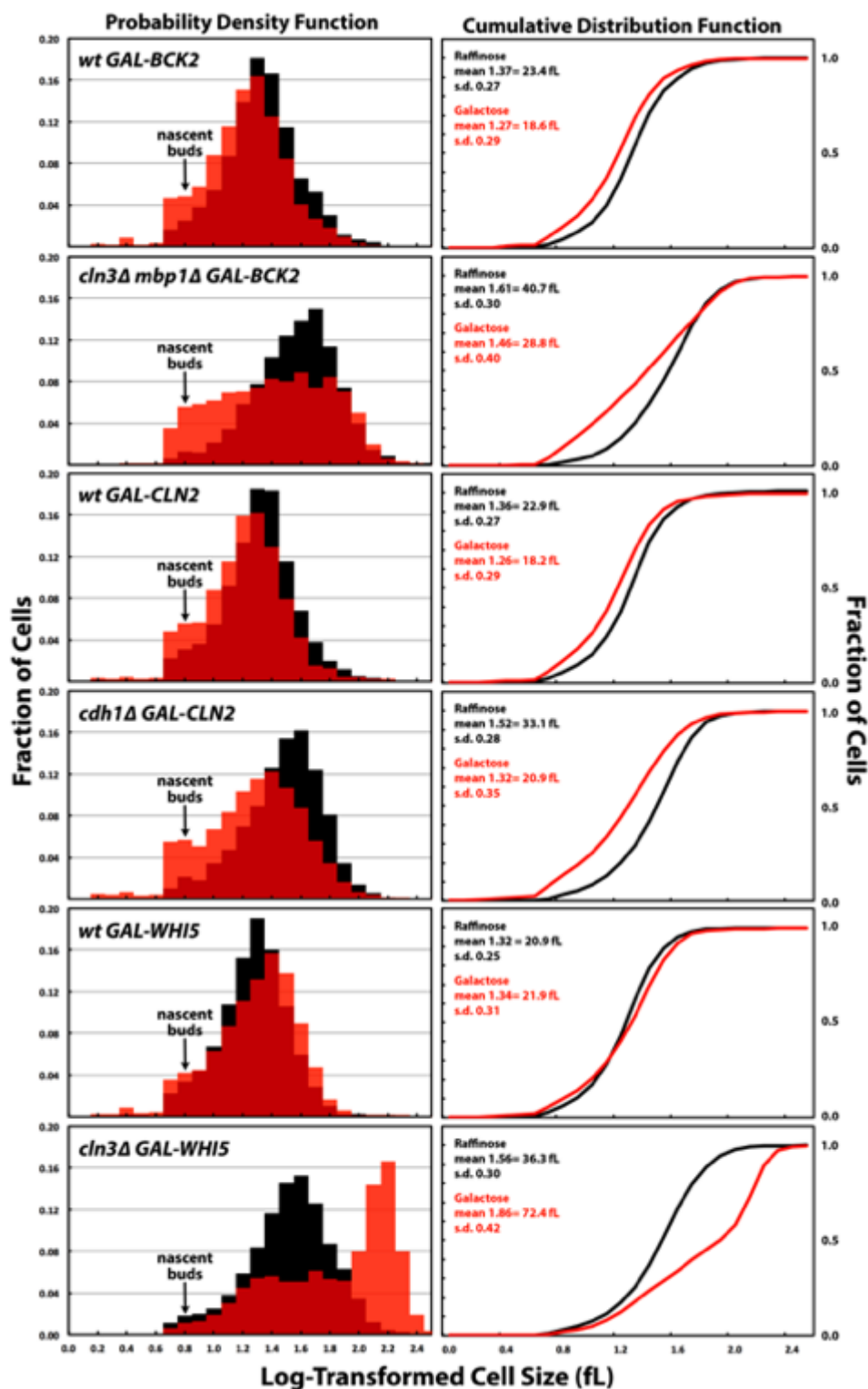


Figure S6. Cell size distributions in representative over-expression strains using log-transformed data from live-cell microscopy experiments. Black = grown in raffinose. Red = induced in galactose.

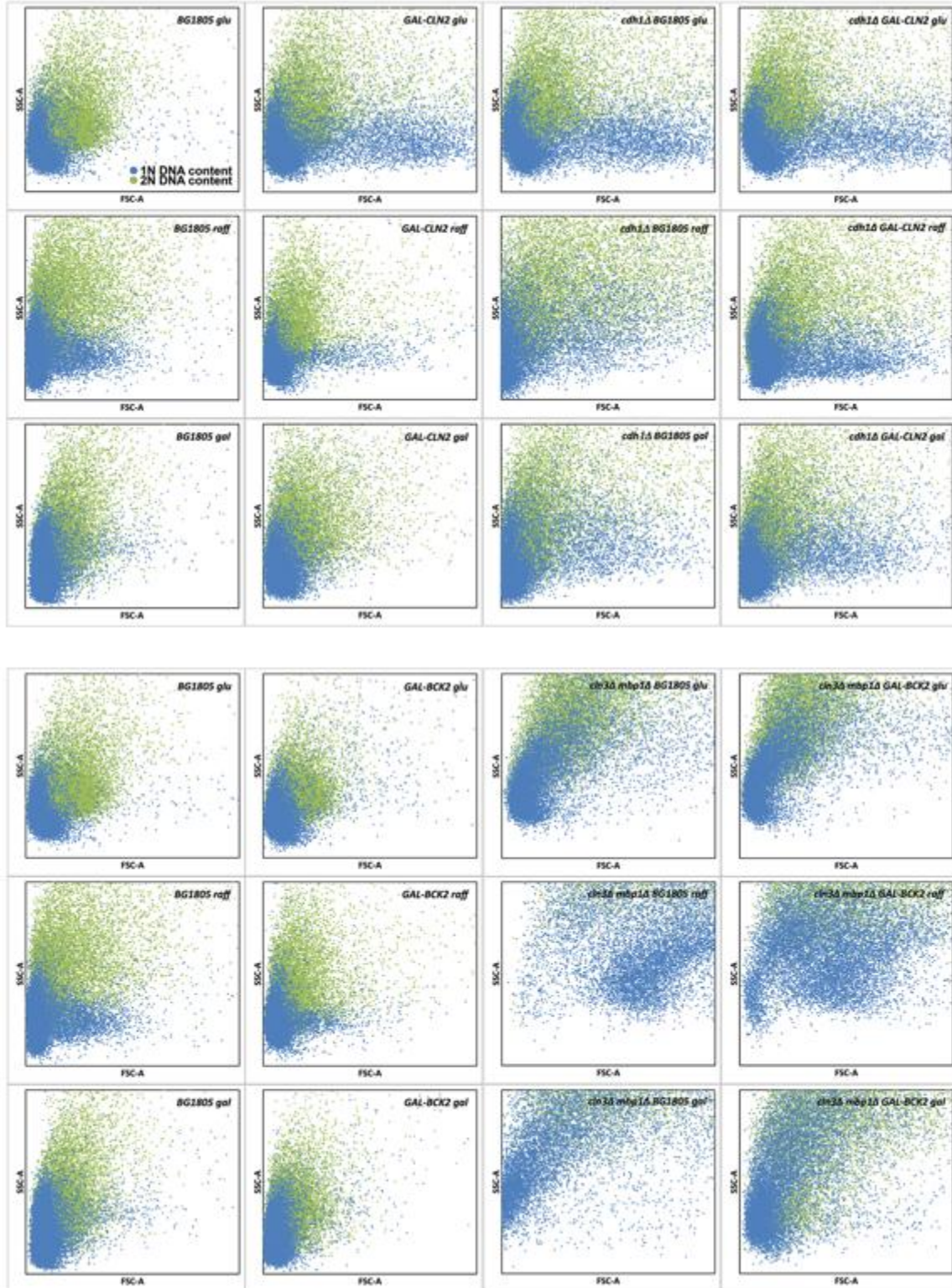


Figure S7. Forward-scatter and side-scatter dot plots of *GAL1pr-CLN2* (top) and *GAL1pr-BCK2* (bottom) strains from flow cytometry analysis. Blue, cells with 1N DNA. Green, cells with 2N DNA. Larger, more complex cells scatter more light and appear in the upper right of these plots.

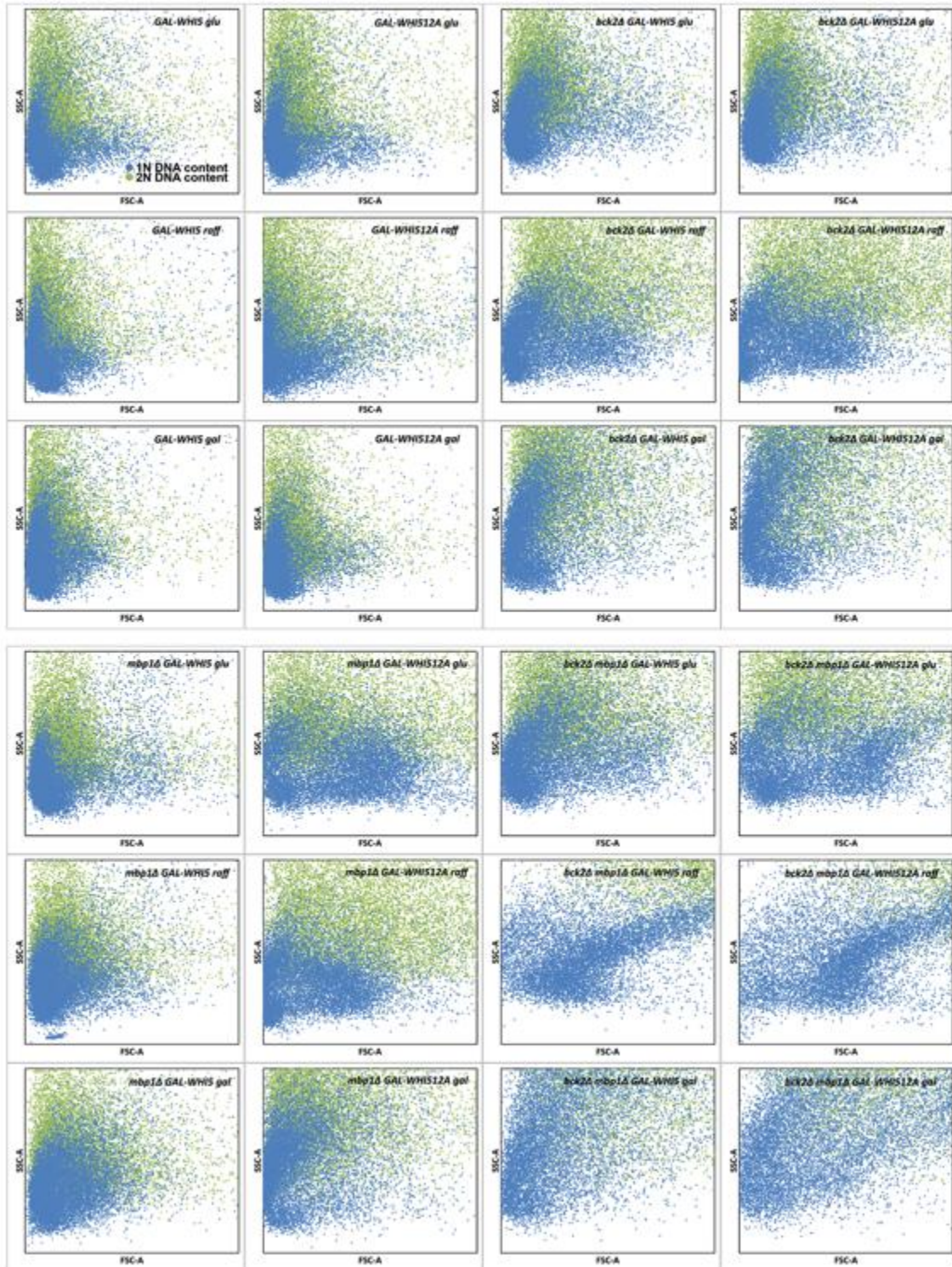


Figure S8. Forward-scatter and side-scatter dot plots of *bck2Δ* and *mbp1Δ* *GAL1pr-WHIS* and *GAL1pr-WHIS^{12A}* strains from flow cytometry analysis. Blue, cells with 1N DNA. Green, cells with 2N DNA.

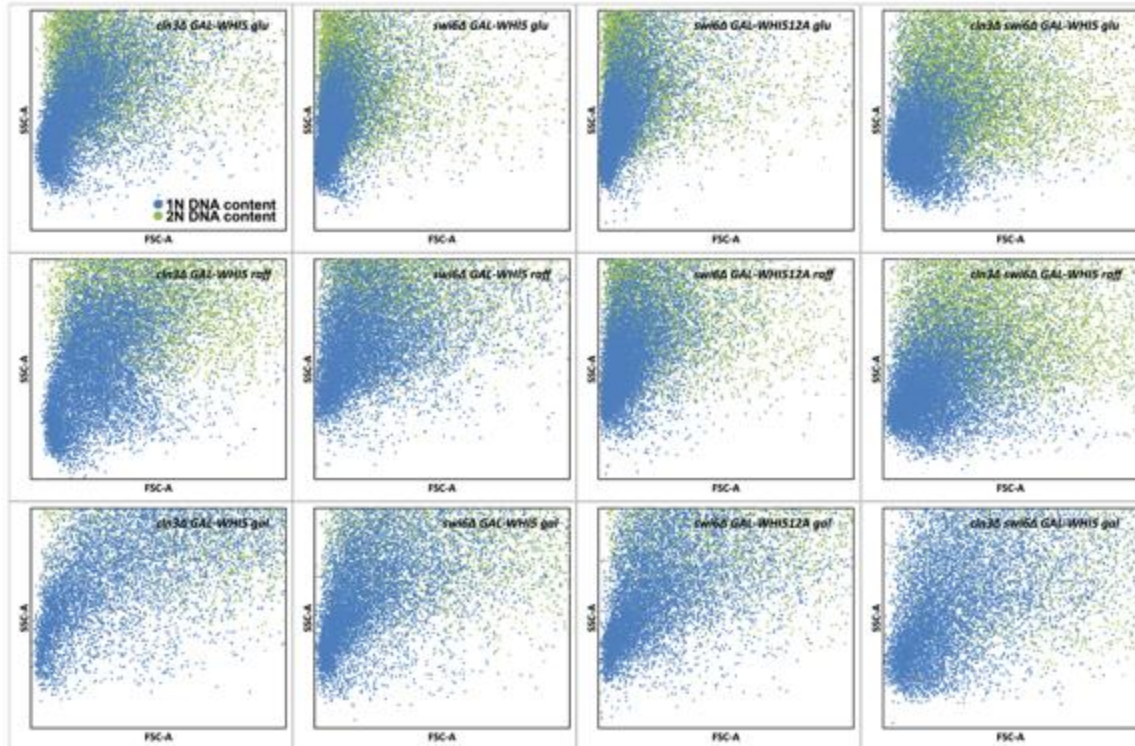


Figure S9. Forward-scatter and side-scatter dot plots of *cln3Δ* and *swi6Δ* *GAL1pr-WHIS* and *GAL1pr-WHIS^{12A}* strains from flow cytometry analysis. Blue, cells with 1N DNA. Green, cells with 2N DNA.

Supplemental Movies

Movies are from live-cell imaging of cell cycle mutants grown in raffinose and loaded into an CellASIC Onix microfluidic platform. Cells are perfused and maintained under selection with synthetic medium plus 2% raffinose and allowed to double in number before perfusing them with 2% raffinose/2% galactose. Because we use GenoSIGHT (Ball et al., 2014) to control the acquisition and perfusion conditions, the time intervals between frames increase in length as the cell segmentation and tracking algorithms take longer with increasing numbers of cells. Therefore, we have not time-stamped the movies. However the movie frames in which are perfused with galactose are indicated in the upper right of each movie. We also give timing information specific to each movie in their descriptions below.

Movie 1 – wt raff-gal

Phase-contrast movie of wild-type cells (JPY1017) carrying an empty BG1805 plasmid (pJP6612) grown in raffinose and then switched to galactose. Cells were grown in raffinose for 176 min and then grown in galactose for 253 min.

Movie 2 – *GAL1pr-CLN2* raff-gal

Phase-contrast movie of wild-type cells (JPY1020) carrying a *GAL1pr-CLN2* plasmid (pJP6600) grown in raffinose and then switched to galactose. Cells were grown in raffinose for 281 min and then grown in galactose for 400 min.

Movie 3 – *cln3 mbp1 GAL1pr-BCK2 raff-gal*

Phase-contrast movie of *cln3Δ mbp1Δ* cells (JPY1451) carrying a *GAL1pr-BCK2* plasmid (pJP6596) grown in raffinose and then switched to galactose. Cells were grown in raffinose for 202 min and then grown in galactose for 306 min.

Movie 4 – *swi6 GAL1pr-WHI5 raff-gal*

Phase-contrast movie of *swi6Δ* cells (JPY1054) carrying a *GAL1pr-WHI5* plasmid (pMT3445) grown in raffinose and then switched to galactose. Cells were grown in raffinose for 152 min and then grown in galactose for 602 min.

Movie 5 – *cln3 GAL1pr-WHI5 raff-gal*

Phase-contrast movie of *cln3Δ* cells (JPY1812) carrying a *GAL1pr-WHI5* plasmid (pMT3445) grown in raffinose and then switched to galactose. Cells were grown in raffinose for 366 min and then grown in galactose for 740 min.

Movie 6 – *cln3 swi6 GAL1pr-WHI5 raff-gal*

















Phase-contrast movie of *cln3Δ swi6Δ* cells (JPY1582) carrying a *GAL1pr-WHI5* plasmid (pMT3445) grown in raffinose and then switched to galactose. Cells were grown in raffinose for 186 min and then grown in galactose for 712 min.




















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














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







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Supplementary Table S2. Model Equations




















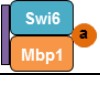
| Icons | Variable | User defined functions: |
|---|----------|--|
| | | $BB(Va, Vi, Ja, Ji) = Vi - Va + Ja*Vi + Ji*Va$ |
| | | $GK(Va, Vi, Ja, Ji) = (2.0*Ji*Va) / (BB(Va, Vi, Ja, Ji) + \sqrt{BB(Va, Vi, Ja, Ji)^2.0 - 4.0*(Vi-Va)*Ji*Va})$ |
| | | GK behaves like a step function, $GK=[0,1]$, and $GK=0.5$ when $Va=Vi$. The sharpness of the transition depends on the values of J 's (the curve is sharper for smaller J). |
| | | Equations for growth: |
|  | Mass | $dMASS/dt = \mu*MASS*(1.0-MASS/MAXMASS)$ $\mu = \ln(2.0) / mdt$ |
| | | Equations governing cyclin-dependent CLN2, CLB5 and CLB2 kinases: |
|  | CLN2 | $dCLN2/dt = (ksn2'+ksn2''*SBFact+ksn2'''*MBFact) - kdn2*CLN2$ |
|  | CLB5 | $dCLB5/dt = (ksb5'+ksb5''*SBFact+ksb5'''*MBFact)*MASS + (kd3c1*C5P+kdib5*C5) + (kd3f6*F5P+kdif5*F5) - (Vdb5+kasb5*SIC1+kasf5*CDC6)*CLB5$ $Vdb5 = kdb5' + kdb5''*CDC20, \quad CLB5T = CLB5 + C5 + F5 + C5P + F5P$ |
|  | CLB2 | $dCLB2/dt = (ksb2'+ksb2''*MCM1)*MASS + (kd3c1*C2P+kdib2*C2) + (kd3f6*F2P+kdif2*F2) - (Vdb2+kasb2*SIC1+kasf2*CDC6)*CLB2$ |
|  | MCM1 | $MCM1 = GK(kamcm*CLB2, kimcm, Jamcm, Jimcm)$ $Vdb2 = kdb2' + kdb2''*CDH1 + kdb2'''*CDC20, \quad CLB2T = CLB2 + C2 + F2 + C2P + F2P$ |
| | | Equations governing CLN3 and BCK2: |
|  | CLN3 | $CLN3 = \text{if } (CLN3T == 0.0) \text{ then } (0.0)$ $\text{else } (CLN3T*MASS*GK(Vacln3, SSA1, Jacln3*CLN3T, Jicln3*CLN3T))$ |
|  | BCK2 | $BCK2 = \text{if } (BCK2T == 0.0) \text{ then } (0.0)$ $\text{else } (BCK2T*MASS*GK(Vacln3, SSA1, Jabck2*BCK2T, Jibck2*BCK2T))$ $Vacln3 = kgccln3*YDJ1; \quad CLN310x = 10.0*CLN3 \text{ (for plotting purpose)}$ |
|  | Ydj1 | $YDJ1 = kydj1*MASS$ |
|  | Ssa1 | $SSA1 = (kssa0+kssab2*CLB2+kssaw5*SWI5)*(90.0/ mdt)$ |
| | | Equations governing the inhibitors of Clb-dependent kinases, Sic1 and Cdc6: |
|  | Sic1 | $dSIC1/dt = (ksc1'+ksc1''*SWI5) - kdc1*SIC1 + (Vdb2+kdib2)*C2 + (Vdb5+kdib5)*C5 + Vppc1*SIC1P - (kasb2*CLB2+kasb5*CLB5+Vkpc1)*SIC1$ $Vppc1 = kppc1*CDC14, \quad Vkpc1 = kd1c1 + (Vd2c1)/(Jd2c1+SIC1+C2+C5)$ $Vd2c1 = kd2c1*(ec1n3*CLN3+ec1k2*BCK2+ec1n2*CLN2+ec1b5*CLB5+ec1b2*CLB2)$ |
|  | Sic1P | $dSIC1P/dt = Vkpc1*SIC1 + Vdb2*C2P + Vdb5*C5P - (Vppc1+kd3c1)*SIC1P$ |
|  | C2 | $dC2/dt = kasb2*CLB2*SIC1 + Vppc1*C2P - (kdib2+Vdb2+Vkpc1)*C2$ |
|  | C5 | $dC5/dt = kasb5*CLB5*SIC1 + Vppc1*C5P - (kdib5+Vdb5+Vkpc1)*C5$ |
|  | C2P | $dC2P/dt = Vkpc1*C2 - (Vppc1+kd3c1+Vdb2)*C2P$ |
|  | C5P | $dC5P/dt = Vkpc1*C5 - (Vppc1+kd3c1+Vdb5)*C5P$ |
| | | $SIC1T = SIC1 + C2 + C5 + SIC1P + C2P + C5P$ |
|  | Cdc6 | $dCDC6/dt = (ksf6'+ksf6''*SWI5+ksf6'''*SBFact) + (Vdb2+kdif2)*F2 + (Vdb5+kdif5)*F5 + Vppf6*CDC6P - (kdf6+kasf2*CLB2+kasf5*CLB5+Vkpf6)*CDC6$ $Vppf6 = kppf6*CDC14, \quad Vkpf6 = kd1f6 + (Vd2f6)/(Jd2f6+CDC6+F2+F5)$ |

| | | |
|---|--------|---|
| | | $Vd2f6 = kd2f6*(ef6n3*CLN3+ef6k2*BCK2+ef6n2*CLN2+ef6b5*CLB5+ef6b2*CLB2)$ |
|  | Cdc6P | $dCDC6P/dt = Vkpf6*CDC6 + Vdb2*F2P + Vdb5*F5P - (Vppf6+kd3f6)*CDC6P$ |
|  | F2 | $dF2/dt = kasf2*CLB2*CDC6 + Vppf6*F2P - (kdif2+Vkpf6+Vdb2)*F2$ |
|  | F5 | $dF5/dt = kasf5*CLB5*CDC6 + Vppf6*F5P - (kdif5+Vkpf6+Vdb5)*F5$ |
|  | F2P | $dF2P/dt = Vkpf6*F2 - (Vppf6+kd3f6+Vdb2)*F2P$ |
|  | F5P | $dF5P/dt = Vkpf6*F5 - (Vppf6+kd3f6+Vdb5)*F5P$ |
| | | $CDC6T = CDC6 + F2 + F5 + CDC6P + F2P + F5P, \quad CKIT = SIC1T + CDC6T$ |
|  | Swi5 | $dSWI5/dt = (ksswi'+ksswi''*MCM1) + kaswi*CDC14*SWI5P - (kdswi+kiswi*CLB2)*SWI5$ |
|  | Swi5P | $dSWI5P/dt = kiswi*CLB2*SWI5 - (kaswi*CDC14+kdswi)*SWI5P$ |
| | | Equations regarding Cdc20 regulation: |
|  | IEP | $dIEP/dt = (Vaiep*IE)/(Jaiep+IE) - (kiiep*IEP)/(Jiiep+IEP)$ |
|  | IE | $dIE/dt = -dIEP/dt = (kiiep*IEP)/(Jiiep+IEP) - (Vaiep*IE)/(Jaiep+IE)$ |
| | | $Vaiep = kaiep*CLB2, \quad IET = IEP + IE$ |
|  | Cdc20i | $dCDC20i/dt = (ks20'+ks20''*MCM1) + MAD2*CDC20 - (Vd20+ka20'+ka20''*IEP)*CDC20i$ |
|  | Cdc20 | $dCDC20/dt = (ka20'+ka20''*IEP)*CDC20i - (Vd20+MAD2)*CDC20$ |
| | | $Vd20 = kd20 + kd20'*CDH1$ |
|  | Mad2 | MAD2=mad2l for SACOFF=1 or mad2h otherwise. That is, MAD2=mad2h when ORI is first relicensed, and then ORI>1. MAD2=mad2l when DNA is fully replicated (allow 20 min for replication) and SPN>1. |
| | | Equations for Cdh1 regulation: |
|  | Cdh1 | $dCDH1/dt = kscdh + (Vacdh*CDH1i)/(Jacdh+CDH1i) - kcdh*CDH1 - (Vicdh*CDH1)/(Jicdh+CDH1)$ |
|  | Cdh1i | $dCDH1i/dt = (Vicdh*CDH1)/(Jicdh+CDH1) - (Vacdh*CDH1i)/(Jacdh+CDH1i) - kcdh*CDH1i$ |
| | | $Vacdh = kacdh' + kacdh''*CDC14$ |
| | | $Vicdh = kicdh' + kicdh''*(eicdhn3*CLN3+eicdhn2*CLN2+eicdhn5*CLB5+eicdhn2*CLB2)$ |
| | | Equations for Cdc14 regulation: |
|  | Cdc14 | $dCDC14/dt = ks14 + kdirent*RENT + kdirentp*RENTP + kdnet*(RENT+RENTP) - (kd14+kasrent*NET1+kasrentp*NET1P)*CDC14$ |
|  | Net1 | $dNET1/dt = ksnet + kdirent*RENT + kd14*RENT + Vppnet*NET1P - (kdnet+Vkpnnet*NET1+kasrent*CDC14)*NET1$ |
| | | $Vkpnnet = kpnet' + kpnet''*CDC15$ |
| | | $Vppnet = kppnet' + kppnet''*PP2A$ |
|  | PP2A | $PP2A = PP2AT*(1.0+ki*kpp*ESP1)/(1.0+ki*ESP1)$ |
|  | RENT | $dRENT/dt = kasrent*CDC14*NET1 + Vppnet*RENTP - (kd14+kdnet+kdirent+Vkpnnet)*RENT$ |
|  | Net1P | $dNET1P/dt = Vkpnnet*NET1 + (kdirentp+kd14)*RENTP - (Vppnet+kdnet+kasrentp*CDC14)*NET1P$ |

| | | |
|---|---------|---|
|  | RENTP | $dRENTP/dt = kasrentp * CDC14 * NET1P + Vkpnet * RENT$ $- (kdisrentp + Vppnet + kdnet + kd14) * RENTP$ |
| | | $CDC14T = CDC14 + RENT + RENTP, \quad NET1T = NET1 + NET1P + RENT + RENTP$ |
| | | Equations for Pds1 and Esp1 regulation: |
|  | Pds1 | $dPDS1/dt = kspds' + kdiesp * PE - (Vdpds + kasesp * ESP1) * PDS1$ |
|  | Esp1 | $dESP1/dt = (kdiesp + Vdpds) * PE - kasesp * PDS1 * ESP1$ |
|  | PE | $dPE/dt = kasesp * PDS1 * ESP1 - (kdiesp + Vdpds) * PE$ |
| | | $Vdpds = kdpds' + kdpds''' * CDC20 + kdpds''' * CDH1$ |
| | | $ESP1T = ESP1 + PE, \quad ESP1act = eesp1 * ESP1$ |
| | | Equations for regulation of the MEN pathway: |
|  | Tem1GTP | $dTEM1GTP/dt = (LTE1 * TEM1GDP) / (Jatem + TEM1GDP)$ $- (BUB2 * TEM1GTP) / (Jitem + TEM1GTP)$ |
|  | Tem1GDP | $dTEM1GDP/dt = - dTEM1GTP/dt = (BUB2 * TEM1GTP) / (Jitem + TEM1GTP)$ $- (LTE1 * TEM1GDP) / (Jatem + TEM1GDP)$ |
|  | Cdc15 | $dCDC15/dt = (ka15' * TEM1GDP + ka15'' * TEM1GTP + ka15''' * CDC14) * CDC15i$ $- ki15 * CDC15$ |
|  | Cdc15i | $dCDC15i/dt = - dCDC15/dt$ $= ki15 * CDC15 - (ka15' * TEM1GDP + ka15'' * TEM1GTP + ka15''' * CDC14) * CDC15i$ |
|  | Lte1 | $LTE1 = lte1h$ (for $SPN > 1$ and $Clb2 > Kez$) or $lte1l$ (otherwise) |
|  | Bub2 | $BUB2 = bub2h$ (for $ORI > 1$ and $SPN < 1$) or $bub2l$ (otherwise) |
| | | $TEM1T = TEM1GDP + TEM1GTP, \quad CDC15T = CDC15 + CDC15i$ |
| | | Equations for phosphorylation/dephosphorylation of SBF components: |
| | | $Vpn = epn3 * CLN3 + epn2 * CLN2 + epb5 * CLB5 + epk2 * BCK2$ |
| | | $Vpcln = Vpnmax * (Vpn^N) / (Jpn^N + Vpn^N), \quad Vppcln = kppcln + kppcln' * CDC14$ |
| | | $Vpclb = kp' + kp'' * CLB2, \quad Vpp14 = kpp14 * CDC14$ |
| | | $Vpclb26 = kp' + kp'' * CLB2 + epb5q * CLB5, \quad Vppase = PPase$ |
| | | Equations for SBF components, monomeric forms: |
|  | Swi4 | $dSWI4/dt = Vpp14 * SWI4P + kdi46 * (SBFF + SBFF6P + SBFF6PQ) + kdbs4 * SWI4F$ $+ kimp * SWI4C * (\text{cytoplasm/nucleus}) - kas46 * (SWI6 + SWI6P + SWI6PQ) * SWI4$ $- (ksbs4 * BCK2 + ef4p * Vpclb) * SWI4$ |
|  | Swi6 | $dSWI6/dt = Vppcln * SWI6P + kdi46 * (SBFF + SBFF4P) + kdimbf * MBFF$ $+ kimp * SWI6C * (\text{cytoplasm/nucleus}) - kas46 * (SWI4 + SWI4P) * SWI6$ $- (kasmbf * MBP1 + ef6p * Vpcln) * SWI6$ |
|  | Whi5 | $dWHI5/dt = kdiws * (WSF + WSB + WSF6P + WSF6PQ) + kdiw4 * W4B + kdiwm * WMB$ $+ Vppcln * WHI5PN + kimp * WHI5C * (\text{cytoplasm/nucleus})$ $- (kasw4 * SWI4B + ef5p * Vpclnw + kaswm * MBFa) * WHI5$ $- kasws * (SBFF + SBFB + SBFF6P + SFF6PQ) * WHI5$ |
|  | Prom2 | $dPROM2/dt = kdiprom * (SBFB + WSB + SWI4B) + Vpclb * SWI4B$ $+ ef4p * Vpclb * (SBFB + SBFB6P + SBFB6PQ + WSB + WSB5P + WSB6P + WSB6PQ)$ $- kasprom * (SBFF + WSF + SWI4F) * PROM2$ |
|  | Swi4P | $dSWI4P/dt = + kdi46 * (SBFF4P + SBFF46P + SBFF46PQ) + Vpclb * SWI4B$ |

| | | |
|---|----------|---|
| | | + ef4p*Vpclb*SWI4 – kas46*(SWI6+SWI6P+SWI6PQ)*SWI4P – Vpp14*SWI4P |
|  | Swi4PC | dSWI4PC/dt = MSN5*(SBFF46PQ+WSF46PQ+WSF45P)*(nucleus/cytoplasm) – Vppase*SWI4PC |
|  | Swi4C | dSWI4C/dt = MSN5*(SBFF6PQ+WSF6PQ)*(nucleus/cytoplasm) + Vppase*SWI4PC – kimp*SWI4C |
|  | Swi6P | dSWI6P/dt = ef6p*Vpcln*SWI6 + Vpp14*SWI6PQ + kdi46*(SBFF6P+SBFF46P) – Vppcln*(SWI6P+ef6q*Vpclb26)*SWI6P – kas46*(SWI4+SWI4P)*SWI6P |
|  | Swi6PQ | dSWI6PQ/dt = ef6q*Vpclb26*SWI6P + kdi46*(SBFF6PQ+SBFF46PQ) – (kas46*SWI4+kas46*SWI4P+Vpp14)*SWI6PQ |
|  | Swi6PQC | dSWI6PQC/dt = – Vppase*SWI6PQC + MSN5*(SBFF6PQ+SBFF46PQ+WSF6PQ+WSF46PQ)*(nucleus/cytoplasm) |
|  | Swi6QC | dSWI6QC/dt = Vppase*SWI6PQC – Vpp14*SWI6QC |
|  | Swi6C | dSWI6C/dt = MSN5*WSF45P*(nucleus/cytoplasm) + Vpp14*SWI6QC – kimp*SWI6C |
|  | Whi5PN | dWHI5PN/dt = ef5p*(Vpclnw*W4B+Vpclnw*WHI5+Vpclnw*WMB) + kdiwp*(WSF5P+WSF56P+WSB56P) – (MSN5+Vppcln)*WHI5PN |
|  | Whi5PC | dWHI5PC/dt = MSN5*(WHI5PN+WSF45P)*(nucleus/cytoplasm) – Vpp14*WHI5PC |
|  | Whi5C | dWHI5C/dt = MSN5*(WSF6PQ+WSF46PQ)*(nucleus/cytoplasm) + Vpp14*WHI5PC – kimp*WHI5C |
| | | SBF free forms (not bound to promoters): |
|  | SBFF | dSBFF/dt = kas46*SWI4*SWI6 + kdiws*WSF + kdiprom*SBFB + kdiwp*WSF5P + Vppcln*SBFF6P + Vpp14*SBFF4P – (kdi46+kasws*WHI5+kasprom*PROM2+ef6p*Vpcln+ef4p*Vpclb)*SBFF |
|  | SBFF6P | dSBFF6P/dt = kas46*SWI4*SWI6P + ef6p*Vpcln*SBFF + kdiwp*WSF56P + kdiws*WSF6P + Vpp14*(SBFF6PQ+SBFF46P) – (Vppcln + ef6q*Vpclb26 + ef4p*Vpclb + kasws*WHI5 + kdi46)*SBFF6P |
|  | SBFF6PQ | dSBFF6PQ/dt = ef6q*Vpclb26*SBFF6P + kas46*SWI4*SWI6PQ + kdiws*WSF6PQ + Vpp14*SBFF46PQ – (Vpp14+kdi46+kasws*WHI5+ef4p*Vpclb+MSN)*SBFF6PQ |
|  | SBFF4P | dSBFF4P/dt = kas46*SWI4P*SWI6 + Vppcln*SBFF46P + ef4p*Vpclb*(SBFF+SBFB) – (kdi46+Vpp14+ef6p*Vpcln)*SBFF4P |
|  | SBFF46P | dSBFF46P/dt = kas46*SWI4P*SWI6P + ef4p*Vpclb*SBFF6P + Vpp14*SBFF46PQ + ef4p*Vpclb*SBFB6P + ef6p*Vpcln*SBFF4P – (kdi46+Vpp14+Vppcln+ef6q*Vpclb26)*SBFF46P |
|  | SBFF46PQ | dSBFF46PQ/dt = kas46*SWI4P*SWI6PQ + ef4p*Vpclb*(SBFF6PQ+SBFB6PQ) + ef6q*Vpclb26*SBFF46P – (kdi46+2*Vpp14+MSN5)*SBFF46PQ |
| | | SBF promoter-bound (active) forms: |

| | | |
|---|---------|--|
|  | SBFB | $dSBFB/dt = kasprom*SBFF *PROM2 + kdiws*WSB + Vppcln * SBFB6P$ – $(kdiprom +kasws*WHI5+ef6p*Vpcln+ef4p*Vpclb)*SBFB$ |
|  | SBFB6P | $dSBFB6P/dt = ef6p*Vpcln*SBFB + kdiwp*WSB56P + Vpp14*SBFB6PQ$ – $(Vppcln+ef6q*Vpclb26+ef4p*Vpclb)*SBFB6P$ |
|  | SBFB6PQ | $dSBFB6PQ/dt = ef6q*Vpclb26*SBFB6P - (Vpp14+ ef4p*Vpclb)*SBFB6PQ$ |
| | | SBF/Whi5 complex, not bound to promoters: |
| | | $Vpnw = epn3w*CLN3 + epn2w*CLN2 + epb5w*CLB5 + epk2w*BCK2$ |
| | | $Vpclnw = Vnmaxw*(Vpnw^N)/(Jpn^N+Vpnw^N)$ |
|  | WSF | $dWSF/dt = kasws*WHI5*SBFF + kdiprom*WSB$ + $Vpp14*WSF4P + Vppcln*(WSF5P+WSF6P)$ – $(kasprom*PROM2+kdiws+ef4p*Vpclb+ef5p*Vpclnw+ef6p*Vpcln)*WSF$ |
|  | WSF5P | $dWSF5P/dt = ef5p*Vpclnw*WSF - (Vppcln+kdiwp)*WSF5P$ |
|  | WSF6P | $dWSF6P/dt = ef6p*Vpcln*WSF + Vpp14*(WSF6PQ+WSF46P) + kasws*WHI5*SBFF6P$ – $(kdiws+Vppcln+ef4p*Vpclb+ef5p*Vpclnw+ef6q*Vpclb26)*WSF6P$ |
|  | WSF6PQ | $dWSF6PQ/dt = ef6q*Vpclb26*WSF6P + kasws*WHI5*SBFF6PQ + Vpp14*WSF46PQ$ – $(kdiws+ef4p*Vpclb+Vpp14+MSN5)*WSF6PQ$ |
|  | WSF4P | $dWSF4P/dt = ef4p*Vpclb*WSF + Vppcln*WSF46P + ef4p*Vpclb*WSB$ – $(ef6p*Vpcln+ef5p*Vpclnw+Vpp14)*WSF4P$ |
|  | WSF45P | $dWSF45P/dt = ef4p*Vpclb*WSB5P + ef5p*Vpclnw*WSF4P - MSN5*WSF45P$ |
|  | WSF46P | $dWSF46P/dt = ef4p*Vpclb*(WSF6P+WSB6P) + ef6p*Vpcln*WSF4P$ + $Vpp14*WSF46PQ - (Vpp14+Vppcln+ef6q*Vpclb26)*WSF46P$ |
|  | WSF46PQ | $dWSF46PQ/dt = ef4p*Vpclb*WSF6PQ + ef6q*Vpclb26*WSF46P$ + $ef4p*Vpclb*WSB6PQ - (2*Vpp14+MSN5)*WSF46PQ$ |
|  | WSF56P | $dWSF56P/dt = ef5p*Vpclnw*WSF6P - kdiwp*WSF56P$ |
| | | SBF/Whi5 complexes, promoter-bound: |
|  | WSB | $dWSB/dt = kasprom*WSF*PROM2 + kasws*WHI5*SBFB + Vppcln*(WSB5P+WSB6P)$ – $(kdiws+kdiprom+ef4p*Vpclb+ef5p*Vpclnw+ef6p*Vpcln)*WSB$ |
|  | WSB5P | $dWSB5P/dt = ef5p*Vpclnw*WSB + Vppcln*WSB56P$ – $(Vppcln+ef4p*Vpclb+ef6p*Vpcln)*WSB5P$ |
|  | WSB6P | $dWSB6P/dt = ef6p*Vpcln*WSB + Vppcln*WSB56P + Vpp14*WSB6PQ$ – $(Vppcln+ef4p*Vpclb +ef5p*Vpclnw+ef6q*Vpclb26)*WSB6P$ |
|  | WSB6PQ | $dWSB6PQ/dt = ef6q*Vpclb26*WSB6P - (Vpp14+ef4p*Vpclb)*WSB6PQ$ |
|  | WSB56P | $dWSB56P/dt = ef6p*Vpcln*WSB5P + ef5p*Vpclnw*WSB6P$ – $(2*Vppcln+kdiwp)*WSB56P$ |
| | | Bck2 activated Swi4-only-SBF: |
|  | SWI4F | $dSWI4F/dt = ksbs4*BCK2*SWI4 + kdiprom*SWI4B$ – $(kasprom*PROM2 +kds4)*SWI4F$ |

| | | |
|---|---|---|
|  | SWI4B | $dSWI4B/dt = kasprom*SWI4F*PROM2 + (kdiw4+ef5p*Vpclnw)*W4B - (kdiprom+kasw4*WHI5+Vpclb)*SWI4B$ |
|  | W4B | $dW4B/dt = kasw4*SWI4B*WHI5 - (kdiw4+ef5p*Vpclnw)*W4B$ |
| Activities of various promoter-bound SBF forms: | | |
|  | | $SBFa1 = kasbf1*SBFB$ |
|  |  | $SBFa3 = kasbf3*(SBFB6P+SBFB6PQ)$ |
|  |  | $SBFa4 = kasbf4*(WSB6P+WSB6PQ)$ |
|  | | $SBFa5 = kasbf5*WSB5P$ |
|  | | $SBFa6 = kasbf6*SWI4B$ |
| | SBFact | $SBFact = kasbf1*SBFB + kasbf3*(SBFB6P+SBFB6PQ) + kasbf4*(WSB6P+WSB6PQ) + kasbf5*WSB5P + kasbf6*SWI4B$ |
| Equations for MBF regulation: | | |
| | | $Vpnm = epn3m*CLN3 + epn2m*CLN2 + epb5m*CLB5 + epk2m*BCK2$ |
| | | $Vpclnm = Vpmaxm*(Vpnm^N)/(Jpn^N+Vpnm^N)$ |
|  | MBP1 | $dMBP1/dt = kdmbf*MBFF - kasmbf*MBP1*SWI6$ |
|  | Promo5 | $dPROM5/dt = kdiprom*MBFi - kasprom*MBFF*PROM5$ |
|  | Nrm1 | $dNRM1/dt = ksnrm1^1*MBFact - kdnrm1*NRM1$ |
| MBF free form, not promoter bound | | |
|  | MBFF | $dMBFF/dt = kasmbf*MBP1*SWI6 + kdiprom*MBFi - (kdmbf+kasprom*PROM5)*MBFF$ |
| MBF promoter bound forms: | | |
|  | MBFi | $dMBFi/dt = kasprom*MBFF*PROM5 + (Vppcln*MBFa) - (kdiprom+Vpclnm)*MBFi$ |
|  | MBFa | $dMBFa/dt = Vpclnm*MBFi + kmbf10*MBFp + (kdiwm+ef5p*Vpclnw)*WMB + kmbf20*MBFo - (Vppcln+kimbfo1*CLB2+kimbfo2*NRM1+kaswm*WHI5)*MBFa$ |
|  | MBFo | $dMBFo/dt = kimbfo2*NRM1*MBFa + kmbf10*MBFpo - (kmbf20+kimbfo1*CLB2)*MBFo$ |
|  | MBFp | $dMBFp/dt = kimbfo1*CLB2*MBFa + kmbf20*MBFpo - (kmbf10+kimbfo2*NRM1)*MBFp$ |
|  | MBFpo | $dMBFpo/dt = kimbfo1*CLB2*MBFo + kimbfo2*NRM1*MBFp - (kmbf10+kmbf20)*MBFpo$ |
|  | WMB | $dWMB/dt = kaswm*MBFa*WHI5 - (kdiwm+ef5p*Vpclnw)*WMB$ |
| Activity of MBF complexes: | | |
|  | | $MBFact = MBFa$ |

| | | |
|--------------------------|-----------|---|
| | | Total SBF and MBF components (conserved throughout the cell cycle): |
| | Swi4T | SWI4T = SWI4 + SWI4P + SBFF + SBFF6P + SBFF6PQ + SBFF4P + SBFF46P + SBFF46PQ + SBFB + SBFB6P + SBFB6PQ + WSF + WSF6P + WSF6PQ + WSF5P + WSF56P + WSF4P + WSF46P + WSF46PQ + WSF45P + WSB + WSB6P + WSB6PQ + WSB5P + WSB56P + SWI4F + SWI4B + W4B + 4.0*SWI4PC + 4.0*SWI4C |
| | Swi6T | SWI6T = SWI6 + SWI6P + SWI6PQ + SBFF + SBFF6P + SBFF6PQ + SBFF4P + SBFF46P + SBFF46PQ + SBFB + SBFB6P + SBFB6PQ + WSF + WSF6P + WSF6PQ + WSF5P + WSF56P + WSF4P + WSF46P + WSF46PQ + WSF45P + WSB + WSB6P + WSB6PQ + WSB5P + WSB56P + MBFF + MBFi + MBFa + MBFp + MBFo + MBFpo + WMB + 4.0*SWI6PQC + 4.0*SWI6QC + 4.0*SWI6C |
| | MBP1T | MBP1T = MBP1 + MBFF + MBFi + MBFa + MBFp + MBFo + MBFpo + WMB |
| | Whi5T | WHI5T = WHI5 + WHI5PN + WSF + WSF5P + WSF6P + WSF6PQ + WSF4P + WSF45P + WSF46P + WSF46PQ + WSF56P + WSB + WSB6P + WSB6PQ + WSB5P + WSB56P + W4B + WMB + 4.0*WHI5PC + 4.0*WHI5C |
| | Prom2T | PROM2T = PROM2 + SBFB + SBFB6P + SBFB6PQ + WSB + WSB6P + WSB6PQ + WSB5P + WSB56P + SWI4B + W4B |
| | Prom5T | PROM5T = PROM5 + MBFi + MBFa + MBFp + MBFo + MBFpo + WMB |
| | | Nuclear and cytoplasmic fractions of Swi4, Swi6 and Whi5: |
| | Swi4nucf | SWI4nucf = if (SWI4T < 1.0E-8) then (0.0) else (SWI4T - 4.0*(SWI4C+SWI4PC)/SWI4T) |
| | Swi6nucf | SWI6nucf = if (SWI6T < 1.0E-8) then (0.0) else (SWI6T - 4.0*(SWI6C+SWI6QC+SWI6PQC)/SWI6T) |
| | Whi5nucf | WHI5nucf = if (WHI5T < 1.0E-8) then (0.0) else (WHI5T - 4.0*(WHI5C+WHI5PC)/WHI5T) |
| | | SWI6CTOT = SWI6C + SWI6QC + SWI6PQC |
| | Whi5cyfcf | WHI5cyfcf = 1.0 - WHI5nucf |
| | | Equations for events during cell cycle progression: |
| <input type="checkbox"/> | ORI | dORI/dt = ksori*(eorib5*CLB5+eorib2*CLB2) - kdori*ORI |
| <input type="checkbox"/> | BUD | dBUD/dt = ksbud*(ebudn2*CLN2+ebudn3*CLN3+ebudb5*CLB5) - kdbud*BUD |
| <input type="checkbox"/> | SPN | dSPN/dt = ksspn*CLB2/(Jspn + CLB2) - kdspn*SPN |
| | | Cell cycle timer: |
| | | dTCYCLE/dt = 1.0 |
| | | Flags for Whi5 nuclear export: |
| | | dTwhi5/dt = 0.0 |
| | | dMwhi5/dt = 0.0 |
| | | global 1 {WHI5cyfcf - 0.5} {Twhi5 = TCYCLE; Mwhi5 = MASS} |
| | | Timing of Whi5 nuclear export is set to the time when Whi5cyfcf is increasing and passing above 0.5. |
| | | Flags for bud emergence: |
| | | dtBUD/dt = 0.0 |
| | | dMBUD/dt = 0.0 |
| | | global 1 {BUD - 1.0} {TBUD = TCYCLE; MBUD = MASS} |
| | | Timing of bud emergence is set to the time when BUD is increasing and passing above 0.5. |
| | | Flags for ori-relicensing: |
| | | dORIFLAG/dt = 0.0 |

| Rules for mitotic exit and birth of daughter cell | | |
|---|------------------------|--|
| | $D = 1.026/\mu - 32.0$ | $F = \exp(-\mu \cdot D)$ $d\text{MASSBIRTH}/dt = 0.0$ |
| | | <p>global -1 {CLB2 - KEZ - 0.0}</p> <p>{ MASS = F*MASS*REPDNA + MASS*(1.0 - REPDNA); LTE1 = lte1l*REPDNA + LTE1*(1.0 - REPDNA); Twhi5 = 0.0 + Twhi5*(1.0 - REPDNA); Mwhi5 = 0.0 + Mwhi5*(1.0 - REPDNA); TBUD = 0.0 + TBUD*(1.0 - REPDNA); MBUD = 0.0 + MBUD*(1.0 - REPDNA); TORI = 1000.0 + TORI*(1.0 - REPDNA); TSPN = 0.0 + TSPN*(1.0 - REPDNA); BUD = 0.0 + BUD*(1.0 - REPDNA); SPN = 0.0 + SPN*(1.0 - REPDNA); TCYCLE = 0.0; SACOFF = 0.0; SPNALIGN = 0.0; REPDNA = 0.0; MASSBIRTH=MASS}</p> |
| | | <p>When Clb2 drops below Kez and DNA is replicated, the mass is divided between daughter and mother cell as follows MASS->F*MASS for daughter, and MASS->(1-F)*MASS for mother, where F is calculated as a function of growth rate according to Lord & Whaels 1980. We reset the cell back to the G1 phase of the cell cycle.</p> |

| Supplementary Table S3. Model Parameters * | | | | | Page 1 |
|--|----------|--------------------------------|-------|-----------------------------|--------|
| Mass | | kdib2 | 0.05 | kdswi | 0.08 |
| mdt | 90.0 min | kasb5 | 30.0 | kaswi | 2.0 |
| MAXMASS | 28.0 | kdib5 | 0.06 | kiswi | 0.1 |
| | | | | | |
| Cln2 | | Cdc6 | | IE | |
| ksn2' | 0.0 | ksf6' | 0.02 | kaiep | 0.1 |
| ksn2'' | 0.38 | ksf6'' | 0.2 | kiiiep | 0.15 |
| ksn2''' | 0.3 | ksf6''' | 0.004 | Jaiep | 0.1 |
| kdn2 | 0.14 | kdf6 | 0.001 | Jiiep | 0.1 |
| | | kd1f6 | 0.01 | | |
| Clb5 | | kd2f6 | 1.0 | Cdc20 | |
| ksb5' | 2.0E-4 | kd3f6 | 1.0 | ks20' | 0.006 |
| ksb5'' | 0.004 | | | ks20'' | 0.6 |
| ksb5''' | 0.0325 | Cdc6/Clb2 and Cdc6/Clb5 | | kd20 | 0.255 |
| kdb5' | 0.015 | kasf2 | 15.0 | kd20' | 0.05 |
| kdb5'' | 0.17 | kdif2 | 0.5 | ka20' | 0.06 |
| | | kasf5 | 0.015 | ka20'' | 0.15 |
| Clb2 | | kdif5 | 0.03 | | |
| ksb2' | 0.006 | | | Checkpoint | |
| ksb2'' | 0.12 | Sic1 Phosphorylation | | mad2h | 8.0 |
| kdb2' | 0.003 | ec1n3 | 0.0 | mad2l | 0.01 |
| kdb2'' | 0.4 | ec1k2 | 0.0 | bub2h | 1.0 |
| kdb2''' | 0.285 | ec1n2 | 0.09 | bub2l | 0.2 |
| | | ec1b5 | 0.23 | lte1h | 1.0 |
| MCM1 | | ec1b2 | 0.4 | lte1l | 0.1 |
| kamcm | 1.0 | Jd2c1 | 0.05 | | |
| kimcm | 0.49 | kppc1 | 4.0 | Cdh1 | |
| Jamcm | 0.1 | | | kscdh | 0.01 |
| Jimcm | 0.1 | Cdc6 Phosphorylation | | kcdh | 0.01 |
| | | ef6n3 | 0.0 | kacdh' | 0.01 |
| Sic1 | | ef6k2 | 0.0 | kacdh'' | 0.55 |
| ksc1_p | 0.0132 | ef6n2 | 0.23 | kicdh' | 0.005 |
| ksc1_pp | 0.132 | ef6b5 | 0.45 | kicdh'' | 0.08 |
| kdc1 | 0.001 | ef6b2 | 1.5 | | |
| kd1c1 | 0.01 | Jd2f6 | 0.05 | Cdh1 Phosphorylation | |
| kd2c1 | 1.0 | kppf6 | 4.0 | eicdhn3 | 0.0 |
| kd3c1 | 1.0 | | | eicdhn2 | 0.22 |
| | | Swi5 | | eicdhn5 | 4.2 |
| Sic1/Clb2 and Sic1/Clb5 | | ksswi' | 0.005 | eicdhn2 | 0.72 |
| kasb2 | 50.0 | ksswi'' | 0.08 | Jacdh | 0.03 |

| Supplementary Table S3. Model Parameters | | | | | Page 2 |
|--|-------|--------------------------------------|-------|-------------------------------|--------|
| Jicdh | 0.032 | kdori | 0.06 | epb5 | 0.072 |
| | | eorib5 | 0.85 | epk2 | 0.6 |
| Cdc14 and Net1 | | eorib2 | 0.45 | N | 5.0 |
| ks14 | 0.22 | DNATIMER | 20.0 | Jpn | 0.4 |
| kd14 | 0.1 | ksbud | 0.22 | Vpnmax | 2.7 |
| ksnet | 0.084 | kdbud | 0.018 | kppcln | 1.0 |
| kdnet | 0.03 | ebudn2 | 0.3 | kppcln' | 0.5 |
| kasrent | 300.0 | ebudn3 | 0.3 | | |
| kdirent | 1.0 | ebudb5 | 0.6 | Cdk p'lation of Whi5 | |
| kasrentp | 1.0 | ksspn | 0.09 | epn3w | 1.0 |
| kdirentp | 1.6 | kdspn | 0.06 | epn2w | 0.08 |
| kpnet' | 0.01 | Jspn | 0.15 | epb5w | 0.075 |
| kpnet'' | 2.4 | | | epk2w | 0.3 |
| kppnet' | 0.05 | Threshold | | Vnmaxw | 3.0 |
| kppnet'' | 2.8 | KEZ2 | 0.2 | | |
| PP2AT | 1.0 | KEZ | 0.3 | Dissociation of WSB56P | |
| ki | 40.0 | | | kdiwp | 15.0 |
| kpp | 0.1 | Swi4/Swi6/Whi5/Prom2 | | | |
| | | kas46 | 30.0 | Clb2 p'lation of Swi4 | |
| Tem1 | | kdi46 | 0.5 | kp' | 0.01 |
| Jatem | 0.1 | kasws | 30.0 | kp'' | 1.0 |
| Jitem | 0.1 | kdiws | 1.0 | | |
| | | kasprom | 50.0 | Clb2 p'lation of Swi6 | |
| Cdc15 | | kdiprom | 1.0 | epb5q | 1.0 |
| ka15' | 0.002 | | | kpp14 | 1.0 |
| ka15'' | 1.0 | Swi4-only SBF | | | |
| ka15''' | 0.001 | ksbs4 | 5.0 | SBF activity | |
| ki15 | 0.5 | kdb54 | 5.0 | kasbf1 | 0.14 |
| | | kasw4 | 0.0 | kasbf3 | 1.0 |
| Pds1 and Esp1 | | kdiw4 | 1.0 | kasbf4 | 1.0 |
| kspds' | 0.07 | | | kasbf5 | 1.0 |
| kdpds' | 0.01 | P'lable Swi4, Swi6 & Whi5 | | kasbf6 | 0.11 |
| kdpds'' | 0.25 | ef4p | 1.0 | | |
| kdpd''' | 0.03 | ef5p | 1.0 | MBF activity | |
| kasesp | 50.0 | ef6p | 1.0 | kasmbf | 30.0 |
| kdiesp | 0.5 | ef6q | 1.0 | kdimbf | 1.0 |
| eesp1 | 1.0 | | | | |
| | | Cdk p'lation of Swi6 | | Cdk p'lation of MBF | |
| Cell cycle markers | | epn3 | 1.0 | epn3m | 1.0 |
| ksori | 1.5 | epn2 | 0.085 | epn2m | 0.043 |

| Supplementary Table S3. Model Parameters | | | | | Page 3 | |
|--|------|----------------------|-------|-----------------------------|--------|--|
| epb5m | 0.17 | MSN5 | 25.0 | GAL promoters | | |
| epk2m | 0.63 | kimp | 4.0 | kgalbck2 | 3.0 | |
| Vpmaxm | 5.2 | PPase | 1.0 | kgalcln3 | 15.0 | |
| | | | | kgalcln2 | 0.17 | |
| Nrm1 | | CLN3 and Bck2 | | kgalclb5 | 0.016 | |
| ksnrm1' | 0.08 | CLN3T | 0.075 | kgalclb2 | 0.38 | |
| kdnrm1 | 0.08 | BCK2T | 0.075 | kgalsic1 | 0.132 | |
| | | kgkcln3 | 1.0 | kgalcdc6 | 0.4 | |
| MBF inact. by Clb2 and Nrm1 | | kydj1 | 1.0 | | | |
| kimbf01 | 0.6 | kssa0 | 0.6 | Multi-copy genes | | |
| kmbf10 | 0.12 | kssab2 | 0.5 | kmcbck2 | 5.0 | |
| kimbf02 | 1.2 | kssaw5 | 7.0 | kmccln2 | 4.0 | |
| kmbf20 | 0.12 | Jacln3 | 1.0 | kmccln3 | 15.0 | |
| | | Jicl3 | 1.0 | kmccclb5 | 4.0 | |
| MBF inhibition by Whi5 | | Jabck2 | 1.0 | whi5op | 10.0 | |
| kaswm | 1.5 | Jibck2 | 1.0 | kmcwhi5 | 10.0 | |
| kdiwm | 1.0 | | | kmcsic1 | 4.0 | |
| | | cytoplasm | 0.8 | kmccdc6 | 5.0 | |
| Export/Import | | nucleus | 0.2 | 216 total parameters | | |

*time is in minutes.

| Supplementary Table S3. Initial Conditions | | | | | |
|--|----------|----------|----------|-------------------|----------|
| MASS | 1.134674 | ORI | 0.029141 | WSF56P | 0.0 |
| CLN2 | 0.195608 | BUD | 0.015411 | WSB | 0.0 |
| CLB5 | 0.076789 | SPN | 0.032579 | WSB5P | 0.0 |
| CLB2 | 0.069430 | MAD2 | 0.01 | WSB6P | 0.0 |
| SIC1 | 0.036818 | LTE1 | 0.1 | WSB6PQ | 0.0 |
| SIC1P | 0.005190 | BUB2 | 0.2 | WSB56P | 0.0 |
| C2 | 0.197341 | SWI4 | 5.5 | SWI6C | 0.0 |
| C5 | 0.079655 | SWI6 | 30.0 | SWI6QC | 0.0 |
| C2P | 0.012808 | WHI5 | 10.0 | SWI6PQC | 0.0 |
| C5P | 0.004767 | MBP1 | 5.5 | SWI6P | 0.0 |
| CDC6 | 0.133968 | PROM2 | 2.0 | SWI6PQ | 0.0 |
| CDC6P | 0.035631 | PROM5 | 2.0 | MBFF | 0.0 |
| F2 | 0.117542 | NRM1 | 0.0 | MBFi | 0.0 |
| F5 | 1.048E-4 | SWI4C | 0.0 | MBFa | 0.0 |
| F2P | 0.028077 | SWI4PC | 0.0 | MBFp | 0.0 |
| F5P | 2.140E-5 | SWI4P | 0.0 | MBFo | 0.0 |
| SWI5 | 0.803439 | SWI4B | 0.0 | MBFpo | 0.0 |
| SWI5P | 0.017077 | SWI4F | 0.0 | WMB | 0.0 |
| IE | 0.516152 | W4B | 0.0 | WHI5PC | 0.0 |
| IEP | 0.483848 | SBFF | 0.0 | WHI5C | 0.0 |
| CDC20i | 0.787592 | SBFF4P | 0.0 | WHI5PN | 0.0 |
| CDC20 | 0.706006 | SBFF6P | 0.0 | TCYCLE | 0.725573 |
| CDH1 | 0.996005 | SBFF6PQ | 0.0 | ORIFLAG | 1.0 |
| CDH1i | 0.003995 | SBFF46P | 0.0 | TwHi5 | 0.0 |
| CDC14 | 0.685695 | SBFF46PQ | 0.0 | MwHi5 | 0.0 |
| NET1 | 0.006568 | SBFB | 0.0 | TBUD | 0.0 |
| RENT | 0.643416 | SBFB6P | 0.0 | MBUD | 0.0 |
| NET1P | 1.279127 | SBFB6PQ | 0.0 | TORI | 1000.0 |
| RENTP | 0.870888 | WSF | 0.0 | UDNA | 0.0 |
| TEM1GDP | 0.123253 | WSF4P | 0.0 | REPDNA | 0.0 |
| TEM1GTP | 0.876747 | WSF5P | 0.0 | TSPN | 0.0 |
| CDC15i | 0.347565 | WSF6P | 0.0 | SPNALIGN | 0.0 |
| CDC15 | 0.652435 | WSF6PQ | 0.0 | SACOFF | 0.0 |
| PDS1 | 0.011858 | WSF45P | 0.0 | MASSBIRT | 1.128616 |
| ESP1 | 0.520542 | WSF46P | 0.0 | MitCat | 0.0 |
| PE | 0.479458 | WSF46PQ | 0.0 | 107 total species | |

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    <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">new</p>
    </notes>
    </species>
    <species compartment="nucleus_1" id="SBFF_1"
initialConcentration="0.0" name="SBFF"/>

```

```
    <species compartment="nucleus_1" id="SBFF4P_1"
initialConcentration="0.0" name="SBFF4P"/>
    <species compartment="nucleus_1" id="SBFF6P_1"
initialConcentration="0.0" name="SBFF6P"/>
    <species compartment="nucleus_1" id="SBFF6PQ_1"
initialConcentration="0.0" name="SBFF6PQ"/>
    <species compartment="nucleus_1" id="SBFF46P_1"
initialConcentration="0.0" name="SBFF46P"/>
    <species compartment="nucleus_1" id="SBFF46PQ_1"
initialConcentration="0.0" name="SBFF46PQ"/>
    <species compartment="nucleus_1" id="SBFB_1"
initialConcentration="0.0" name="SBFB"/>
    <species compartment="nucleus_1" id="SBFB6P_1"
initialConcentration="0.0" name="SBFB6P"/>
    <species compartment="nucleus_1" id="SBFB6PQ_1"
initialConcentration="0.0" name="SBFB6PQ"/>
    <species compartment="nucleus_1" id="WSF_1"
initialConcentration="0.0" name="WSF"/>
    <species compartment="nucleus_1" id="WSF4P_1"
initialConcentration="0.0" name="WSF4P"/>
    <species compartment="nucleus_1" id="WSF5P_1"
initialConcentration="0.0" name="WSF5P"/>
    <species compartment="nucleus_1" id="WSF6P_1"
initialConcentration="0.0" name="WSF6P"/>
    <species compartment="nucleus_1" id="WSF6PQ_1"
initialConcentration="0.0" name="WSF6PQ"/>
    <species compartment="nucleus_1" id="WSF45P_1"
initialConcentration="0.0" name="WSF45P"/>
    <species compartment="nucleus_1" id="WSF46P_1"
initialConcentration="0.0" name="WSF46P"/>
    <species compartment="nucleus_1" id="WSF46PQ_1"
initialConcentration="0.0" name="WSF46PQ"/>
    <species compartment="nucleus_1" id="WSF56P_1"
initialConcentration="0.0" name="WSF56P"/>
    <species compartment="nucleus_1" id="WSB_1"
initialConcentration="0.0" name="WSB"/>
    <species compartment="nucleus_1" id="WSB5P_1"
initialConcentration="0.0" name="WSB5P"/>
    <species compartment="nucleus_1" id="WSB6P_1"
initialConcentration="0.0" name="WSB6P"/>
    <species compartment="nucleus_1" id="WSB6PQ_1"
initialConcentration="0.0" name="WSB6PQ"/>
    <species compartment="nucleus_1" id="WSB56P_1"
initialConcentration="0.0" name="WSB56P"/>
    <species compartment="cytoplasm_1" id="SWI6C_1"
initialConcentration="0.0" name="SWI6C"/>
    <species compartment="cytoplasm_1" id="SWI6QC_1"
initialConcentration="0.0" name="SWI6QC"/>
    <species compartment="cytoplasm_1" id="SWI6PQC_1"
initialConcentration="0.0" name="SWI6PQC">
```



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    <notes>
      <p xmlns="http://www.w3.org/1999/xhtml">dep sp</p>
    </notes>
  </species>
  <species compartment="nucleus_1" id="SWI6P_1"
initialConcentration="0.0" name="SWI6P"/>
  <species compartment="nucleus_1" id="SWI6PQ_1"
initialConcentration="0.0" name="SWI6PQ"/>
  <species compartment="nucleus_1" id="MBFF_1"
initialConcentration="0.0" name="MBFF"/>
  <species compartment="nucleus_1" id="MBFi_1"
initialConcentration="0.0" name="MBFi"/>
  <species compartment="nucleus_1" id="MBFa_1"
initialConcentration="0.0" name="MBFa"/>
  <species compartment="nucleus_1" id="MBFp_1"
initialConcentration="0.0" name="MBFp"/>
  <species compartment="nucleus_1" id="MBFo_1"
initialConcentration="0.0" name="MBFo"/>
  <species compartment="nucleus_1" id="MBFpo_1"
initialConcentration="0.0" name="MBFpo"/>
  <species compartment="nucleus_1" id="WMB_1"
initialConcentration="0.0" name="WMB">
    <notes>
      <p xmlns="http://www.w3.org/1999/xhtml">new-AUG29 2011</p>
    </notes>
  </species>
  <species compartment="cytoplasm_1" id="WHI5PC_1"
initialConcentration="0.0" name="WHI5PC">
    <notes>
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    </notes>
  </species>
  <species compartment="cytoplasm_1" id="WHI5C_1"
initialConcentration="0.0" name="WHI5C"/>
  <species compartment="nucleus_1" id="WHI5PN_1"
initialConcentration="0.0" name="WHI5PN"/>
  <species compartment="cytoplasm_1" id="SWI6CTOT_1"
name="SWI6CTOT"/>
  <species compartment="nucleus_1" id="SBFact_1" name="SBFact"/>
  <species compartment="nucleus_1" id="MBFact_1" name="MBFact"/>
  <species compartment="cell_1" id="SBFa1_1" name="SBFa1"/>
  <species compartment="cell_1" id="SBFa3_1" name="SBFa3"/>
  <species compartment="cell_1" id="SBFa4_1" name="SBFa4"/>
  <species compartment="cell_1" id="SBFa5_1" name="SBFa5"/>
  <species compartment="cell_1" id="SBFa6_1" name="SBFa6"/>
  <species compartment="cell_1" id="TCYCLE_1"
initialAmount="0.72557268620405" name="TCYCLE"/>
  <species compartment="cell_1" id="ORIFLAG_1"
initialAmount="1.0" name="ORIFLAG"/>
  <species compartment="cell_1" id="Twhi5_1" initialAmount="0.0"

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```

name="Twhi5"/>
  <species compartment="cell_1" id="Mwhi5_1" initialAmount="0.0"
name="Mwhi5"/>
  <species compartment="cell_1" id="TBUD_1" initialAmount="0.0"
name="TBUD"/>
  <species compartment="cell_1" id="MBUD_1" initialAmount="0.0"
name="MBUD"/>
  <species compartment="cell_1" id="TORI_1"
initialAmount="1000.0" name="TORI"/>
  <species compartment="cell_1" id="UDNA_1" initialAmount="0.0"
name="UDNA"/>
  <species compartment="cell_1" id="REPDNA_1"
initialAmount="0.0" name="REPDNA"/>
  <species compartment="cell_1" id="TSPN_1" initialAmount="0.0"
name="TSPN"/>
  <species compartment="cell_1" id="SPNALIGN_1"
initialAmount="0.0" name="SPNALIGN"/>
  <species compartment="cell_1" id="SACOFF_1"
initialAmount="0.0" name="SACOFF"/>
  <species compartment="cell_1" id="SWI4nucf_1" name="SWI4nucf"/
>
  <species compartment="cell_1" id="WHI5nucf_1" name="WHI5nucf"/
>
  <species compartment="cell_1" id="SWI6nucf_1" name="SWI6nucf"/
>
  <species compartment="cell_1" id="WHI5cycf_1" name="WHI5cycf"/
>
  <species compartment="cell_1" id="CLN310x_1" name="CLN310x"/>
  <species compartment="cell_1" id="MASSBIRTH_1"
initialConcentration="1.12860662640626" name="MASSBIRTH"/>
  <species compartment="cell_1" id="MitCat_1"
initialConcentration="0.0" name="MitCat"/>
  <species compartment="cell_1" id="T0_2" name="SWI6T"/>
  <species compartment="cell_1" id="T1_2" name="MBP1T"/>
  <species compartment="nucleus_1" id="T2_2" name="PROM5T"/>
  <species compartment="cell_1" id="T3_2" name="WHI5T"/>
  <species compartment="cell_1" id="T4_2" name="SWI4T"/>
  <species compartment="nucleus_1" id="T5_2" name="PROM2T"/>
  <species compartment="cell_1" id="T6_2" name="ESP1T"/>
  <species compartment="cell_1" id="T7_2" name="CDC15T"/>
  <species compartment="cell_1" id="T8_2" name="TEM1T"/>
  <species compartment="cell_1" id="T9_2" name="IET"/>
</listOfSpecies>
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  <parameter id="ksn2_1" name="ksn2'" value="0.0"/>
  <parameter id="ksn2_2" name="ksn2'" value="0.38"/>
  <parameter id="ksn2_3" name="ksn2'" value="0.3"/>
  <parameter id="kdn2_1" name="kdn2" value="0.14"/>
  <parameter id="ksb5_1" name="ksb5'" value="2.0E-4"/>

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<parameter id="ksb5_2" name="ksb5'" value="0.004"/>
<parameter id="ksb5_3" name="ksb5'" value="0.0325"/>
<parameter id="kdb5_1" name="kdb5'" value="0.015"/>
<parameter id="kdb5_2" name="kdb5'" value="0.17"/>
<parameter id="ksb2_1" name="ksb2'" value="0.006"/>
<parameter id="ksb2_2" name="ksb2'" value="0.12"/>
<parameter id="kdb2_1" name="kdb2'" value="0.003"/>
<parameter id="kdb2_2" name="kdb2'" value="0.4"/>
<parameter id="kdb2_3" name="kdb2'" value="0.285"/>
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<parameter id="kimcm_1" name="kimcm" value="0.49"/>
<parameter id="Jamcm_1" name="Jamcm" value="0.1"/>
<parameter id="Jimcm_1" name="Jimcm" value="0.1"/>
<parameter id="ksc1_1" name="ksc1'" value="0.0132"/>
<parameter id="ksc1_2" name="ksc1'" value="0.132"/>
<parameter id="kdc1_1" name="kdc1" value="0.001"/>
<parameter id="kd1c1_1" name="kd1c1" value="0.01"/>
<parameter id="kd2c1_1" name="kd2c1" value="1.0"/>
<parameter id="kd3c1_1" name="kd3c1" value="1.0"/>
<parameter id="kasb2_1" name="kasb2" value="50.0"/>
<parameter id="kdib2_1" name="kdib2" value="0.05"/>
<parameter id="kasb5_1" name="kasb5" value="30.0"/>
<parameter id="kdib5_1" name="kdib5" value="0.06"/>
<parameter id="ksf6_1" name="ksf6'" value="0.02"/>
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<parameter id="kdif2_1" name="kdif2" value="0.5"/>
<parameter id="kasf5_1" name="kasf5" value="0.015"/>
<parameter id="kdif5_1" name="kdif5" value="0.03"/>
<parameter id="ec1n3_1" name="ec1n3" value="0.0"/>
<parameter id="ec1k2_1" name="ec1k2" value="0.0"/>
<parameter id="ec1n2_1" name="ec1n2" value="0.09"/>
<parameter id="ec1b5_1" name="ec1b5" value="0.23"/>
<parameter id="ec1b2_1" name="ec1b2" value="0.4"/>
<parameter id="Jd2c1_1" name="Jd2c1" value="0.05"/>
<parameter id="kppc1_1" name="kppc1" value="4.0"/>
<parameter id="ef6n3_1" name="ef6n3" value="0.0"/>
<parameter id="ef6k2_1" name="ef6k2" value="0.0"/>
<parameter id="ef6n2_1" name="ef6n2" value="0.23"/>
<parameter id="ef6b5_1" name="ef6b5" value="0.45"/>
<parameter id="ef6b2_1" name="ef6b2" value="1.5"/>
<parameter id="Jd2f6_1" name="Jd2f6" value="0.05"/>
<parameter id="kppf6_1" name="kppf6" value="4.0"/>
<parameter id="ksswi_1" name="ksswi'" value="0.005"/>
<parameter id="ksswi_2" name="ksswi'" value="0.08"/>
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<parameter id="kdswi_1" name="kdswi" value="0.08"/>
<parameter id="kaswi_1" name="kaswi" value="2.0"/>
<parameter id="kiswi_1" name="kiswi" value="0.1"/>
<parameter id="kaiep_1" name="kaiep" value="0.1"/>
<parameter id="kiiep_1" name="kiiep" value="0.15"/>
<parameter id="Jaiep_1" name="Jaiep" value="0.1"/>
<parameter id="Jiiep_1" name="Jiiep" value="0.1"/>
<parameter id="ks20_1" name="ks20" value="0.006"/>
<parameter id="ks20_2" name="ks20'" value="0.6"/>
<parameter id="kd20_1" name="kd20" value="0.255"/>
<parameter id="kd20_2" name="kd20'" value="0.05"/>
<parameter id="ka20_1" name="ka20'" value="0.06"/>
<parameter id="ka20_2" name="ka20'" value="0.15"/>
<parameter id="mad2h_1" name="mad2h" value="8.0"/>
<parameter id="mad2l_1" name="mad2l" value="0.01"/>
<parameter id="kscdh_1" name="kscdh" value="0.01"/>
<parameter id="kcdh_1" name="kcdh" value="0.01"/>
<parameter id="kacdh_1" name="kacdh'" value="0.01"/>
<parameter id="kacdh_2" name="kacdh'" value="0.55"/>
<parameter id="kicdh_1" name="kicdh'" value="0.005"/>
<parameter id="kicdh_2" name="kicdh'" value="0.08"/>
<parameter id="eicdhn3_1" name="eicdhn3" value="0.0"/>
<parameter id="eicdhn2_1" name="eicdhn2" value="0.22"/>
<parameter id="eicdhb5_1" name="eicdhb5" value="4.2"/>
<parameter id="eicdhb2_1" name="eicdhb2" value="0.72"/>
<parameter id="Jacdh_1" name="Jacdh" value="0.03"/>
<parameter id="Jicdh_1" name="Jicdh" value="0.032"/>
<parameter id="ks14_1" name="ks14" value="0.22"/>
<parameter id="kd14_1" name="kd14" value="0.1"/>
<parameter id="ksnet_1" name="ksnet" value="0.084"/>
<parameter id="kdnet_1" name="kdnet" value="0.03"/>
<parameter id="kasrent_1" name="kasrent" value="300.0"/>
<parameter id="kdirent_1" name="kdirent" value="1.0"/>
<parameter id="kasrentp_1" name="kasrentp" value="1.0"/>
<parameter id="kdirentp_1" name="kdirentp" value="1.6"/>
<parameter id="kpnet_1" name="kpnet'" value="0.01"/>
<parameter id="kpnet_2" name="kpnet'" value="2.4"/>
<parameter id="kppnet_1" name="kppnet'" value="0.05"/>
<parameter id="kppnet_2" name="kppnet'" value="2.8"/>
<parameter id="PP2AT_1" name="PP2AT" value="1.0"/>
<parameter id="ki_1" name="ki" value="40.0"/>
<parameter id="kpp_1" name="kpp" value="0.1"/>
<parameter id="eesp1_1" name="eesp1" value="1.0"/>
<parameter id="lte1h_1" name="lte1h" value="1.0"/>
<parameter id="lte1l_1" name="lte1l" value="0.1"/>
<parameter id="bub2h_1" name="bub2h" value="1.0"/>
<parameter id="bub2l_1" name="bub2l" value="0.2"/>
<parameter id="Jatem_1" name="Jatem" value="0.1"/>
<parameter id="Jitem_1" name="Jitem" value="0.1"/>
<parameter id="ka15_1" name="ka15'" value="0.002"/>
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```

<parameter id="ka15_2" name="ka15'" value="1.0"/>
<parameter id="ka15_3" name="ka15'" value="0.001"/>
<parameter id="ki15_1" name="ki15" value="0.5"/>
<parameter id="kspds_1" name="kspds'" value="0.07"/>
<parameter id="kdpds_1" name="kdpds'" value="0.01"/>
<parameter id="kdpds_2" name="kdpds'" value="0.25"/>
<parameter id="kdpds_3" name="kdpds'" value="0.03"/>
<parameter id="kasesp_1" name="kasesp" value="50.0"/>
<parameter id="kdiesp_1" name="kdiesp" value="0.5"/>
<parameter id="ksori_1" name="ksori" value="1.5"/>
<parameter id="kdori_1" name="kdori" value="0.06"/>
<parameter id="eorib5_1" name="eorib5" value="0.85"/>
<parameter id="eorib2_1" name="eorib2" value="0.45"/>
<parameter id="ksbud_1" name="ksbud" value="0.22"/>
<parameter id="kdbud_1" name="kdbud" value="0.018"/>
<parameter id="ebudn2_1" name="ebudn2" value="0.3"/>
<parameter id="ebudn3_1" name="ebudn3" value="0.3"/>
<parameter id="ebudb5_1" name="ebudb5" value="0.6"/>
<parameter id="kssp_1" name="kssp" value="0.09"/>
<parameter id="kdsp_1" name="kdsp" value="0.06"/>
<parameter id="Jsp_1" name="Jsp" value="0.15"/>
<parameter id="mdt_1" name="mdt" value="90.0"/>
<parameter id="KEZ2_1" name="KEZ2" value="0.2"/>
<parameter id="KEZ_1" name="KEZ" value="0.3">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">Differ from NoProm
Model</p>
  </notes>
</parameter>
<parameter id="kas46_1" name="kas46" value="30.0">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">SWI4-SWI6
formation</p>
  </notes>
</parameter>
<parameter id="kdi46_1" name="kdi46" value="0.5"/>
<parameter id="kasws_1" name="kasws" value="30.0">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">WHI5-SBF
formation</p>
  </notes>
</parameter>
<parameter id="kdiws_1" name="kdiws" value="1.0"/>
<parameter id="kdiwp_1" name="kdiwp" value="15.0"/>
<parameter id="kaswm_1" name="kaswm" value="1.5">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">WHI5-MBF
formation</p>
  </notes>
</parameter>

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<parameter id="kdiwm_1" name="kdiwm" value="1.0"/>
<parameter id="kasprom_1" name="kasprom" value="50.0">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">SBF-PROMOTOR</p>
  </notes>
</parameter>
<parameter id="kdiprom_1" name="kdiprom" value="1.0"/>
<parameter id="ksbs4_1" name="ksbs4" value="5.0">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">SWI4 dimer</p>
  </notes>
</parameter>
<parameter id="kds4_1" name="kds4" value="5.0"/>
<parameter id="kasw4_1" name="kasw4" value="0.0"/>
<parameter id="kdiw4_1" name="kdiw4" value="1.0"/>
<parameter id="ef4p_1" name="ef4p" value="1.0"/>
<parameter id="ef5p_1" name="ef5p" value="1.0"/>
<parameter id="ef6p_1" name="ef6p" value="1.0"/>
<parameter id="ef6q_1" name="ef6q" value="1.0"/>
<parameter id="epn3_1" name="epn3" value="1.0"/>
<parameter id="epn2_1" name="epn2" value="0.085"/>
<parameter id="epb5_1" name="epb5" value="0.072"/>
<parameter id="epk2_1" name="epk2" value="0.6"/>
<parameter id="N_1" name="N" value="5.0"/>
<parameter id="Jpn_1" name="Jpn" value="0.4"/>
<parameter id="Vpnmax_1" name="Vpnmax" value="2.7"/>
<parameter id="kppcln_1" name="kppcln" value="1.0"/>
<parameter id="kppcln_2" name="kppcln" value="0.5"/>
<parameter id="epn3m_1" name="epn3m" value="1.0"/>
<parameter id="epn2m_1" name="epn2m" value="0.043"/>
<parameter id="epb5m_1" name="epb5m" value="0.17"/>
<parameter id="epk2m_1" name="epk2m" value="0.63"/>
<parameter id="Vpmaxm_1" name="Vpmaxm" value="5.2"/>
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<parameter id="epn2w_1" name="epn2w" value="0.08"/>
<parameter id="epb5w_1" name="epb5w" value="0.075"/>
<parameter id="epk2w_1" name="epk2w" value="0.3"/>
<parameter id="Vnmaxw_1" name="Vnmaxw" value="3.0"/>
<parameter id="kasbf1_1" name="kasbf1" value="0.14"/>
<parameter id="kasbf3_1" name="kasbf3" value="1.0"/>
<parameter id="kasbf4_1" name="kasbf4" value="1.0"/>
<parameter id="kasbf5_1" name="kasbf5" value="1.0"/>
<parameter id="kasbf6_1" name="kasbf6" value="0.11"/>
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<parameter id="kimp_1" name="kimp" value="4.0"/>
<parameter id="PPase_1" name="PPase" value="1.0"/>
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<parameter id="kasmbf_1" name="kasmbf" value="30.0"/>
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<parameter id="kmbf10_1" name="kmbf10" value="0.12"/>
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<parameter id="kmbf20_1" name="kmbf20" value="0.12"/>
<parameter id="ksnrm1_2" name="ksnrm1" value="0.08"/>
<parameter id="kdnrm1_1" name="kdnrm1" value="0.08"/>
<parameter id="kydj1_1" name="kydj1" value="1.0"/>
<parameter id="kssa0_1" name="kssa0" value="0.6"/>
<parameter id="kssab2_1" name="kssab2" value="0.5"/>
<parameter id="kssaw5_1" name="kssaw5" value="7.0"/>
<parameter id="CLN3T_1" name="CLN3T" value="0.075"/>
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<parameter id="Jibck2_1" name="Jibck2" value="1.0"/>
<parameter id="MAXMASS_1" name="MAXMASS" value="28.0"/>
<parameter id="DNATIMER_1" name="DNATIMER" value="20.0"/>
<parameter id="kgalbck2_1" name="kgalbck2" value="3.0"/>
<parameter id="kgalcln3_1" name="kgalcln3" value="15.0"/>
<parameter id="kgalcln2_1" name="kgalcln2" value="0.17"/>
<parameter id="kgalclb5_1" name="kgalclb5" value="0.016"/>
<parameter id="kgalclb2_1" name="kgalclb2" value="0.38"/>
<parameter id="whi5op_1" name="whi5op" value="10.0"/>
<parameter id="kgalsic1_1" name="kgalsic1" value="0.132"/>
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 SBFB6P_1
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 SBFB_1
 \times
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 SWI4B_1
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 WSB6PQ_1

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  <math:ci>WSF46PQ_1</math:ci>
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</math:apply>
<math:apply>
  <math:times/>
```

```

        <math:cn>1.0</math:cn>
        <math:ci>WSF46P_1</math:ci>
    </math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:cn>1.0</math:cn>
    <math:ci>WSF4P_1</math:ci>
</math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:cn>1.0</math:cn>
    <math:ci>WSF56P_1</math:ci>
</math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:cn>1.0</math:cn>
    <math:ci>WSF5P_1</math:ci>
</math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:cn>1.0</math:cn>
    <math:ci>WSF6PQ_1</math:ci>
</math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:cn>1.0</math:cn>
    <math:ci>WSF6P_1</math:ci>
</math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:cn>1.0</math:cn>
    <math:ci>WSF_1</math:ci>
</math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="mu_1">
    <math:math>
        <math:apply>
            <math:divide/>
            <math:apply>
                <math:ln/>
                <math:cn>2.0</math:cn>
            </math:apply>
        </math:apply>
    </math:math>
</assignmentRule>

```

```

    <math:ci>mdt_1</math:ci>
  </math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="D_1">
  <math:math>
    <math:apply>
      <math:minus/>
      <math:apply>
        <math:divide/>
        <math:cn>1.026</math:cn>
        <math:ci>mu_1</math:ci>
      </math:apply>
      <math:cn>32.0</math:cn>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="F_1">
  <math:math>
    <math:apply>
      <math:exp/>
      <math:apply>
        <math:times/>
        <math:apply>
          <math:minus/>
          <math:ci>mu_1</math:ci>
        </math:apply>
        <math:ci>D_1</math:ci>
      </math:apply>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="YDJ1_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kydj1_1</math:ci>
      <math:ci>MASS_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="SSA1_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:ci>kssa0_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </math:math>
</assignmentRule>

```



```

    <math:apply>
      <math:times/>
      <math:ci>kssab2_1</math:ci>
      <math:ci>CLB2_1</math:ci>
    </math:apply>
  </math:apply>
  <math:apply>
    <math:times/>
    <math:ci>kssaw5_1</math:ci>
    <math:ci>SWI5_1</math:ci>
  </math:apply>
</math:apply>
<math:apply>
  <math:divide/>
  <math:cn>90.0</math:cn>
  <math:ci>mdt_1</math:ci>
</math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vacln3_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kgkcln3_1</math:ci>
      <math:ci>YDJ1_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="CLN3_1">
  <math:math>
    <math:piecewise>
      <math:piece>
        <math:cn>0.0</math:cn>
        <math:apply>
          <math:eq/>
          <math:ci>CLN3T_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:piece>
      <math:otherwise>
        <math:apply>
          <math:times/>
          <math:apply>
            <math:times/>
            <math:ci>CLN3T_1</math:ci>
            <math:ci>MASS_1</math:ci>
          </math:apply>
        </math:apply>
        <math:ci>GK_1</math:ci>
      </math:otherwise>
    </math:piecewise>
  </math:math>
</assignmentRule>

```

```

    <math:ci>Vacln3_1</math:ci>
    <math:ci>SSA1_1</math:ci>
    <math:apply>
      <math:times/>
      <math:ci>Jacln3_1</math:ci>
      <math:ci>CLN3T_1</math:ci>
    </math:apply>
    <math:apply>
      <math:times/>
      <math:ci>Jicln3_1</math:ci>
      <math:ci>CLN3T_1</math:ci>
    </math:apply>
  </math:apply>
</math:otherwise>
</math:piecewise>
</math:math>
</assignmentRule>
<assignmentRule variable="BCK2_1">
  <math:math>
    <math:piecewise>
      <math:piece>
        <math:cn>0.0</math:cn>
        <math:apply>
          <math:eq/>
          <math:ci>BCK2T_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:piece>
      <math:otherwise>
        <math:apply>
          <math:times/>
          <math:apply>
            <math:times/>
            <math:ci>BCK2T_1</math:ci>
            <math:ci>MASS_1</math:ci>
          </math:apply>
          <math:apply>
            <math:ci>GK_1</math:ci>
            <math:ci>Vacln3_1</math:ci>
            <math:ci>SSA1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>Jabck2_1</math:ci>
            <math:ci>BCK2T_1</math:ci>
          </math:apply>
          <math:apply>
            <math:times/>
            <math:ci>Jibck2_1</math:ci>
            <math:ci>BCK2T_1</math:ci>
          </math:apply>
        </math:apply>
      </math:otherwise>
    </math:piecewise>
  </math:math>
</assignmentRule>

```

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        </math:apply>
      </math:apply>
    </math:apply>
  </math:otherwise>
</math:piecewise>
</math:math>
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      <math:apply>
        <math:times/>
        <math:ci>kamcm_1</math:ci>
        <math:ci>CLB2_1</math:ci>
      </math:apply>
      <math:ci>kimcm_1</math:ci>
      <math:ci>Jamcm_1</math:ci>
      <math:ci>Jimcm_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
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  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:ci>kdb2_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kdb2_2</math:ci>
          <math:ci>CDH1_1</math:ci>
        </math:apply>
      </math:apply>
      <math:apply>
        <math:times/>
        <math:ci>kdb2_3</math:ci>
        <math:ci>CDC20_1</math:ci>
      </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="Vdb5_2">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:ci>kdb5_1</math:ci>
      <math:apply>
        <math:times/>

```

```

        <math:ci>kdb5_2</math:ci>
        <math:ci>CDC20_1</math:ci>
    </math:apply>
</math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vd2c1_1">
    <math:math>
        <math:apply>
            <math:times/>
            <math:ci>kd2c1_1</math:ci>
            <math:apply>
                <math:plus/>
                <math:apply>
                    <math:plus/>
                    <math:apply>
                        <math:plus/>
                        <math:apply>
                            <math:plus/>
                            <math:apply>
                                <math:times/>
                                <math:ci>ec1n3_1</math:ci>
                                <math:ci>CLN3_1</math:ci>
                            </math:apply>
                        <math:apply>
                            <math:times/>
                            <math:ci>ec1k2_1</math:ci>
                            <math:ci>BCK2_1</math:ci>
                        </math:apply>
                    </math:apply>
                </math:apply>
            </math:apply>
            <math:times/>
            <math:ci>ec1n2_1</math:ci>
            <math:ci>CLN2_1</math:ci>
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    </math:apply>
    <math:apply>
        <math:times/>
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        <math:ci>CLB5_1</math:ci>
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</math:apply>
    <math:apply>
        <math:times/>
        <math:ci>ec1b2_1</math:ci>
        <math:ci>CLB2_1</math:ci>
    </math:apply>
</math:apply>
</math:math>
</assignmentRule>

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</assignmentRule>
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      <math:times/>
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      <math:apply>
        <math:plus/>
        <math:apply>
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          <math:apply>
            <math:plus/>
            <math:apply>
              <math:plus/>
              <math:apply>
                <math:times/>
                <math:ci>ef6n3_1</math:ci>
                <math:ci>CLN3_1</math:ci>
              </math:apply>
            <math:apply>
              <math:times/>
              <math:ci>ef6k2_1</math:ci>
              <math:ci>BCK2_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
      <math:times/>
      <math:ci>ef6n2_1</math:ci>
      <math:ci>CLN2_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vppc1_1">
  <math:math>
    <math:apply>
      <math:times/>

```

```

        <math:ci>kppc1_1</math:ci>
        <math:ci>CDC14_1</math:ci>
    </math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vppf6_1">
    <math:math>
        <math:apply>
            <math:times/>
            <math:ci>kppf6_1</math:ci>
            <math:ci>CDC14_1</math:ci>
        </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="Vkpc1_1">
    <math:math>
        <math:apply>
            <math:plus/>
            <math:ci>kd1c1_1</math:ci>
            <math:apply>
                <math:divide/>
                <math:ci>Vd2c1_1</math:ci>
                <math:apply>
                    <math:plus/>
                    <math:apply>
                        <math:plus/>
                        <math:ci>Jd2c1_1</math:ci>
                        <math:ci>SIC1_1</math:ci>
                    </math:apply>
                    <math:ci>C2_1</math:ci>
                </math:apply>
                <math:ci>C5_1</math:ci>
            </math:apply>
        </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="Vkpf6_1">
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        <math:apply>
            <math:plus/>
            <math:ci>kd1f6_1</math:ci>
            <math:apply>
                <math:divide/>
                <math:ci>Vd2f6_1</math:ci>
                <math:apply>
                    <math:plus/>
                    <math:apply>

```

```

        <math:plus/>
        <math:apply>
            <math:plus/>
            <math:ci>Jd2f6_1</math:ci>
            <math:ci>CDC6_1</math:ci>
        </math:apply>
        <math:ci>F2_1</math:ci>
    </math:apply>
    <math:ci>F5_1</math:ci>
</math:apply>
</math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vaiep_1">
    <math:math>
        <math:apply>
            <math:times/>
            <math:ci>kaiep_1</math:ci>
            <math:ci>CLB2_1</math:ci>
        </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="Vd20_1">
    <math:math>
        <math:apply>
            <math:plus/>
            <math:ci>kd20_1</math:ci>
            <math:apply>
                <math:times/>
                <math:ci>kd20_2</math:ci>
                <math:ci>CDH1_1</math:ci>
            </math:apply>
        </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="Vacdh_1">
    <math:math>
        <math:apply>
            <math:plus/>
            <math:ci>kacdh_1</math:ci>
            <math:apply>
                <math:times/>
                <math:ci>kacdh_2</math:ci>
                <math:ci>CDC14_1</math:ci>
            </math:apply>
        </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="Vicdh_1">

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```

<math:math>
  <math:apply>
    <math:plus/>
    <math:ci>kicdh_1</math:ci>
    <math:apply>
      <math:times/>
      <math:ci>kicdh_2</math:ci>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:times/>
              <math:ci>eicdhn3_1</math:ci>
              <math:ci>CLN3_1</math:ci>
            </math:apply>
            <math:apply>
              <math:times/>
              <math:ci>eicdhn2_1</math:ci>
              <math:ci>CLN2_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
      </math:apply>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vkpnet_1">
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    <math:apply>
      <math:plus/>
      <math:ci>kpnet_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>kpnet_2</math:ci>
        <math:ci>CDC15_1</math:ci>
      </math:apply>
    </math:math>
  </assignmentRule>

```



```

    </math:apply>
  </math:math>
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      <math:apply>
        <math:times/>
        <math:ci>PP2AT_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:cn>1.0</math:cn>
          <math:apply>
            <math:times/>
            <math:apply>
              <math:times/>
              <math:ci>ki_1</math:ci>
              <math:ci>kpp_1</math:ci>
            </math:apply>
            <math:ci>ESP1_1</math:ci>
          </math:apply>
        </math:apply>
      </math:apply>
    </math:math>
  </math:math>
  <math:apply>
    <math:plus/>
    <math:cn>1.0</math:cn>
    <math:apply>
      <math:times/>
      <math:ci>ki_1</math:ci>
      <math:ci>ESP1_1</math:ci>
    </math:apply>
  </math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="ESP1act_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>eesp1_1</math:ci>
      <math:ci>ESP1_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vppnet_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:ci>kppnet_1</math:ci>
    </math:math>
  </math:math>
</assignmentRule>

```

```

    <math:apply>
      <math:times/>
      <math:ci>kppnet_2</math:ci>
      <math:ci>PP2A_1</math:ci>
    </math:apply>
  </math:math>
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    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:ci>kdpds_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kdpds_2</math:ci>
          <math:ci>CDC20_1</math:ci>
        </math:apply>
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      <math:apply>
        <math:times/>
        <math:ci>kdpds_3</math:ci>
        <math:ci>CDH1_1</math:ci>
      </math:apply>
    </math:math>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vpn_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:times/>
            <math:ci>epn3_1</math:ci>
            <math:ci>CLN3_1</math:ci>
          </math:apply>
          <math:apply>
            <math:times/>
            <math:ci>epn2_1</math:ci>
            <math:ci>CLN2_1</math:ci>
          </math:apply>
        </math:apply>
      </math:apply>
      <math:apply>
        <math:times/>
      </math:apply>
    </math:math>
  </math:math>
</assignmentRule>

```

```

        <math:ci>epb5_1</math:ci>
        <math:ci>CLB5_1</math:ci>
    </math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:ci>epk2_1</math:ci>
    <math:ci>BCK2_1</math:ci>
</math:apply>
</math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vpcln_1">
    <math:math>
        <math:apply>
            <math:times/>
            <math:ci>Vpnmax_1</math:ci>
            <math:apply>
                <math:divide/>
                <math:apply>
                    <math:power/>
                    <math:ci>Vpn_1</math:ci>
                    <math:ci>N_1</math:ci>
                </math:apply>
            </math:apply>
            <math:apply>
                <math:plus/>
                <math:apply>
                    <math:power/>
                    <math:ci>Jpn_1</math:ci>
                    <math:ci>N_1</math:ci>
                </math:apply>
            </math:apply>
            <math:apply>
                <math:power/>
                <math:ci>Vpn_1</math:ci>
                <math:ci>N_1</math:ci>
            </math:apply>
        </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="Vppcln_1">
    <math:math>
        <math:apply>
            <math:plus/>
            <math:ci>kppcln_1</math:ci>
            <math:apply>
                <math:times/>
                <math:ci>kppcln_2</math:ci>
                <math:ci>CDC14_1</math:ci>
            </math:apply>
        </math:math>
    </assignmentRule>

```

```

    </math:apply>
  </math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vpnm_1">
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    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:times/>
            <math:ci>epn3m_1</math:ci>
            <math:ci>CLN3_1</math:ci>
          </math:apply>
          <math:apply>
            <math:times/>
            <math:ci>epn2m_1</math:ci>
            <math:ci>CLN2_1</math:ci>
          </math:apply>
        </math:apply>
      </math:apply>
      <math:times/>
      <math:ci>epb5m_1</math:ci>
      <math:ci>CLB5_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vpclnm_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>Vpmaxm_1</math:ci>
      <math:apply>
        <math:divide/>
        <math:apply>
          <math:power/>
          <math:ci>Vpnm_1</math:ci>
          <math:ci>N_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </assignmentRule>

```

```

    <math:plus/>
    <math:apply>
      <math:power/>
      <math:ci>Jpn_1</math:ci>
      <math:ci>N_1</math:ci>
    </math:apply>
    <math:apply>
      <math:power/>
      <math:ci>Vpnm_1</math:ci>
      <math:ci>N_1</math:ci>
    </math:apply>
  </math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vpnw_1">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">Let p'lation of
Whi5 with diff. efficiencies</p>
  </notes>
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:times/>
            <math:ci>epn3w_1</math:ci>
            <math:ci>CLN3_1</math:ci>
          </math:apply>
        <math:apply>
          <math:times/>
          <math:ci>epn2w_1</math:ci>
          <math:ci>CLN2_1</math:ci>
        </math:apply>
      </math:apply>
    <math:apply>
      <math:times/>
      <math:ci>epb5w_1</math:ci>
      <math:ci>CLB5_1</math:ci>
    </math:apply>
  </math:math>
  <math:apply>
    <math:times/>
    <math:ci>epk2w_1</math:ci>
    <math:ci>BCK2_1</math:ci>
  </math:apply>

```

```

    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vpclnw_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>Vnmaxw_1</math:ci>
      <math:apply>
        <math:divide/>
        <math:apply>
          <math:power/>
          <math:ci>Vpnw_1</math:ci>
          <math:ci>N_1</math:ci>
        </math:apply>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:power/>
            <math:ci>Jpn_1</math:ci>
            <math:ci>N_1</math:ci>
          </math:apply>
          <math:apply>
            <math:power/>
            <math:ci>Vpnw_1</math:ci>
            <math:ci>N_1</math:ci>
          </math:apply>
        </math:apply>
      </math:apply>
    </math:math>
  </assignmentRule>
<assignmentRule variable="Vpclb_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:ci>kp_2</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>kp_3</math:ci>
        <math:ci>CLB2_1</math:ci>
      </math:apply>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vpp14_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kpp14_1</math:ci>

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    <math:ci>CDC14_1</math:ci>
  </math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="Vpclb26_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:ci>kp_2</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kp_3</math:ci>
          <math:ci>CLB2_1</math:ci>
        </math:apply>
      </math:apply>
    </math:apply>
    <math:apply>
      <math:times/>
      <math:ci>epb5q_1</math:ci>
      <math:ci>CLB5_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="Vppase_1">
  <math:math>
    <math:ci>PPase_1</math:ci>
  </math:math>
</assignmentRule>
<assignmentRule variable="CLB2T_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:ci>CLB2_1</math:ci>
            <math:ci>C2_1</math:ci>
          </math:apply>
          <math:ci>F2_1</math:ci>
        </math:apply>
        <math:ci>C2P_1</math:ci>
      </math:apply>
      <math:ci>F2P_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>

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</assignmentRule>
<assignmentRule variable="CLB5T_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:ci>CLB5_1</math:ci>
            <math:ci>C5_1</math:ci>
          </math:apply>
          <math:ci>F5_1</math:ci>
        </math:apply>
        <math:ci>C5P_1</math:ci>
      </math:apply>
      <math:ci>F5P_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="CDC14T_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:ci>CDC14_1</math:ci>
        <math:ci>RENT_1</math:ci>
      </math:apply>
      <math:ci>RENTP_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="NET1T_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:ci>NET1_1</math:ci>
          <math:ci>NET1P_1</math:ci>
        </math:apply>
        <math:ci>RENT_1</math:ci>
      </math:apply>
      <math:ci>RENTP_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>

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</math:math>
</assignmentRule>
<assignmentRule variable="SIC1T_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:plus/>
              <math:ci>SIC1_1</math:ci>
              <math:ci>C2_1</math:ci>
            </math:apply>
            <math:ci>C5_1</math:ci>
          </math:apply>
          <math:ci>SIC1P_1</math:ci>
        </math:apply>
        <math:ci>C2P_1</math:ci>
      </math:apply>
      <math:ci>C5P_1</math:ci>
    </math:math>
  </assignmentRule>
  <assignmentRule variable="CDC6T_1">
    <math:math>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:plus/>
              <math:apply>
                <math:plus/>
                <math:ci>CDC6_1</math:ci>
                <math:ci>F2_1</math:ci>
              </math:apply>
              <math:ci>F5_1</math:ci>
            </math:apply>
            <math:ci>CDC6P_1</math:ci>
          </math:apply>
          <math:ci>F2P_1</math:ci>
        </math:apply>
        <math:ci>F5P_1</math:ci>
      </math:math>
    </assignmentRule>
  </assignmentRule>

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</math:math>
</assignmentRule>
<assignmentRule variable="CKIT_1">
  <math:math>
    <math:apply>
      <math:plus/>
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      <math:ci>CDC6T_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="SBFact_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:times/>
              <math:ci>kasbf1_1</math:ci>
              <math:ci>SBFB_1</math:ci>
            </math:apply>
            <math:apply>
              <math:times/>
              <math:ci>kasbf3_1</math:ci>
              <math:apply>
                <math:plus/>
                <math:ci>SBFB6P_1</math:ci>
                <math:ci>SBFB6PQ_1</math:ci>
              </math:apply>
            </math:apply>
          </math:apply>
          <math:times/>
          <math:ci>kasbf4_1</math:ci>
          <math:apply>
            <math:plus/>
            <math:ci>WSB6P_1</math:ci>
            <math:ci>WSB6PQ_1</math:ci>
          </math:apply>
        </math:apply>
      </math:apply>
      <math:times/>
      <math:ci>kasbf5_1</math:ci>
      <math:ci>WSB5P_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>

```

```

        </math:apply>
      </math:apply>
    <math:apply>
      <math:times/>
      <math:ci>kasbf6_1</math:ci>
      <math:ci>SWI4B_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="MBFact_1">
  <math:math>
    <math:ci>MBFa_1</math:ci>
  </math:math>
</assignmentRule>
<assignmentRule variable="SWI6CTOT_1">
  <math:math>
    <math:apply>
      <math:plus/>
      <math:apply>
        <math:plus/>
        <math:ci>SWI6C_1</math:ci>
        <math:ci>SWI6QC_1</math:ci>
      </math:apply>
      <math:ci>SWI6PQC_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="SBFa1_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kasbf1_1</math:ci>
      <math:ci>SBFB_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="SBFa3_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kasbf3_1</math:ci>
      <math:apply>
        <math:plus/>
        <math:ci>SBFB6P_1</math:ci>
        <math:ci>SBFB6PQ_1</math:ci>
      </math:apply>
    </math:apply>
  </math:math>
</assignmentRule>

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<assignmentRule variable="SBFa4_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kasbf4_1</math:ci>
      <math:apply>
        <math:plus/>
        <math:ci>WSB6P_1</math:ci>
        <math:ci>WSB6PQ_1</math:ci>
      </math:apply>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="SBFa5_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kasbf5_1</math:ci>
      <math:ci>WSB5P_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="SBFa6_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:ci>kasbf6_1</math:ci>
      <math:ci>SWI4B_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="SWI4nucf_1">
  <math:math>
    <math:piecewise>
      <math:piece>
        <math:cn>0.0</math:cn>
        <math:apply>
          <math:lt/>
          <math:ci>T4_2</math:ci>
          <math:cn>1.0E-8</math:cn>
        </math:apply>
      </math:piece>
      <math:otherwise>
        <math:apply>
          <math:divide/>
          <math:apply>
            <math:minus/>
            <math:ci>T4_2</math:ci>
          </math:apply>
          <math:times/>

```

```

        <math:cn>4.0</math:cn>
        <math:apply>
          <math:plus/>
          <math:ci>SWI4C_1</math:ci>
          <math:ci>SWI4PC_1</math:ci>
        </math:apply>
      </math:apply>
    </math:otherwise>
  </math:piecewise>
</math:math>
</assignmentRule>
<assignmentRule variable="WHI5nucf_1">
  <math:math>
    <math:piecewise>
      <math:piece>
        <math:cn>0.0</math:cn>
        <math:apply>
          <math:lt/>
          <math:ci>T3_2</math:ci>
          <math:cn>1.0E-8</math:cn>
        </math:apply>
      </math:piece>
      <math:otherwise>
        <math:apply>
          <math:divide/>
          <math:apply>
            <math:minus/>
            <math:ci>T3_2</math:ci>
          </math:apply>
          <math:times/>
          <math:cn>4.0</math:cn>
          <math:apply>
            <math:plus/>
            <math:ci>WHI5C_1</math:ci>
            <math:ci>WHI5PC_1</math:ci>
          </math:apply>
        </math:apply>
      </math:otherwise>
    </math:piecewise>
  </math:math>
</assignmentRule>
<assignmentRule variable="SWI6nucf_1">
  <math:math>
    <math:piecewise>

```

```

<math:piece>
  <math:cn>0.0</math:cn>
  <math:apply>
    <math:lt/>
    <math:ci>T0_2</math:ci>
    <math:cn>1.0E-8</math:cn>
  </math:apply>
</math:piece>
<math:otherwise>
  <math:apply>
    <math:divide/>
    <math:apply>
      <math:minus/>
      <math:ci>T0_2</math:ci>
      <math:apply>
        <math:times/>
        <math:cn>4.0</math:cn>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:ci>SWI6C_1</math:ci>
            <math:ci>SWI6QC_1</math:ci>
          </math:apply>
            <math:ci>SWI6PQC_1</math:ci>
          </math:apply>
        </math:apply>
      </math:apply>
    <math:ci>T0_2</math:ci>
  </math:apply>
</math:otherwise>
</math:piecewise>
</math:math>
</assignmentRule>
<assignmentRule variable="WHI5cycf_1">
  <math:math>
    <math:apply>
      <math:minus/>
      <math:cn>1.0</math:cn>
      <math:ci>WHI5nucf_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="CLN310x_1">
  <math:math>
    <math:apply>
      <math:times/>
      <math:cn>10.0</math:cn>
      <math:ci>CLN3_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>

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```

        </math:math>
    </assignmentRule>
</listOfRules>
<listOfReactions>
    <reaction fast="false" id="reaction_0" name="Growth">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_0"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                </annotation>
                <listOfProducts>
                    <speciesReference species="MASS_1"/>
                </listOfProducts>
                <kineticLaw>
                    <math:math>
                        <math:apply>
                            <math:ci>Mass_Action_0_1</math:ci>
                            <math:apply>
                                <math:times/>
                                <math:apply>
                                    <math:times/>
                                    <math:ci>mu_1</math:ci>
                                    <math:ci>MASS_1</math:ci>
                                </math:apply>
                                <math:apply>
                                    <math:minus/>
                                    <math:cn>1.0</math:cn>
                                </math:apply>
                                <math:divide/>
                                <math:ci>MASS_1</math:ci>
                                <math:ci>MAXMASS_1</math:ci>
                            </math:apply>
                        </math:apply>
                    </math:math>
                </kineticLaw>
            </reaction>
            <reaction fast="false" id="reaction_10" name="Other Cyclin
regulation">
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
                </annotation>
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

```

```

jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
</reaction>
    <reaction fast="false" id="reaction_1" name="reaction_1">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfProducts>
            <speciesReference species="CLN2_1"/>
        </listOfProducts>
        <listOfModifiers>
            <modifierSpeciesReference species="SBFact_1"/>
            <modifierSpeciesReference species="MBFact_1"/>
        </listOfModifiers>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_0_1</math:ci>
                    <math:apply>
                        <math:plus/>
                        <math:apply>
                            <math:plus/>
                            <math:ci>ksn2_1</math:ci>
                            <math:apply>
                                <math:times/>
                                <math:ci>ksn2_2</math:ci>
                                <math:ci>SBFact_1</math:ci>
                            </math:apply>
                        </math:apply>
                    </math:apply>
                    <math:apply>
                        <math:times/>
                        <math:ci>ksn2_3</math:ci>
                        <math:ci>MBFact_1</math:ci>
                    </math:apply>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_2" name="reaction_2">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

```



```

jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="CLN2_1"/>
    </listOfReactants>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdn2_1</math:ci>
          <math:ci>CLN2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_3" name="reaction_3">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfProducts>
          <speciesReference species="CLB5_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="SBFact_1"/>
          <modifierSpeciesReference species="MBFact_1"/>
          <modifierSpeciesReference species="MASS_1"/>
        </listOfModifiers>
        <kineticLaw>
          <math:math>
            <math:apply>
              <math:ci>Mass_Action_0_1</math:ci>
            <math:apply>
              <math:times/>
            <math:apply>
              <math:plus/>
            <math:apply>

```

```

        <math:plus/>
        <math:ci>ksb5_1</math:ci>
        <math:apply>
            <math:times/>
            <math:ci>ksb5_2</math:ci>
            <math:ci>SBFact_1</math:ci>
        </math:apply>
    </math:apply>
    <math:apply>
        <math:times/>
        <math:ci>ksb5_3</math:ci>
        <math:ci>MBFact_1</math:ci>
    </math:apply>
</math:apply>
    <math:ci>MASS_1</math:ci>
</math:apply>
</math:apply>
</math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_4" name="reaction_4">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="CLB5_1"/>
    </listOfReactants>
    <listOfModifiers>
        <modifierSpeciesReference species="Vdb5_2"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vdb5_2</math:ci>
                <math:ci>CLB5_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_5" name="reaction_5">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">

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```

        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
        <speciesReference species="CLB2_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="MCM1_1"/>
        <modifierSpeciesReference species="MASS_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:apply>
                    <math:times/>
                    <math:apply>
                        <math:plus/>
                        <math:ci>ksb2_1</math:ci>
                        <math:apply>
                            <math:times/>
                            <math:ci>ksb2_2</math:ci>
                            <math:ci>MCM1_1</math:ci>
                        </math:apply>
                    </math:apply>
                <math:ci>MASS_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_6" name="reaction_6">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="CLB2_1"/>
    </listOfReactants>

```

```

    <listOfModifiers>
      <modifierSpeciesReference species="Vdb2_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb2_1</math:ci>
          <math:ci>CLB2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_8" name="SIC1 REGLN OF
CLBS">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_9" name="reaction_9">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="SWI5_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:apply>
            <math:plus/>
            <math:ci>ksc1_1</math:ci>
          </math:apply>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

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                <math:times/>
                <math:ci>ksc1_2</math:ci>
                <math:ci>SWI5_1</math:ci>
            </math:apply>
        </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_10" name="reaction_10">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="SIC1_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdc1_1</math:ci>
                <math:ci>SIC1_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_11" name="reaction_11">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SIC1_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SIC1P_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="Vkpc1_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>

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        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vkpc1_1</math:ci>
          <math:ci>SIC1_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_12" name="reaction_12">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SIC1P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vppc1_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vppc1_1</math:ci>
          <math:ci>SIC1P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_13" name="reaction_13">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>

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        <speciesReference species="SIC1P_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kd3c1_1</math:ci>
                <math:ci>SIC1P_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_14" name="reaction_14">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_2"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="CLB2_1"/>
        <speciesReference species="SIC1_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="C2_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_2_1</math:ci>
                <math:ci>kasb2_1</math:ci>
                <math:ci>CLB2_1</math:ci>
                <math:ci>SIC1_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_15" name="reaction_15">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="C2_1"/>
    </listOfReactants>

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    <listOfProducts>
      <speciesReference species="CLB2_1"/>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdib2_1</math:ci>
          <math:ci>C2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_16" name="reaction_16">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="CLB5_1"/>
      <speciesReference species="SIC1_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="C5_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_2_1</math:ci>
          <math:ci>kasb5_1</math:ci>
          <math:ci>CLB5_1</math:ci>
          <math:ci>SIC1_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_17" name="reaction_17">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CLB5_1"/>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
  </reaction>

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    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdib5_1</math:ci>
          <math:ci>C5_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_18" name="reaction_18">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="C2P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vkpc1_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vkpc1_1</math:ci>
          <math:ci>C2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_19" name="reaction_19">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="C2_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vppc1_1"/>

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    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vppc1_1</math:ci>
          <math:ci>C2P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_20" name="reaction_20">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="C5P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vkpc1_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vkpc1_1</math:ci>
          <math:ci>C5_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_21" name="reaction_21">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="C5_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vppc1_1"/>

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    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vppc1_1</math:ci>
          <math:ci>C5P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_22" name="reaction_22">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb2_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb2_1</math:ci>
          <math:ci>C2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_23" name="reaction_23">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5_1"/>
    </listOfReactants>

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    <listOfProducts>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb5_2"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb5_2</math:ci>
          <math:ci>C5_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_24" name="reaction_24">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CLB2_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kd3c1_1</math:ci>
          <math:ci>C2P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_25" name="reaction_25">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CLB5_1"/>
    </listOfProducts>

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    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kd3c1_1</math:ci>
          <math:ci>C5P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_26" name="reaction_26">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SIC1P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb2_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb2_1</math:ci>
          <math:ci>C2P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_27" name="reaction_27">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5P_1"/>
    </listOfReactants>
    <listOfProducts>

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    <speciesReference species="SIC1P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb5_2"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdb5_2</math:ci>
        <math:ci>C5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_28" name="CDC6 REGLN OF
CLBS">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_29" name="reaction_29">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="CDC6_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="SWI5_1"/>
    <modifierSpeciesReference species="SBFact_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:ci>ksf6_1</math:ci>
            <math:apply>
              <math:times/>
              <math:ci>ksf6_2</math:ci>
              <math:ci>SWI5_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
      </math:math>
    </math:math>
  </kineticLaw>

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        <math:apply>
          <math:times/>
          <math:ci>ksf6_3</math:ci>
          <math:ci>SBFact_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_30" name="reaction_30">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC6_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdf6_1</math:ci>
        <math:ci>CDC6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_31" name="reaction_31">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkp6_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkp6_1</math:ci>
        <math:ci>CDC6_1</math:ci>

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        </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_32" name="reaction_32">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="CDC6P_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="CDC6_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="Vppf6_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vppf6_1</math:ci>
                <math:ci>CDC6P_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_33" name="reaction_33">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="CDC6P_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kd3f6_1</math:ci>
                <math:ci>CDC6P_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_34" name="reaction_34">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

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jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_2"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CLB2_1"/>
    <speciesReference species="CDC6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="F2_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasf2_1</math:ci>
        <math:ci>CLB2_1</math:ci>
        <math:ci>CDC6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_35" name="reaction_35">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F2_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CLB2_1"/>
    <speciesReference species="CDC6_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdif2_1</math:ci>
        <math:ci>F2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_36" name="reaction_36">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_2"
jigcell:nameset="false"></jigcell:ratelaw>

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</annotation>
<listOfReactants>
  <speciesReference species="CLB5_1"/>
  <speciesReference species="CDC6_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="F5_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_2_1</math:ci>
      <math:ci>kasf5_1</math:ci>
      <math:ci>CLB5_1</math:ci>
      <math:ci>CDC6_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_37" name="reaction_37">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CLB5_1"/>
    <speciesReference species="CDC6_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdif5_1</math:ci>
        <math:ci>F5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_38" name="reaction_38">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F2_1"/>

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    </listOfReactants>
    <listOfProducts>
      <speciesReference species="F2P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vkp6_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vkp6_1</math:ci>
          <math:ci>F2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_39" name="reaction_39">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="F2P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="F2_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp6_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp6_1</math:ci>
          <math:ci>F2P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_40" name="reaction_40">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="F5_1"/>

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    </listOfReactants>
    <listOfProducts>
      <speciesReference species="F5P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vkp6_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vkp6_1</math:ci>
          <math:ci>F5_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_41" name="reaction_41">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="F5P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="F5_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp6_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp6_1</math:ci>
          <math:ci>F5P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_42" name="reaction_42">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="F2_1"/>

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    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CDC6_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb2_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb2_1</math:ci>
          <math:ci>F2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_43" name="reaction_43">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="F5_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CDC6_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb5_2"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb5_2</math:ci>
          <math:ci>F5_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_44" name="reaction_44">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">

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        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <listOfReactants>
            <speciesReference species="F2P_1"/>
        </listOfReactants>
        <listOfProducts>
            <speciesReference species="CLB2_1"/>
        </listOfProducts>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_1_1</math:ci>
                    <math:ci>kd3f6_1</math:ci>
                    <math:ci>F2P_1</math:ci>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_45" name="reaction_45">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
            </annotation>
            <listOfReactants>
                <speciesReference species="F5P_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="CLB5_1"/>
            </listOfProducts>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:ci>kd3f6_1</math:ci>
                        <math:ci>F5P_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_46" name="reaction_46">
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
                </annotation>
                <listOfReactants>
                    <speciesReference species="F2P_1"/>
                </listOfReactants>

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    <listOfProducts>
      <speciesReference species="CDC6P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb2_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb2_1</math:ci>
          <math:ci>F2P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_47" name="reaction_47">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="F5P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CDC6P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb5_2"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb5_2</math:ci>
          <math:ci>F5P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_48" name="SWI5
REGULATION">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">

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        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_49" name="reaction_49">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfProducts>
        <speciesReference species="SWI5_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="MCM1_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:apply>
                    <math:plus/>
                    <math:ci>ksswi_1</math:ci>
                    <math:apply>
                        <math:times/>
                        <math:ci>ksswi_2</math:ci>
                        <math:ci>MCM1_1</math:ci>
                    </math:apply>
                </math:apply>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_50" name="reaction_50">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI5_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdswi_1</math:ci>
                <math:ci>SWI5_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>

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    </reaction>
    <reaction fast="false" id="reaction_51" name="reaction_51">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="SWI5_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="SWI5P_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="CLB2_1"/>
      </listOfModifiers>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:apply>
              <math:times/>
              <math:ci>kiswi_1</math:ci>
              <math:ci>CLB2_1</math:ci>
            </math:apply>
            <math:ci>SWI5_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_52" name="reaction_52">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="SWI5P_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="SWI5_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="CDC14_1"/>
      </listOfModifiers>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:apply>

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        <math:times/>
        <math:ci>kaswi_1</math:ci>
        <math:ci>CDC14_1</math:ci>
    </math:apply>
    <math:ci>SWI5P_1</math:ci>
    </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_53" name="reaction_53">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI5P_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdswi_1</math:ci>
                <math:ci>SWI5P_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_54" name="IEP REGULATION">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_55" name="reaction_55">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Michaelis_Menten"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="IE_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="IEP_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="Vaiep_1"/>
    </listOfModifiers>
    <kineticLaw>

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        <math:math>
          <math:apply>
            <math:ci>Michaelis_Menten_1</math:ci>
            <math:cn>1.0</math:cn>
            <math:ci>Jaiep_1</math:ci>
            <math:ci>Vaiep_1</math:ci>
            <math:ci>IE_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_56" name="reaction_56">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Michaelis_Menten"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="IEP_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="IE_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Michaelis_Menten_1</math:ci>
            <math:cn>1.0</math:cn>
            <math:ci>Jiiep_1</math:ci>
            <math:ci>kiiep_1</math:ci>
            <math:ci>IEP_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_57" name="CDC20
REGULATION">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_58" name="reaction_58">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfProducts>
        <speciesReference species="CDC20i_1"/>

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</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="MCM1_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_0_1</math:ci>
      <math:apply>
        <math:plus/>
        <math:ci>ks20_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ks20_2</math:ci>
          <math:ci>MCM1_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_59" name="reaction_59">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC20i_1"/>
  </listOfReactants>
  <listOfModifiers>
    <modifierSpeciesReference species="Vd20_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vd20_1</math:ci>
        <math:ci>CDC20i_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_60" name="reaction_60">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

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jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC20i_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC20_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="IEP_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:ci>ka20_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ka20_2</math:ci>
            <math:ci>IEP_1</math:ci>
          </math:apply>
        </math:apply>
        <math:ci>CDC20i_1</math:ci>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_61" name="reaction_61">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC20_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC20i_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="MAD2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>

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        <math:ci>MAD2_1</math:ci>
        <math:ci>CDC20_1</math:ci>
    </math:apply>
</math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_62" name="reaction_62">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="CDC20_1"/>
    </listOfReactants>
    <listOfModifiers>
        <modifierSpeciesReference species="Vd20_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vd20_1</math:ci>
                <math:ci>CDC20_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_63" name="CDH1
REGULATION">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_64" name="reaction_64">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfProducts>
        <speciesReference species="CDH1_1"/>
    </listOfProducts>
    <kineticLaw>

```

```

        <math:math>
          <math:apply>
            <math:ci>Mass_Action_0_1</math:ci>
            <math:ci>kscdh_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_65" name="reaction_65">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="CDH1_1"/>
      </listOfReactants>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>kdcdh_1</math:ci>
            <math:ci>CDH1_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_66" name="reaction_66">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Michaelis_Menten"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="CDH1_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="CDH1i_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="Vicdh_1"/>
      </listOfModifiers>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Michaelis_Menten_1</math:ci>
            <math:cn>1.0</math:cn>
            <math:ci>Jicdh_1</math:ci>
            <math:ci>Vicdh_1</math:ci>
            <math:ci>CDH1_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
  </listOfReactions>
</model>

```

```

        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_67" name="reaction_67">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Michaelis_Menten"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="CDH1i_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CDH1_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vacdh_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Michaelis_Menten_1</math:ci>
          <math:cn>1.0</math:cn>
          <math:ci>Jacdh_1</math:ci>
          <math:ci>Vacdh_1</math:ci>
          <math:ci>CDH1i_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_68" name="reaction_68">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="CDH1i_1"/>
    </listOfReactants>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdcdh_1</math:ci>
          <math:ci>CDH1i_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

```



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    <reaction fast="false" id="reaction_69" name="CDC14-NET1">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_70" name="reaction_70">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfProducts>
        <speciesReference species="CDC14_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_0_1</math:ci>
            <math:ci>ks14_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_71" name="reaction_71">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="CDC14_1"/>
      </listOfReactants>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>kd14_1</math:ci>
            <math:ci>CDC14_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_72" name="reaction_72">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfProducts>

```

```

    <speciesReference species="NET1_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:ci>ksnet_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_73" name="reaction_73">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="NET1_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdnet_1</math:ci>
        <math:ci>NET1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_74" name="reaction_74">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="NET1_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="NET1P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkpnet_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkpnet_1</math:ci>

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        <math:ci>NET1_1</math:ci>
        </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_75" name="reaction_75">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <listOfReactants>
            <speciesReference species="NET1P_1"/>
        </listOfReactants>
        <listOfProducts>
            <speciesReference species="NET1_1"/>
        </listOfProducts>
        <listOfModifiers>
            <modifierSpeciesReference species="Vppnet_1"/>
        </listOfModifiers>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_1_1</math:ci>
                    <math:ci>Vppnet_1</math:ci>
                    <math:ci>NET1P_1</math:ci>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
<reaction fast="false" id="reaction_76" name="reaction_76">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <listOfReactants>
            <speciesReference species="NET1P_1"/>
        </listOfReactants>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_1_1</math:ci>
                    <math:ci>kdnet_1</math:ci>
                    <math:ci>NET1P_1</math:ci>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
<reaction fast="false" id="reaction_72" name="reaction_72">

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jigcell" <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_2"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC14_1"/>
    <speciesReference species="NET1_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="RENT_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasrent_1</math:ci>
        <math:ci>CDC14_1</math:ci>
        <math:ci>NET1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_73" name="reaction_73">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="RENT_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CDC14_1"/>
      <speciesReference species="NET1_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdirent_1</math:ci>
          <math:ci>RENT_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_79" name="reaction_79">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"

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jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC14_1"/>
    <speciesReference species="NET1P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="REntp_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasrentp_1</math:ci>
        <math:ci>CDC14_1</math:ci>
        <math:ci>NET1P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_80" name="reaction_80">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="REntp_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC14_1"/>
    <speciesReference species="NET1P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdirentp_1</math:ci>
        <math:ci>REntp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_81" name="reaction_81">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>

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    <speciesReference species="RENT_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="REntp_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkpnet_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkpnet_1</math:ci>
        <math:ci>RENT_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_82" name="reaction_82">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="REntp_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="RENT_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppnet_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppnet_1</math:ci>
        <math:ci>REntp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_83" name="reaction_83">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>

```

```

    <speciesReference species="RENT_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC14_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdnet_1</math:ci>
        <math:ci>RENT_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_84" name="reaction_84">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="RENT_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC14_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdnet_1</math:ci>
        <math:ci>RENT_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_85" name="reaction_85">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="RENT_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="NET1_1"/>
  </listOfProducts>
  <kineticLaw>

```

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        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>kd14_1</math:ci>
            <math:ci>RENT_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_86" name="reaction_86">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="RENTP_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="NET1P_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>kd14_1</math:ci>
            <math:ci>RENTP_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_87" name="TEM1
REGULATION">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_88" name="reaction_88">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Michaelis_Menten"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="TEM1GDP_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="TEM1GTP_1"/>
      </listOfProducts>

```



```

<listOfModifiers>
  <modifierSpeciesReference species="LTE1_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Michaelis_Menten_1</math:ci>
      <math:cn>1.0</math:cn>
      <math:ci>Jatem_1</math:ci>
      <math:ci>LTE1_1</math:ci>
      <math:ci>TEM1GDP_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_89" name="reaction_89">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Michaelis_Menten"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="TEM1GTP_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="TEM1GDP_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="BUB2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Michaelis_Menten_1</math:ci>
        <math:cn>1.0</math:cn>
        <math:ci>Jitem_1</math:ci>
        <math:ci>BUB2_1</math:ci>
        <math:ci>TEM1GTP_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_90" name="CDC15
REGULATION">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_91" name="reaction_91">

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jigcell" <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC15i_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC15_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="TEM1GDP_1"/>
    <modifierSpeciesReference species="TEM1GTP_1"/>
    <modifierSpeciesReference species="CDC14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:times/>
              <math:ci>ka15_1</math:ci>
              <math:ci>TEM1GDP_1</math:ci>
            </math:apply>
            <math:apply>
              <math:times/>
              <math:ci>ka15_2</math:ci>
              <math:ci>TEM1GTP_1</math:ci>
            </math:apply>
          </math:apply>
          <math:apply>
            <math:times/>
            <math:ci>ka15_3</math:ci>
            <math:ci>CDC14_1</math:ci>
          </math:apply>
        </math:apply>
        <math:ci>CDC15i_1</math:ci>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_92" name="reaction_92">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"

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jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC15_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC15i_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>ki15_1</math:ci>
        <math:ci>CDC15_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_96" name="PDS1-ESP1">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_97" name="reaction_97">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="PDS1_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:ci>kspds_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_98" name="reaction_98">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">

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        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <listOfReactants>
            <speciesReference species="PDS1_1"/>
        </listOfReactants>
        <listOfModifiers>
            <modifierSpeciesReference species="Vdpds_1"/>
        </listOfModifiers>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_1_1</math:ci>
                    <math:ci>Vdpds_1</math:ci>
                    <math:ci>PDS1_1</math:ci>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_99" name="reaction_99">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_2"
jigcell:nameset="false"></jigcell:ratelaw>
            </annotation>
            <listOfReactants>
                <speciesReference species="PDS1_1"/>
                <speciesReference species="ESP1_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="PE_1"/>
            </listOfProducts>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_2_1</math:ci>
                        <math:ci>kasesp_1</math:ci>
                        <math:ci>PDS1_1</math:ci>
                        <math:ci>ESP1_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_100" name="reaction_100">
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
                </annotation>
                <listOfReactants>

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        <speciesReference species="PE_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="PDS1_1"/>
        <speciesReference species="ESP1_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdiesp_1</math:ci>
                <math:ci>PE_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_101" name="reaction_101">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="PE_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="ESP1_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="Vdpds_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vdpds_1</math:ci>
                <math:ci>PE_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_102" name="MARKERS - ORI,
BUD, SPN">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_103" name="reaction_103">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

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jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="ORI_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="CLB5_1"/>
    <modifierSpeciesReference species="CLB2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ksori_1</math:ci>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:times/>
              <math:ci>eorib5_1</math:ci>
              <math:ci>CLB5_1</math:ci>
            </math:apply>
            <math:apply>
              <math:times/>
              <math:ci>eorib2_1</math:ci>
              <math:ci>CLB2_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_104" name="reaction_104">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="ORI_1"/>
    </listOfReactants>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdori_1</math:ci>

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        <math:ci>ORI_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_105" name="reaction_105">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="BUD_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="CLN2_1"/>
    <modifierSpeciesReference species="CLN3_1"/>
    <modifierSpeciesReference species="CLB5_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ksbud_1</math:ci>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:plus/>
              <math:apply>
                <math:times/>
                <math:ci>ebudn2_1</math:ci>
                <math:ci>CLN2_1</math:ci>
              </math:apply>
            <math:apply>
              <math:times/>
              <math:ci>ebudn3_1</math:ci>
              <math:ci>CLN3_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

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        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_106" name="reaction_106">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
            </annotation>
            <listOfReactants>
                <speciesReference species="BUD_1"/>
            </listOfReactants>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:ci>kdbud_1</math:ci>
                        <math:ci>BUD_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
    <reaction fast="false" id="reaction_107" name="reaction_107">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
            </annotation>
            <listOfProducts>
                <speciesReference species="SPN_1"/>
            </listOfProducts>
            <listOfModifiers>
                <modifierSpeciesReference species="CLB2_1"/>
            </listOfModifiers>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_0_1</math:ci>
                        <math:apply>
                            <math:divide/>
                            <math:apply>
                                <math:times/>
                                <math:ci>kssp1_1</math:ci>
                                <math:ci>CLB2_1</math:ci>
                            </math:apply>
                            <math:apply>
                                <math:plus/>
                                <math:ci>Jspn_1</math:ci>
                                <math:ci>CLB2_1</math:ci>
                            </math:apply>
                        </math:apply>
                    </math:math>
                </math:math>
            </kineticLaw>
        </reaction>
    </reactionSet>
</model>

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        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_108" name="reaction_108">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="SPN_1"/>
    </listOfReactants>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdspn_1</math:ci>
          <math:ci>SPN_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_109" name="CHKPT PROTEINS
- MAD2, LTE1, BUB2">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_110" name="reaction_110">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfProducts>
      <speciesReference species="MAD2_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_111" name="reaction_111">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

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jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <listOfProducts>
        <speciesReference species="LTE1_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:cn>0.0</math:cn>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_112" name="reaction_112">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <listOfProducts>
            <speciesReference species="BUB2_1"/>
        </listOfProducts>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_0_1</math:ci>
                    <math:cn>0.0</math:cn>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_113" name="SBF
complexes=====">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
        </annotation>
    </reaction>
    <reaction fast="false" id="reaction_114" name="free forms"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
        </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"

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jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_114" name="01f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
      </annotation>
      <listOfReactants>
        <speciesReference species="SWI4_1"/>
        <speciesReference species="SWI6_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="SBFF_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_2_1</math:ci>
            <math:ci>kas46_1</math:ci>
            <math:ci>SWI4_1</math:ci>
            <math:ci>SWI6_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_115" name="01r">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
          </annotation>
          <listOfReactants>
            <speciesReference species="SBFF_1"/>
          </listOfReactants>
          <listOfProducts>
            <speciesReference species="SWI4_1"/>
            <speciesReference species="SWI6_1"/>
          </listOfProducts>

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    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdi46_1</math:ci>
          <math:ci>SBFF_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_116" name="02f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WHI5_1"/>
      <speciesReference species="SBFF_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSF_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_2_1</math:ci>
          <math:ci>kasws_1</math:ci>
          <math:ci>WHI5_1</math:ci>
          <math:ci>SBFF_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_117" name="02r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>

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```

    <listOfReactants>
      <speciesReference species="WSF_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WHI5_1"/>
      <speciesReference species="SBFF_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdiws_1</math:ci>
          <math:ci>WSF_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_119" name="Prom bound
forms" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_118" name="03f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SBFF_1"/>
      <speciesReference species="PROM2_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SBFB_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>

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```

        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasprom_1</math:ci>
        <math:ci>SBFF_1</math:ci>
        <math:ci>PROM2_1</math:ci>
    </math:apply>
</math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_119" name="03r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SBFB_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SBFF_1"/>
        <speciesReference species="PROM2_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdiprom_1</math:ci>
                <math:ci>SBFB_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_120" name="04f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="WSF_1"/>
        <speciesReference species="PROM2_1"/>

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    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSB_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_2_1</math:ci>
          <math:ci>kasprom_1</math:ci>
          <math:ci>WSF_1</math:ci>
          <math:ci>PROM2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_121" name="04r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSB_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSF_1"/>
      <speciesReference species="PROM2_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdiprom_1</math:ci>
          <math:ci>WSB_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_122" name="05f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

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jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasws_1</math:ci>
        <math:ci>WHI5_1</math:ci>
        <math:ci>SBFB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_123" name="05r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFB_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiws_1</math:ci>
        <math:ci>WSB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

```



```

    <reaction fast="false" id="reaction_131" name="SWI4B FORM">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_132" name="09f">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
      </annotation>
      <listOfReactants>
        <speciesReference species="SWI4_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="SWI4F_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="BCK2_1"/>
      </listOfModifiers>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:apply>
              <math:times/>
              <math:ci>ksbs4_1</math:ci>
              <math:ci>BCK2_1</math:ci>
            </math:apply>
            <math:ci>SWI4_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_133" name="09r">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>

```

```

</annotation>
<listOfReactants>
  <speciesReference species="SWI4F_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SWI4_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdbs4_1</math:ci>
      <math:ci>SWI4F_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_134" name="10f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4F_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4B_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasprom_1</math:ci>
        <math:ci>SWI4F_1</math:ci>
        <math:ci>PROM2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_133" name="10r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></

```

```

jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4B_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4F_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiprom_1</math:ci>
        <math:ci>SWI4B_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_136" name="57f"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4B_1"/>
    <speciesReference species="WHI5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="W4B_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasw4_1</math:ci>
        <math:ci>SWI4B_1</math:ci>
        <math:ci>WHI5_1</math:ci>

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        </math:apply>
        </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_137" name="57r"
reversible="false">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
            <speciesReference species="W4B_1"/>
        </listOfReactants>
        <listOfProducts>
            <speciesReference species="SWI4B_1"/>
            <speciesReference species="WHI5_1"/>
        </listOfProducts>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_1_1</math:ci>
                    <math:ci>kdiw4_1</math:ci>
                    <math:ci>W4B_1</math:ci>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_138" name="58"
reversible="false">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
            <speciesReference species="W4B_1"/>
        </listOfReactants>
        <listOfProducts>
            <speciesReference species="SWI4B_1"/>

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    <speciesReference species="WHI5PN_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
          <math:ci>Vpclnw_1</math:ci>
        </math:apply>
        <math:ci>W4B_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_140" name="CLN3 P'lation
Free forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_141" name="11f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5PN_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>

```

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</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef5p_1</math:ci>
        <math:ci>Vpclnw_1</math:ci>
      </math:apply>
      <math:ci>WHI5_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_142" name="11r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5PN_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WHI5PN_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_136" name="12f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>

```

```

        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="SWI6_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="SWI6P_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="Vpcln_1"/>
        </listOfModifiers>
        <kineticLaw>
          <math:math>
            <math:apply>
              <math:ci>Mass_Action_1_1</math:ci>
              <math:apply>
                <math:times/>
                <math:ci>ef6p_1</math:ci>
                <math:ci>Vpcln_1</math:ci>
              </math:apply>
              <math:ci>SWI6_1</math:ci>
            </math:apply>
          </math:math>
        </kineticLaw>
      </reaction>
      <reaction fast="false" id="reaction_137" name="12r">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="SWI6P_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="SWI6_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="Vppcln_1"/>
        </listOfModifiers>
        <kineticLaw>

```

```

        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>Vppcln_1</math:ci>
            <math:ci>SWI6P_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_136" name="13f">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
      </annotation>
      <listOfReactants>
        <speciesReference species="SBFF_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="SBFF6P_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="Vpcln_1"/>
      </listOfModifiers>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:apply>
              <math:times/>
              <math:ci>ef6p_1</math:ci>
              <math:ci>Vpcln_1</math:ci>
            </math:apply>
            <math:ci>SBFF_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_137" name="13r">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

```



```

jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>SBFF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_143" name="14f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF5P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>

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```

        <math:ci>Vpclnw_1</math:ci>
        </math:apply>
        <math:ci>WSF_1</math:ci>
        </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_144" name="14r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="WSF5P_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="WSF_1"/>
            </listOfProducts>
            <listOfModifiers>
                <modifierSpeciesReference species="Vppcln_1"/>
            </listOfModifiers>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:ci>Vppcln_1</math:ci>
                        <math:ci>WSF5P_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_149" name="15">
            <notes>
                <p xmlns="http://www.w3.org/1999/xhtml">complex unstable</
p>
            </notes>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                </annotation>
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:rateparams jigcell:nameset="false"

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jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF_1"/>
    <speciesReference species="WHI5PN_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiwp_1</math:ci>
        <math:ci>WSF5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_138" name="16f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>WSF_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>

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```

        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_139" name="16r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="WSF6P_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="WSF_1"/>
            </listOfProducts>
            <listOfModifiers>
                <modifierSpeciesReference species="Vppcln_1"/>
            </listOfModifiers>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:ci>Vppcln_1</math:ci>
                        <math:ci>WSF6P_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
<reaction fast="false" id="reaction_143" name="17">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="WSF6P_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="WSF56P_1"/>
            </listOfProducts>

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```

<listOfModifiers>
  <modifierSpeciesReference species="Vpclnw_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef5p_1</math:ci>
        <math:ci>Vpclnw_1</math:ci>
      </math:apply>
      <math:ci>WSF6P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_146" name="18">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">complex unstable</
p>
  </notes>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF56P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6P_1"/>
    <speciesReference species="WHI5PN_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiwp_1</math:ci>
        <math:ci>WSF56P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_155" name="CLN3 P'lation

```

```

bound forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_145" name="19f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>SBFB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_146" name="19r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>

```

```

        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="SBFB6P_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="SBFB_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="Vppcln_1"/>
        </listOfModifiers>
        <kineticLaw>
          <math:math>
            <math:apply>
              <math:ci>Mass_Action_1_1</math:ci>
              <math:ci>Vppcln_1</math:ci>
              <math:ci>SBFB6P_1</math:ci>
            </math:apply>
          </math:math>
        </kineticLaw>
      </reaction>
      <reaction fast="false" id="reaction_147" name="20f">
        <notes>
          <p xmlns="http://www.w3.org/1999/xhtml">no dissociation to
SBFB+WHI5PN, for Wagner 2009.</p>
        </notes>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="WSB_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="WSB5P_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="Vpclnw_1"/>
        </listOfModifiers>
        <kineticLaw>

```

```

    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
          <math:ci>Vpclnw_1</math:ci>
        </math:apply>
        <math:ci>WSB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_148" name="20r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSB5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_149" name="21f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

```



```

jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>WSB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_150" name="21r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>

```

```

        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSB6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_151" name="22f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSB5P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSB56P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpcln_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef6p_1</math:ci>
            <math:ci>Vpcln_1</math:ci>
          </math:apply>
          <math:ci>WSB5P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
<reaction fast="false" id="reaction_152" name="22r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"

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jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB56P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB5P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSB56P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_151" name="23f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB56P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
          <math:ci>Vpclnw_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

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                <math:ci>WSB6P_1</math:ci>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_152" name="23r">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                </annotation>
                <listOfReactants>
                    <speciesReference species="WSB56P_1"/>
                </listOfReactants>
                <listOfProducts>
                    <speciesReference species="WSB6P_1"/>
                </listOfProducts>
                <listOfModifiers>
                    <modifierSpeciesReference species="Vppcln_1"/>
                </listOfModifiers>
                <kineticLaw>
                    <math:math>
                        <math:apply>
                            <math:ci>Mass_Action_1_1</math:ci>
                            <math:ci>Vppcln_1</math:ci>
                            <math:ci>WSB56P_1</math:ci>
                        </math:apply>
                    </math:math>
                </kineticLaw>
            </reaction>
            <reaction fast="false" id="reaction_156" name="24">
                <notes>
                    <p xmlns="http://www.w3.org/1999/xhtml">complex unstable</
p>
                </notes>
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                    </annotation>
                    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
                        </annotation>

```

```

    <listOfReactants>
      <speciesReference species="WSB56P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SBFB6P_1"/>
      <speciesReference species="WHI5PN_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdiwp_1</math:ci>
          <math:ci>WSB56P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_167" name="CLB26 P'lacion
free forms" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_153" name="25f">
    <notes>
      <p xmlns="http://www.w3.org/1999/xhtml">Swi6PQ for msn5
export</p>
    </notes>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SWI6P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SWI6PQ_1"/>
    </listOfProducts>

```

```

    <listOfModifiers>
      <modifierSpeciesReference species="Vpclb26_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef6q_1</math:ci>
            <math:ci>Vpclb26_1</math:ci>
          </math:apply>
          <math:ci>SWI6P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_154" name="25r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SWI6PQ_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SWI6P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp14_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>SWI6PQ_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_160" name="26f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">

```

```

        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
        <speciesReference species="SBFF6P_1"/>
        </listOfReactants>
        <listOfProducts>
        <speciesReference species="SBFF6PQ_1"/>
        </listOfProducts>
        <listOfModifiers>
        <modifierSpeciesReference species="Vpclb26_1"/>
        </listOfModifiers>
        <kineticLaw>
        <math:math>
        <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
        <math:times/>
        <math:ci>ef6q_1</math:ci>
        <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>SBFF6P_1</math:ci>
        </math:apply>
        </math:math>
        </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_161" name="26r">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
        <speciesReference species="SBFF6PQ_1"/>
        </listOfReactants>
        <listOfProducts>
        <speciesReference species="SBFF6P_1"/>
        </listOfProducts>
        <listOfModifiers>
        <modifierSpeciesReference species="Vpp14_1"/>

```

```

</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vpp14_1</math:ci>
      <math:ci>SBFF6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_166" name="27f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6q_1</math:ci>
          <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>WSF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_167" name="27r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>

```



```

        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="WSF6PQ_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="WSF6P_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="Vpp14_1"/>
        </listOfModifiers>
        <kineticLaw>
          <math:math>
            <math:apply>
              <math:ci>Mass_Action_1_1</math:ci>
              <math:ci>Vpp14_1</math:ci>
              <math:ci>WSF6PQ_1</math:ci>
            </math:apply>
          </math:math>
        </kineticLaw>
      </reaction>
      <reaction fast="false" id="reaction_172" name="CLB26 P'lation
bound form" reversible="false">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
        </annotation>
      </reaction>
      <reaction fast="false" id="reaction_172" name="28f">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="SBFB6P_1"/>

```

```

</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFB6PQ_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclb26_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef6q_1</math:ci>
        <math:ci>Vpclb26_1</math:ci>
      </math:apply>
      <math:ci>SBFB6P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_197" name="28r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SBFB6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>

```

```

    </reaction>
    <reaction fast="false" id="reaction_173" name="29f">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
          </annotation>
          <listOfReactants>
            <speciesReference species="WSB6P_1"/>
          </listOfReactants>
          <listOfProducts>
            <speciesReference species="WSB6PQ_1"/>
          </listOfProducts>
          <listOfModifiers>
            <modifierSpeciesReference species="Vpclb26_1"/>
          </listOfModifiers>
          <kineticLaw>
            <math:math>
              <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:apply>
                  <math:times/>
                  <math:ci>ef6q_1</math:ci>
                  <math:ci>Vpclb26_1</math:ci>
                </math:apply>
                <math:ci>WSB6P_1</math:ci>
              </math:apply>
            </math:math>
          </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_201" name="29r">
          <notes>
            <p xmlns="http://www.w3.org/1999/xhtml">n rev rxn - modfd
14</p>
          </notes>
          <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
              <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
              </annotation>

```

```

    <listOfReactants>
      <speciesReference species="WSB6PQ_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSB6P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp14_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>WSB6PQ_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_179" name="Other complex
form" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_210" name="30f"
reversible="false">
    <notes>
      <p xmlns="http://www.w3.org/1999/xhtml">Assoc
Swi4&SWI6P</p>
    </notes>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SWI4_1"/>
      <speciesReference species="SWI6P_1"/>

```

```

    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SBFF6P_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_2_1</math:ci>
          <math:ci>kas46_1</math:ci>
          <math:ci>SWI4_1</math:ci>
          <math:ci>SWI6P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_211" name="30r"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SBFF6P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SWI4_1"/>
      <speciesReference species="SWI6P_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdi46_1</math:ci>
          <math:ci>SBFF6P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_212" name="31f"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>

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```

        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="SWI4_1"/>
          <speciesReference species="SWI6PQ_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="SBFF6PQ_1"/>
        </listOfProducts>
        <kineticLaw>
          <math:math>
            <math:apply>
              <math:ci>Mass_Action_2_1</math:ci>
              <math:ci>kas46_1</math:ci>
              <math:ci>SWI4_1</math:ci>
              <math:ci>SWI6PQ_1</math:ci>
            </math:apply>
          </math:math>
        </kineticLaw>
      </reaction>
      <reaction fast="false" id="reaction_213" name="31r"
reversible="false">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="SBFF6PQ_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="SWI4_1"/>
          <speciesReference species="SWI6PQ_1"/>
        </listOfProducts>
        <kineticLaw>
          <math:math>
            <math:apply>
              <math:ci>Mass_Action_1_1</math:ci>
              <math:ci>kdi46_1</math:ci>
              <math:ci>SBFF6PQ_1</math:ci>
            </math:apply>
          </math:math>
        </kineticLaw>
      </reaction>
    </listOfReactions>
  </model>
</sbml>

```

```

        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_184" name="52f"
reversible="false">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
          </annotation>
          <listOfReactants>
            <speciesReference species="WHI5_1"/>
            <speciesReference species="SBFF6P_1"/>
          </listOfReactants>
          <listOfProducts>
            <speciesReference species="WSF6P_1"/>
          </listOfProducts>
          <kineticLaw>
            <math:math>
              <math:apply>
                <math:ci>Mass_Action_2_1</math:ci>
                <math:ci>kasws_1</math:ci>
                <math:ci>WHI5_1</math:ci>
                <math:ci>SBFF6P_1</math:ci>
              </math:apply>
            </math:math>
          </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_185" name="52r"
reversible="false">
          <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
              <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
              </annotation>
              <listOfReactants>
                <speciesReference species="WSF6P_1"/>
              </listOfReactants>
              <listOfProducts>
                <speciesReference species="WHI5_1"/>
              </listOfProducts>
            </annotation>
          </reaction>
        </reaction>
      </listOfReactions>
    </model>
  </sbml>

```

```

    <speciesReference species="SBFF6P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiws_1</math:ci>
        <math:ci>WSF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_186" name="53f"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasws_1</math:ci>
        <math:ci>WHI5_1</math:ci>
        <math:ci>SBFF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_187" name="53r"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/

```



```

jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiws_1</math:ci>
        <math:ci>WSF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_214" name="54f"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="SWI6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF4P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kas46_1</math:ci>
        <math:ci>SWI4P_1</math:ci>
        <math:ci>SWI6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>

```

```

    </reaction>
    <reaction fast="false" id="reaction_215" name="54r"
reversible="false">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
          </annotation>
          <listOfReactants>
            <speciesReference species="SBFF4P_1"/>
          </listOfReactants>
          <listOfProducts>
            <speciesReference species="SWI4P_1"/>
            <speciesReference species="SWI6_1"/>
          </listOfProducts>
          <kineticLaw>
            <math:math>
              <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdi46_1</math:ci>
                <math:ci>SBFF4P_1</math:ci>
              </math:apply>
            </math:math>
          </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_216" name="55f"
reversible="false">
          <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
              <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
              </annotation>
              <listOfReactants>
                <speciesReference species="SWI4P_1"/>
                <speciesReference species="SWI6P_1"/>
              </listOfReactants>
              <listOfProducts>
                <speciesReference species="SBFF46P_1"/>
              </listOfProducts>
              <kineticLaw>

```

```

        <math:math>
          <math:apply>
            <math:ci>Mass_Action_2_1</math:ci>
            <math:ci>kas46_1</math:ci>
            <math:ci>SWI4P_1</math:ci>
            <math:ci>SWI6P_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_217" name="55r"
reversible="false">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
      </annotation>
      <listOfReactants>
        <speciesReference species="SBFF46P_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="SWI4P_1"/>
        <speciesReference species="SWI6P_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>kdi46_1</math:ci>
            <math:ci>SBFF46P_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_218" name="56f"
reversible="false">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>

```

```

</annotation>
<listOfReactants>
  <speciesReference species="SWI4P_1"/>
  <speciesReference species="SWI6PQ_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFF46PQ_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_2_1</math:ci>
      <math:ci>kas46_1</math:ci>
      <math:ci>SWI4P_1</math:ci>
      <math:ci>SWI6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_219" name="56r"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="SWI6PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdi46_1</math:ci>
        <math:ci>SBFF46PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_159" name="CLB2 P'lation
Swi4 free forms">

```

```

jigcell" >
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_157" name="32f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>SWI4_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_158" name="32r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>

```

```

jigcell" <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SWI4P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_167" name="33f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF4P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>

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```

        <math:ci>ef4p_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
      </math:apply>
      <math:ci>SBFF_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_167" name="33r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SBFF4P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SBFF_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp14_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>SBFF4P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
<reaction fast="false" id="reaction_176" name="34f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>

```

```

    <speciesReference species="SBFF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>SBFF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_177" name="34r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SBFF46P_1</math:ci>
      </math:apply>
    </math:math>

```



```

        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_178" name="35">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                    </annotation>
                <listOfReactants>
                    <speciesReference species="SBFF46P_1"/>
                </listOfReactants>
                <listOfProducts>
                    <speciesReference species="SBFF4P_1"/>
                </listOfProducts>
                <listOfModifiers>
                    <modifierSpeciesReference species="Vppcln_1"/>
                </listOfModifiers>
                <kineticLaw>
                    <math:math>
                        <math:apply>
                            <math:ci>Mass_Action_1_1</math:ci>
                            <math:ci>Vppcln_1</math:ci>
                            <math:ci>SBFF46P_1</math:ci>
                        </math:apply>
                    </math:math>
                </kineticLaw>
            </reaction>
            <reaction fast="false" id="reaction_169" name="36f">
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                        </annotation>
                    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
                            </annotation>
                        <listOfReactants>
                            <speciesReference species="SBFF6PQ_1"/>
                        </listOfReactants>
                        <listOfProducts>
                            <speciesReference species="SBFF46PQ_1"/>
                        </listOfProducts>
                        <listOfModifiers>

```

```

        <modifierSpeciesReference species="Vpclb_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:apply>
                    <math:times/>
                    <math:ci>ef4p_1</math:ci>
                    <math:ci>Vpclb_1</math:ci>
                </math:apply>
                <math:ci>SBFF6PQ_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_170" name="36r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SBFF46PQ_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SBFF6PQ_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="Vpp14_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vpp14_1</math:ci>
                <math:ci>SBFF46PQ_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_180" name="37f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></

```

```

jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6q_1</math:ci>
          <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>SBFF46P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_181" name="37r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>

```

```

    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>SBFF46PQ_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_178" name="CLB2 P'lation
free WSF">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_171" name="38f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSF_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSF4P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpclb_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef4p_1</math:ci>
            <math:ci>Vpclb_1</math:ci>
          </math:apply>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

```

```

        </math:apply>
        <math:ci>WSF_1</math:ci>
        </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_179" name="38r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="WSF4P_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="WSF_1"/>
            </listOfProducts>
            <listOfModifiers>
                <modifierSpeciesReference species="Vpp14_1"/>
            </listOfModifiers>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:ci>Vpp14_1</math:ci>
                        <math:ci>WSF4P_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
<reaction fast="false" id="reaction_187" name="39f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="WSF6P_1"/>
            </listOfReactants>

```

```

    <listOfProducts>
      <speciesReference species="WSF46P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpclb_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef4p_1</math:ci>
            <math:ci>Vpclb_1</math:ci>
          </math:apply>
          <math:ci>WSF6P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_188" name="39r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSF46P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSF6P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp14_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>WSF46P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

```

```

    <reaction fast="false" id="reaction_187" name="40">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
          </annotation>
          <listOfReactants>
            <speciesReference species="WSF46P_1"/>
          </listOfReactants>
          <listOfProducts>
            <speciesReference species="WSF4P_1"/>
          </listOfProducts>
          <listOfModifiers>
            <modifierSpeciesReference species="Vppcln_1"/>
          </listOfModifiers>
          <kineticLaw>
            <math:math>
              <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vppcln_1</math:ci>
                <math:ci>WSF46P_1</math:ci>
              </math:apply>
            </math:math>
          </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_189" name="41f">
          <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
              <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
              </annotation>
              <listOfReactants>
                <speciesReference species="WSF6PQ_1"/>
              </listOfReactants>
              <listOfProducts>
                <speciesReference species="WSF46PQ_1"/>
              </listOfProducts>
              <listOfModifiers>
                <modifierSpeciesReference species="Vpclb_1"/>
              </listOfModifiers>

```

```

    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef4p_1</math:ci>
            <math:ci>Vpclb_1</math:ci>
          </math:apply>
          <math:ci>WSF6PQ_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_190" name="41r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSF46PQ_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSF6PQ_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp14_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>WSF46PQ_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_191" name="42f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>

```



```

jigcell" >
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF46PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6q_1</math:ci>
          <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>WSF46P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_192" name="42r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF46P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>

```

```

        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>WSF46PQ_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_184" name="CLB2 P'lation
bound forms">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_196" name="43">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SBFB_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SBFF4P_1"/>
      <speciesReference species="PROM2_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpclb_1"/>
    </listOfModifiers>
  </kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
    </math:apply>
    <math:times/>
    <math:ci>ef4p_1</math:ci>
    <math:ci>Vpclb_1</math:ci>
  </math:apply>

```

```

        <math:ci>SBFB_1</math:ci>
        </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_198" name="44">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="SBFB6P_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="SBFF46P_1"/>
                <speciesReference species="PROM2_1"/>
            </listOfProducts>
            <listOfModifiers>
                <modifierSpeciesReference species="Vpclb_1"/>
            </listOfModifiers>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:apply>
                            <math:times/>
                            <math:ci>ef4p_1</math:ci>
                            <math:ci>Vpclb_1</math:ci>
                        </math:apply>
                        <math:ci>SBFB6P_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
    <reaction fast="false" id="reaction_186" name="45">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>

```

```

</annotation>
<listOfReactants>
  <speciesReference species="SBFB6PQ_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFF46PQ_1"/>
  <speciesReference species="PROM2_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclb_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef4p_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
      </math:apply>
      <math:ci>SBFB6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_180" name="46">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF4P_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>

```

```

        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>WSB_1</math:ci>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_172" name="47">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSB5P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSF45P_1"/>
      <speciesReference species="PROM2_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpclb_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef4p_1</math:ci>
            <math:ci>Vpclb_1</math:ci>
          </math:apply>
          <math:ci>WSB5P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_203" name="48">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>

```

```

        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="WSB6P_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="WSF46P_1"/>
          <speciesReference species="PROM2_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="Vpclb_1"/>
        </listOfModifiers>
        <kineticLaw>
          <math:math>
            <math:apply>
              <math:ci>Mass_Action_1_1</math:ci>
              <math:apply>
                <math:times/>
                <math:ci>ef4p_1</math:ci>
                <math:ci>Vpclb_1</math:ci>
              </math:apply>
              <math:ci>WSB6P_1</math:ci>
            </math:apply>
          </math:math>
        </kineticLaw>
      </reaction>
      <reaction fast="false" id="reaction_188" name="49">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfReactants>
          <speciesReference species="WSB6PQ_1"/>
        </listOfReactants>
        <listOfProducts>
          <speciesReference species="WSF46PQ_1"/>
          <speciesReference species="PROM2_1"/>
        </listOfProducts>
        <listOfModifiers>
          <modifierSpeciesReference species="Vpclb_1"/>

```

```

</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef4p_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
      </math:apply>
      <math:ci>WSB6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_197" name="CLB2 P'lation
Bck2 forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_179" name="50">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4B_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
<kineticLaw>
  <math:math>

```

```

        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
          <math:ci>SWI4B_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
<reaction fast="false" id="reaction_181" name="EXPORT/ DISSO">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_182" name="61">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5PN_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5PC_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>MSN5_1</math:ci>
        <math:ci>WHI5PN_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_189" name="62">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></

```



```

jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4C_1"/>
    <speciesReference species="SWI6PQC_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>MSN5_1</math:ci>
        <math:ci>SBFF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_204" name="63">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4PC_1"/>
    <speciesReference species="SWI6PQC_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>MSN5_1</math:ci>
        <math:ci>SBFF46PQ_1</math:ci>
      </math:apply>
    </math:math>

```

```

        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_207" name="64">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                    </annotation>
                <listOfReactants>
                    <speciesReference species="WSF6PQ_1"/>
                </listOfReactants>
                <listOfProducts>
                    <speciesReference species="WHI5C_1"/>
                    <speciesReference species="SWI4C_1"/>
                    <speciesReference species="SWI6PQC_1"/>
                </listOfProducts>
                <kineticLaw>
                    <math:math>
                        <math:apply>
                            <math:ci>Mass_Action_1_1</math:ci>
                            <math:ci>MSN5_1</math:ci>
                            <math:ci>WSF6PQ_1</math:ci>
                        </math:apply>
                    </math:math>
                </kineticLaw>
            </reaction>
            <reaction fast="false" id="reaction_205" name="64">
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                        </annotation>
                    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                            </annotation>
                        <listOfReactants>
                            <speciesReference species="WSF46PQ_1"/>
                        </listOfReactants>
                        <listOfProducts>
                            <speciesReference species="WHI5C_1"/>
                            <speciesReference species="SWI4PC_1"/>
                            <speciesReference species="SWI6PQC_1"/>
                        </listOfProducts>
                    </reaction>
                </annotation>
            </reaction>
        </annotation>
    </reaction>

```

```

    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>MSN5_1</math:ci>
          <math:ci>WSF46PQ_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_189" name="66">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSF45P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WHI5PC_1"/>
      <speciesReference species="SWI4PC_1"/>
      <speciesReference species="SWI6C_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>MSN5_1</math:ci>
          <math:ci>WSF45P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_185" name="DePlation in
cyto">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>

```

```

    </reaction>
    <reaction fast="false" id="reaction_208" name="67">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
          </annotation>
          <listOfReactants>
            <speciesReference species="SWI4PC_1"/>
          </listOfReactants>
          <listOfProducts>
            <speciesReference species="SWI4C_1"/>
          </listOfProducts>
          <listOfModifiers>
            <modifierSpeciesReference species="Vppase_1"/>
          </listOfModifiers>
          <kineticLaw>
            <math:math>
              <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vppase_1</math:ci>
                <math:ci>SWI4PC_1</math:ci>
              </math:apply>
            </math:math>
          </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_186" name="68">
          <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
              <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
              </annotation>
              <listOfReactants>
                <speciesReference species="SWI6PQC_1"/>
              </listOfReactants>
              <listOfProducts>
                <speciesReference species="SWI6QC_1"/>
              </listOfProducts>
              <listOfModifiers>
                <modifierSpeciesReference species="Vppase_1"/>
              </listOfModifiers>
            </annotation>
          </reaction>

```

```

    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vppase_1</math:ci>
          <math:ci>SWI6PQC_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_181" name="69">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SWI6QC_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SWI6C_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpp14_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vpp14_1</math:ci>
          <math:ci>SWI6QC_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_187" name="70">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"

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jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5PC_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5C_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>WHI5PC_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_188" name="QUICK
REIMPORT-----">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_189" name="71">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4C_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kimp_1</math:ci>

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```

        <math:ci>SWI4C_1</math:ci>
        </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_190" name="72">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="SWI6C_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="SWI6_1"/>
            </listOfProducts>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:ci>kimp_1</math:ci>
                        <math:ci>SWI6C_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_191" name="73">
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                </annotation>
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
                    </annotation>
                    <listOfReactants>
                        <speciesReference species="WHI5C_1"/>
                    </listOfReactants>
                    <listOfProducts>
                        <speciesReference species="WHI5_1"/>
                    </listOfProducts>
                    <kineticLaw>

```

```

        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>kimp_1</math:ci>
            <math:ci>WHI5C_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_221" name="reaction_221">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_193" name="MBF
COMPLEXES=====">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_196" name="76f">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
      </annotation>
      <listOfReactants>
        <speciesReference species="MBP1_1"/>
        <speciesReference species="SWI6_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="MBFF_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_2_1</math:ci>
            <math:ci>kasmbf_1</math:ci>
            <math:ci>MBP1_1</math:ci>
            <math:ci>SWI6_1</math:ci>
          </math:apply>
        </math:math>

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        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_197" name="76r">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
                </annotation>
                <listOfReactants>
                    <speciesReference species="MBFF_1"/>
                </listOfReactants>
                <listOfProducts>
                    <speciesReference species="MBP1_1"/>
                    <speciesReference species="SWI6_1"/>
                </listOfProducts>
                <kineticLaw>
                    <math:math>
                        <math:apply>
                            <math:ci>Mass_Action_1_1</math:ci>
                            <math:ci>kdimbf_1</math:ci>
                            <math:ci>MBFF_1</math:ci>
                        </math:apply>
                    </math:math>
                </kineticLaw>
            </reaction>
            <reaction fast="false" id="reaction_198" name="77f">
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:ratelaw jigcell:name="Mass_Action_2"></
jigcell:ratelaw>
                    </annotation>
                    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
                        </annotation>
                        <listOfReactants>
                            <speciesReference species="MBFF_1"/>
                            <speciesReference species="PROM5_1"/>
                        </listOfReactants>
                        <listOfProducts>
                            <speciesReference species="MBFi_1"/>
                        </listOfProducts>
                        <kineticLaw>
                            <math:math>

```

```

        <math:apply>
          <math:ci>Mass_Action_2_1</math:ci>
          <math:ci>kasprom_1</math:ci>
          <math:ci>MBFF_1</math:ci>
          <math:ci>PROM5_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_199" name="77r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="MBFi_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="MBFF_1"/>
      <speciesReference species="PROM5_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdiprom_1</math:ci>
          <math:ci>MBFi_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_200" name="78f">
    <notes>
      <p xmlns="http://www.w3.org/1999/xhtml">Make Vpcln for MBF
differ from SBF</p>
    </notes>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"

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jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFi_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFa_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnm_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpclnm_1</math:ci>
        <math:ci>MBFi_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_201" name="78r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFa_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFi_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>MBFa_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>

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    </reaction>
    <reaction fast="false" id="reaction_202" name="79f">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
          <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
          </annotation>
          <listOfReactants>
            <speciesReference species="MBFa_1"/>
          </listOfReactants>
          <listOfProducts>
            <speciesReference species="MBFp_1"/>
          </listOfProducts>
          <listOfModifiers>
            <modifierSpeciesReference species="CLB2_1"/>
          </listOfModifiers>
          <kineticLaw>
            <math:math>
              <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:apply>
                  <math:times/>
                  <math:ci>kimbf01_1</math:ci>
                  <math:ci>CLB2_1</math:ci>
                </math:apply>
                <math:ci>MBFa_1</math:ci>
              </math:apply>
            </math:math>
          </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_203" name="79r">
          <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
              <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
              </annotation>
              <listOfReactants>
                <speciesReference species="MBFp_1"/>
              </listOfReactants>
              <listOfProducts>

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    <speciesReference species="MBFa_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kmbf10_1</math:ci>
        <math:ci>MBFp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_204" name="80f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFa_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFo_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="NRM1_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kimbf02_1</math:ci>
          <math:ci>NRM1_1</math:ci>
        </math:apply>
        <math:ci>MBFa_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_205" name="80r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></

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jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFo_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFa_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kmbf20_1</math:ci>
        <math:ci>MBFo_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_207" name="82f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFo_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFpo_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="CLB2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kimbf01_1</math:ci>

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        <math:ci>CLB2_1</math:ci>
        </math:apply>
        <math:ci>MBFo_1</math:ci>
        </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_209" name="82r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
            </annotation>
            <listOfReactants>
                <speciesReference species="MBFpo_1"/>
            </listOfReactants>
            <listOfProducts>
                <speciesReference species="MBFo_1"/>
            </listOfProducts>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:ci>kmbf10_1</math:ci>
                        <math:ci>MBFpo_1</math:ci>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_206" name="81f">
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                </annotation>
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                    </annotation>
                    <listOfReactants>
                        <speciesReference species="MBFp_1"/>
                    </listOfReactants>
                    <listOfProducts>
                        <speciesReference species="MBFpo_1"/>
                    </listOfProducts>
                </annotation>
            </reaction>
        </annotation>
    </reaction>

```

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</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="NRM1_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>kimbf02_1</math:ci>
        <math:ci>NRM1_1</math:ci>
      </math:apply>
      <math:ci>MBFp_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_208" name="81r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFpo_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFp_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kmbf20_1</math:ci>
        <math:ci>MBFpo_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_234" name="83f"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></

```



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jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFa_1"/>
    <speciesReference species="WHI5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WMB_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kaswm_1</math:ci>
        <math:ci>MBFa_1</math:ci>
        <math:ci>WHI5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
  <reaction fast="false" id="reaction_236" name="83r"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
  <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WMB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFa_1"/>
    <speciesReference species="WHI5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiwm_1</math:ci>
        <math:ci>WMB_1</math:ci>

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        </math:apply>
        </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_236" name="84"
reversible="false">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
            </annotation>
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                </annotation>
                <listOfReactants>
                    <speciesReference species="WMB_1"/>
                </listOfReactants>
                <listOfProducts>
                    <speciesReference species="WHI5PN_1"/>
                    <speciesReference species="MBFa_1"/>
                </listOfProducts>
                <listOfModifiers>
                    <modifierSpeciesReference species="Vpclnw_1"/>
                </listOfModifiers>
                <kineticLaw>
                    <math:math>
                        <math:apply>
                            <math:ci>Mass_Action_1_1</math:ci>
                            <math:apply>
                                <math:times/>
                                <math:ci>ef5p_1</math:ci>
                                <math:ci>Vpclnw_1</math:ci>
                            </math:apply>
                            <math:ci>WMB_1</math:ci>
                        </math:apply>
                    </math:math>
                </kineticLaw>
            </reaction>
            <reaction fast="false" id="reaction_210" name="NRM1
REGULATION">
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
                </annotation>
            </reaction>
            <reaction fast="false" id="reaction_211" name="85">
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">

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```

        <jigcell:ratelaw jigcell:name="Mass_Action_0"></
jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
            </annotation>
            <listOfProducts>
                <speciesReference species="NRM1_1"/>
            </listOfProducts>
            <listOfModifiers>
                <modifierSpeciesReference species="MBFact_1"/>
            </listOfModifiers>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_0_1</math:ci>
                        <math:apply>
                            <math:times/>
                            <math:ci>ksnrm1_2</math:ci>
                            <math:ci>MBFact_1</math:ci>
                        </math:apply>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_212" name="86">
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
                </annotation>
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
                    </annotation>
                    <listOfReactants>
                        <speciesReference species="NRM1_1"/>
                    </listOfReactants>
                    <kineticLaw>
                        <math:math>
                            <math:apply>
                                <math:ci>Mass_Action_1_1</math:ci>
                                <math:ci>kdnrm1_1</math:ci>
                                <math:ci>NRM1_1</math:ci>
                            </math:apply>
                        </math:math>
                    </kineticLaw>

```

```

    </reaction>
    <reaction fast="false" reversible="false">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name=""
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_248" name="Cycle Timer"
reversible="false">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
      </annotation>
      <listOfProducts>
        <speciesReference species="TCYCLE_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_0_1</math:ci>
            <math:cn>1.0</math:cn>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_275" name="reaction_275"
reversible="false">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
      </annotation>
      <listOfProducts>
        <speciesReference species="Twhi5_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>

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                <math:ci>Mass_Action_0_1</math:ci>
                <math:cn>0.0</math:cn>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_277" name="reaction_277"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
        <speciesReference species="Mwhi5_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:cn>0.0</math:cn>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_274" name="reaction_274"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
        <speciesReference species="TBUD_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:cn>0.0</math:cn>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>

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        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_276" name="reaction_276"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="MBUD_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_249" name="reaction_249"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="ORIFLAG_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

```

```

        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_250" name="reaction_250"
reversible="false">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfProducts>
            <speciesReference species="TORI_1"/>
        </listOfProducts>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_0_1</math:ci>
                    <math:cn>0.0</math:cn>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_251" name="reaction_251"
reversible="false">
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
        </annotation>
        <listOfProducts>
            <speciesReference species="UDNA_1"/>
        </listOfProducts>
        <kineticLaw>
            <math:math>
                <math:apply>
                    <math:ci>Mass_Action_0_1</math:ci>
                    <math:cn>0.0</math:cn>
                </math:apply>
            </math:math>
        </kineticLaw>
    </reaction>

```

```

    <reaction fast="false" id="reaction_252" name="reaction_252"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
        <speciesReference species="REPDNA_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:cn>0.0</math:cn>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
    <reaction fast="false" id="reaction_253" name="reaction_253"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
        <speciesReference species="TSPN_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:cn>0.0</math:cn>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
    <reaction fast="false" id="reaction_254" name="reaction_254"
reversible="false">

```



```

    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="SPNALIGN_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_255" name="reaction_255"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
      <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="SACOFF_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_276" name="reaction_276"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">

```

```

        <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
        </annotation>
        <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
            </annotation>
            <listOfProducts>
                <speciesReference species="MASSBIRTH_1"/>
            </listOfProducts>
            <kineticLaw>
                <math:math>
                    <math:apply>
                        <math:ci>Mass_Action_0_1</math:ci>
                        <math:cn>0.0</math:cn>
                    </math:apply>
                </math:math>
            </kineticLaw>
        </reaction>
        <reaction fast="false" id="reaction_279" name="reaction_279"
reversible="false">
            <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:ratelaw jigcell:name="Mass_Action_0"
jigcell:nameset="false"></jigcell:ratelaw>
                </annotation>
                <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                    </annotation>
                    <listOfProducts>
                        <speciesReference species="MitCat_1"/>
                    </listOfProducts>
                    <kineticLaw>
                        <math:math>
                            <math:apply>
                                <math:ci>Mass_Action_0_1</math:ci>
                                <math:cn>0.0</math:cn>
                            </math:apply>
                        </math:math>
                    </kineticLaw>
                </reaction>
                <reaction fast="false" reversible="false">
                    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                        <jigcell:ratelaw jigcell:name=""
jigcell:nameset="false"></jigcell:ratelaw>
                        </annotation>

```

```

        </reaction>
        <reaction fast="false" id="reaction_275" name="Dec2222012new"
reversible="false">
          <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
            <jigcell:ratelaw jigcell:name="Mass_Action_1"></
jigcell:ratelaw>
              </annotation>
              <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                <jigcell:rateparams jigcell:nameset="false"
jigcell:state="0"></jigcell:rateparams>
                  </annotation>
                  <listOfReactants>
                    <speciesReference species="SBFF4P_1"/>
                  </listOfReactants>
                  <listOfProducts>
                    <speciesReference species="SBFF46P_1"/>
                  </listOfProducts>
                  <listOfModifiers>
                    <modifierSpeciesReference species="Vpcln_1"/>
                  </listOfModifiers>
                  <kineticLaw>
                    <math:math>
                      <math:apply>
                        <math:ci>Mass_Action_1_1</math:ci>
                        <math:apply>
                          <math:times/>
                          <math:ci>ef6p_1</math:ci>
                          <math:ci>Vpcln_1</math:ci>
                        </math:apply>
                        <math:ci>SBFF4P_1</math:ci>
                      </math:apply>
                    </math:math>
                  </kineticLaw>
                </reaction>
                <reaction fast="false" id="reaction_277" name="reaction_277"
reversible="false">
                  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
                      </annotation>
                      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
                        <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
                          </annotation>
                          <listOfReactants>
                            <speciesReference species="WSF4P_1"/>

```

```

</listOfReactants>
<listOfProducts>
  <speciesReference species="WSF46P_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpcln_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef6p_1</math:ci>
        <math:ci>Vpcln_1</math:ci>
      </math:apply>
      <math:ci>WSF4P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_278" name="reaction_278"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"
jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/
jigcell">
    <jigcell:rateparams jigcell:nameset="false"
jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF4P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF45P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
          <math:ci>Vpclnw_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

```

```

        </math:apply>
        <math:ci>WSF4P_1</math:ci>
    </math:apply>
</math:math>
</kineticLaw>
</reaction>
</listOfReactions>
<listOfEvents>
<event>
    <trigger>
        <math:math>
            <math:apply>
                <math:lt/>
                <math:apply>
                    <math:minus/>
                    <math:apply>
                        <math:plus/>
                        <math:ci>CLB2_1</math:ci>
                        <math:ci>CLB5_1</math:ci>
                    </math:apply>
                    <math:ci>KEZ2_1</math:ci>
                </math:apply>
                <math:cn>0.0</math:cn>
            </math:math>
        </trigger>
        <delay>
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </delay>
        <listOfEventAssignments>
            <eventAssignment variable="ORI_1">
                <math:math>
                    <math:cn>0.0</math:cn>
                </math:math>
            </eventAssignment>
            <eventAssignment variable="ORIFLAG_1">
                <math:math>
                    <math:cn>1.0</math:cn>
                </math:math>
            </eventAssignment>
        </listOfEventAssignments>
    </event>
<event>
    <trigger>
        <math:math>
            <math:apply>
                <math:gt/>
                <math:ci>WHI5cycf_1</math:ci>

```

```

        <math:cn>0.5</math:cn>
      </math:apply>
    </math:math>
  </trigger>
  <delay>
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </delay>
  <listOfEventAssignments>
    <eventAssignment variable="Twhi5_1">
      <math:math>
        <math:ci>TCYCLE_1</math:ci>
      </math:math>
    </eventAssignment>
    <eventAssignment variable="Mwhi5_1">
      <math:math>
        <math:ci>MASS_1</math:ci>
      </math:math>
    </eventAssignment>
  </listOfEventAssignments>
</event>
<event>
  <trigger>
    <math:math>
      <math:apply>
        <math:gt/>
        <math:ci>BUD_1</math:ci>
        <math:cn>1.0</math:cn>
      </math:apply>
    </math:math>
  </trigger>
  <delay>
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </delay>
  <listOfEventAssignments>
    <eventAssignment variable="TBUD_1">
      <math:math>
        <math:ci>TCYCLE_1</math:ci>
      </math:math>
    </eventAssignment>
    <eventAssignment variable="MBUD_1">
      <math:math>
        <math:ci>MASS_1</math:ci>
      </math:math>
    </eventAssignment>
  </listOfEventAssignments>
</event>

```

```

<event>
  <trigger>
    <math:math>
      <math:apply>
        <math:gt/>
        <math:apply>
          <math:minus/>
          <math:ci>ORI_1</math:ci>
          <math:cn>1.0</math:cn>
        </math:apply>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </trigger>
  <delay>
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </delay>
  <listOfEventAssignments>
    <eventAssignment variable="TORI_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>TCYCLE_1</math:ci>
          <math:ci>ORIFLAG_1</math:ci>
        </math:apply>
      </math:math>
    </eventAssignment>
    <eventAssignment variable="UDNA_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>1.0</math:cn>
          <math:ci>ORIFLAG_1</math:ci>
        </math:apply>
      </math:math>
    </eventAssignment>
    <eventAssignment variable="MAD2_1">
      <math:math>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:times/>
            <math:ci>mad2h_1</math:ci>
            <math:ci>ORIFLAG_1</math:ci>
          </math:apply>
          <math:apply>
            <math:times/>
            <math:ci>mad2l_1</math:ci>
          </math:apply>
        </math:math>
      </eventAssignment>
  </listOfEventAssignments>

```

```

        <math:apply>
          <math:minus/>
          <math:cn>1.0</math:cn>
          <math:ci>ORIFLAG_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </eventAssignment>
  <eventAssignment variable="BUB2_1">
    <math:math>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:times/>
          <math:ci>bub2h_1</math:ci>
          <math:ci>ORIFLAG_1</math:ci>
        </math:apply>
        <math:apply>
          <math:times/>
          <math:ci>bub2l_1</math:ci>
          <math:apply>
            <math:minus/>
            <math:cn>1.0</math:cn>
            <math:ci>ORIFLAG_1</math:ci>
          </math:apply>
        </math:apply>
      </math:math>
    </eventAssignment>
  </listOfEventAssignments>
</event>
<event>
  <trigger>
    <math:math>
      <math:apply>
        <math:gt/>
        <math:apply>
          <math:minus/>
          <math:apply>
            <math:minus/>
            <math:ci>TCYCLE_1</math:ci>
            <math:ci>TORI_1</math:ci>
          </math:apply>
          <math:ci>DNATIMER_1</math:ci>
        </math:apply>
        <math:cn>0.0</math:cn>
      </math:math>
    </trigger>

```



```

<delay>
  <math:math>
    <math:cn>0</math:cn>
  </math:math>
</delay>
<listOfEventAssignments>
  <eventAssignment variable="REPDNA_1">
    <math:math>
      <math:ci>UDNA_1</math:ci>
    </math:math>
  </eventAssignment>
  <eventAssignment variable="SACOFF_1">
    <math:math>
      <math:apply>
        <math:times/>
        <math:ci>SPNALIGN_1</math:ci>
        <math:ci>ORIFLAG_1</math:ci>
      </math:apply>
    </math:math>
  </eventAssignment>
  <eventAssignment variable="UDNA_1">
    <math:math>
      <math:cn>0.0</math:cn>
    </math:math>
  </eventAssignment>
  <eventAssignment variable="ORIFLAG_1">
    <math:math>
      <math:cn>0.0</math:cn>
    </math:math>
  </eventAssignment>
</listOfEventAssignments>
</event>
<event>
  <trigger>
    <math:math>
      <math:apply>
        <math:gt/>
        <math:apply>
          <math:minus/>
          <math:apply>
            <math:minus/>
            <math:ci>TCYCLE_1</math:ci>
            <math:ci>TORI_1</math:ci>
          </math:apply>
          <math:ci>DNATIMER_1</math:ci>
        </math:apply>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </trigger>

```

```

<delay>
  <math:math>
    <math:cn>0</math:cn>
  </math:math>
</delay>
<listOfEventAssignments>
  <eventAssignment variable="MAD2_1">
    <math:math>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:times/>
          <math:ci>mad2l_1</math:ci>
          <math:ci>SACOFF_1</math:ci>
        </math:apply>
        <math:apply>
          <math:times/>
          <math:ci>mad2h_1</math:ci>
          <math:apply>
            <math:minus/>
            <math:cn>1.0</math:cn>
            <math:ci>SACOFF_1</math:ci>
          </math:apply>
        </math:apply>
      </math:math>
    </eventAssignment>
    <eventAssignment variable="BUB2_1">
      <math:math>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:times/>
            <math:ci>bub2l_1</math:ci>
            <math:ci>SACOFF_1</math:ci>
          </math:apply>
          <math:apply>
            <math:times/>
            <math:ci>bub2h_1</math:ci>
            <math:apply>
              <math:minus/>
              <math:cn>1.0</math:cn>
              <math:ci>SACOFF_1</math:ci>
            </math:apply>
          </math:apply>
        </math:math>
      </eventAssignment>
      <eventAssignment variable="LTE1_1">
        <math:math>

```

```

    <math:apply>
      <math:plus/>
      <math:apply>
        <math:times/>
        <math:ci>lte1h_1</math:ci>
        <math:ci>SACOFF_1</math:ci>
      </math:apply>
      <math:apply>
        <math:times/>
        <math:ci>lte1l_1</math:ci>
        <math:apply>
          <math:minus/>
          <math:cn>1.0</math:cn>
          <math:ci>SACOFF_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </eventAssignment>
</listOfEventAssignments>
</event>
<event>
  <trigger>
    <math:math>
      <math:apply>
        <math:gt/>
        <math:apply>
          <math:minus/>
          <math:ci>SPN_1</math:ci>
          <math:cn>1.0</math:cn>
        </math:apply>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </trigger>
  <delay>
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </delay>
  <listOfEventAssignments>
    <eventAssignment variable="SPNALIGN_1">
      <math:math>
        <math:cn>1.0</math:cn>
      </math:math>
    </eventAssignment>
    <eventAssignment variable="TSPN_1">
      <math:math>
        <math:ci>TCYCLE_1</math:ci>
      </math:math>
    </eventAssignment>
  </listOfEventAssignments>
</event>

```

```

</eventAssignment>
<eventAssignment variable="SACOFF_1">
  <math:math>
    <math:ci>REPDNA_1</math:ci>
  </math:math>
</eventAssignment>
<eventAssignment variable="MitCat_1">
  <math:math>
    <math:piecewise>
      <math:piece>
        <math:cn>1.0</math:cn>
        <math:apply>
          <math:and/>
          <math:apply>
            <math:gt/>
            <math:ci>ESP1act_1</math:ci>
            <math:cn>0.1</math:cn>
          </math:apply>
          <math:apply>
            <math:gt/>
            <math:ci>PDS1_1</math:ci>
            <math:cn>0.0</math:cn>
          </math:apply>
        </math:piece>
      <math:otherwise>
        <math:cn>0.0</math:cn>
      </math:otherwise>
    </math:piecewise>
  </math:math>
</eventAssignment>
</listOfEventAssignments>
</event>
<event>
  <trigger>
    <math:math>
      <math:apply>
        <math:gt/>
        <math:apply>
          <math:minus/>
          <math:ci>SPN_1</math:ci>
          <math:cn>1.0</math:cn>
        </math:apply>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </trigger>
  <delay>
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </delay>
</event>

```

```

    </math:math>
</delay>
<listOfEventAssignments>
  <eventAssignment variable="MAD2_1">
    <math:math>
      <math:apply>
        <math:plus/>
        <math:apply>
          <math:times/>
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Brewer et al., 1984;
Cross et al., 2002.</description>
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name="S003_WT in galactose mdt=150">
      <description>viable, size=1xgal
Costanzo et al., 2004, Fig. 3;
Jorgensen et al., 2004, Fig. 3;
smaller than cells in glucose.
</description>
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</run>
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name="S009_WHI5-12A">
  <description>Viable, size =1x.
Wagner et al., 2009, Fig. 7C.</description>
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    </parameter>
  </changes>
</run>
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name="S010_SWI6-SA4">
  <description>Viable, size =1x.
Sidorova et al., 1995, Fig. 6;
Wijnen et al., 2002, Fig.6;
Wagner et al., 2009, Fig.7C.</description>
  <changes>
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</run>
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Wagner et al., 2009, Fig. 7C.
</description>
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name="S012_GAL-WHI5-12A">
  <description>Viable large >>1xgal.
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3C.
Simulation with 10 copies of WHI5 in galactose mdia.</description>
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name="S013_GAL-WHI5-12A SWI6-SA4">
  <description>G1 arrest.
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3D.
Simulation with 10 copies of Whi5 in galactose media.</description>
  <parents>
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name="S014_bck2-del">
  <description>Viable.
Epstein and Cross, 1994, text (1.3x);
Wijnen and Futcher, 1999, Table 4 (1.2x).
</description>
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    </parameter>
  </changes>
</run>
<run checked="1" id="xE71B8A3AD12011E0ABC131AB92ACCBC2"
name="S015_mc-BCK2">
  <description>Smaller than 1x
Di Como et al., 1995, Fig.3.
Simulation with 5 copies.</description>

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<changes>
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    </math:math>
  </parameter>
</changes>
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<run checked="1" id="x6CB1A216D00311E0BE5B349C92ACCBC2"
name="S016_GAL-BCK2">
  <description>Viable, &lt;1xgal
Costanzo et al., 2004, Fig. 3.</description>
  <parents>
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  </parents>
  <changes>
    <parameter id="BCK2T_1">
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          <math:ci>BCK2T_1</math:ci>
        </math:apply>
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    </parameter>
  </changes>
</run>
<run checked="1" id="x7BA67E9FE4C7101A934AD2F0555ED546"
name="S017_cln1,2-del">
  <description>Viable, 1.7-3.2x.
Tyers et al., 1992, Table 1 (2x)
Epstein and Cross, 1994, text (1.7x);
Dirick et al., 1995, text (2-3x).
</description>
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name="S018_cln1-del CLN2">
    <description>Viable.
Nasmyth and Dirick, 1991, Table 1;
Tyers et al., 1993, Table 1 (1.1x).
Use Cross 2002 data, Cln1 protein amount =1/3 total (CLN1+CLN2),
and Cln2 protein amount = 2/3 total (CLN1+CLN2).
</description>
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        </math:math>
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    </changes>
  </run>
  <run checked="1" id="x1967C9EA6C9C101487848D98B2B5EB1E"
name="S019_CLN1 cln2-del">
    <description>Viable. 1.2x.
Nasmyth and Dirick, 1991, Table1;
Tyers et al., 1993, Table 1 (1.3x);
Wijnen and Futcher, 1999, Table 4 (1.2x).
Use Cross 2002 data, Cln1 protein amount =1/3 total (CLN1+CLN2),
and Cln2 protein amount = 2/3 total (CLN1+CLN2).
</description>
    <changes>

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    </parameter>
  </changes>
</run>
<run checked="1" id="x565AE8D4D11F11E0ABC131AB92ACCBC2"
name="S020_GAL-CLN2 ">
  <description>Viable, 0.5xgal.
Hadwiger et al., 1989, Fig. 3;
Dirick et al., 1995, Fig. 6 (size=0.5xgal).

</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
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    </parameter>
  </changes>
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name="S021_mc-CLN2">
  <description>Viable, &lt;1x.
Hadwiger et al., 1989 .
Simulation with 4 copies.</description>
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name="S022_cln3-del">
  <description>Viable, 1.5–2.7x.
Cross, 1988, Fig. 7;
Nasmyth and Dirick, 1991, Table 1;
Tyers et al., 1993, Table 1 (1.5x)
Costanzo et al., 2004, Fig. 3 (2.7x).
</description>
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</run>
<run checked="1" id="xC1466AAD6E271014BCD6CA53052DC54B"
name="S023_cln1-del CLN2 cln3-del">
  <description>Viable,
Nasmyth and Dirick, 1991, Table 1, strain K1982.
</description>
  <parents>
    <parent id="xF0D3A16A6C9B10149E4F801A2F3C6CE0"/>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
  </parents>
</run>
<run checked="1" id="xD93D04AB6E271014B1F8C7D0CEE0388B"
name="S024_CLN1 cln2-del cln3-del">
  <description>Viable.
Nasmyth and Dirick, 1991, Table 1, strain K2124.
</description>
  <parents>
    <parent id="x1967C9EA6C9C101487848D98B2B5EB1E"/>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
  </parents>
</run>

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    <run checked="1" id="x632415CA7B27101C837BBB2556A15896"
name="S025_CLN3-1">
    <description>Viable, 0.5-0.7x.
Nash et al., 1988, Fig. 1;
Costanzo et al., 2004, Fig. 3.</description>
    <changes>
        <parameter id="CLN3T_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:ci>kmccln3_1</math:ci>
                    <math:ci>CLN3T_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>
</run>
    <run checked="1" id="xB5A77DBAD12011E0ABC131AB92ACCBC2"
name="S026_GAL-CLN3">
    <description>Viable, 0.44x.
Tyers et al., 1992, Table 1, protein 20X WT, size is 44% WT.
Simulation with 20 copies of CLN3, in galactose media.
</description>
    <parents>
        <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    </parents>
    <changes>
        <parameter id="CLN3T_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:ci>kgalcln3_1</math:ci>
                    <math:ci>CLN3T_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>
</run>
    <run checked="1" id="x09DD1CAEE14910148715BE3CA18345F3"
name="S027_whi5-del">
    <description>Viable, 0.6-0.75x.
orgensen et al., 2002, Table 1;
Costanzo et al., 2004, Fig. 3;
de Bruin et al., 2004, Fig. 2A.

</description>
    <changes>
        <initialConcentration id="WHI5_1">
            <math:math>

```

```

        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="x66800180D00311E0BE5B349C92ACCBC2"
name="S028_GAL-WHI5">
  <description>Viable large (smaller than cln3-del).
Costanzo et al., 2004, Fig. 2 (long G1);
de Bruin et al., 2004, Fig. 2 (2.2x);
Wagner et al., 2009, Fig. 3 (viable).
Simulation with 10 copies of WHI5 in galactose media.
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <initialConcentration id="WHI5_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>whi5op_1</math:ci>
          <math:ci>WHI5_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="xDBB6FD947D2210169313831916AD2692"
name="S029_clb5,6-del">
  <description>Viable, 1.5x.
Kuhne and Linder, 1993, Fig. 4;
Schwob and Nasmyth, 1993, Fig. 4, a 30 min
delay in DNA synthesis relative to budding.</description>
  <changes>
    <parameter id="ksb5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksb5_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksb5_3">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>

```

```

    </parameter>
    <initialConcentration id="CLB5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="xE9993E2E6E88101485D585EE42CD4A6C"
name="S030_clb5-del CLB6">
  <description>Viable,>1x.
Kuhne and Linder, 1993, Fig. 4;
Schwob and Nasmyth, 1993, Fig. 4.
Use Cross 2002 data, Clb5 is a minor protein compared with Clb5.
Clb6 protein amount =1/10 total (Clb5+Clb6),

```

```

</description>
  <changes>
    <parameter id="ksb5_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.1</math:cn>
          <math:ci>ksb5_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksb5_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.1</math:cn>
          <math:ci>ksb5_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksb5_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.1</math:cn>
          <math:ci>ksb5_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="xA6EEF3FAD12211E0ABC131AB92ACCBC2"
name="S031_mc-CLB5">

```

<description>Viable, with CEN plasmid containing CLB5 gene.
Epstein and Cross, 1992.
Simulation with 4 copies.
</description>

<changes>

<parameter id="ksb5_1">

<math:math>

<math:apply>

<math:times/>

<math:ci>kmccclb5_1</math:ci>

<math:ci>ksb5_1</math:ci>

</math:apply>

</math:math>

</parameter>

<parameter id="ksb5_2">

<math:math>

<math:apply>

<math:times/>

<math:ci>kmccclb5_1</math:ci>

<math:ci>ksb5_2</math:ci>

</math:apply>

</math:math>

</parameter>

<parameter id="ksb5_3">

<math:math>

<math:apply>

<math:times/>

<math:ci>kmccclb5_1</math:ci>

<math:ci>ksb5_3</math:ci>

</math:apply>

</math:math>

</parameter>

</changes>

</run>

<run checked="1" id="xCEF955B6D12211E0ABC131AB92ACCBC2"

name="S032_GAL-CLB5">

<description>Viable,
Schwob and Nasmyth, 1993, Fig. 6. Inducing GAL-CLB5 does not cause
premature entry into S phase in early G1 cells.

</description>

<parents>

<parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>

</parents>

<changes>

<parameter id="ksb5_1">

<math:math>

<math:ci>kgalclb5_1</math:ci>

</math:math>

</parameter>

</changes>


```

    </run>
    <run checked="1" id="x6D5ADA76D43011E0B54CFCD292ACCBC2"
name="S033_CLB5-dbdel">
      <description>Viable.
Wasch and Cross, 2002.
</description>
      <changes>
        <parameter id="kdb5_2">
          <math:math>
            <math:cn>0</math:cn>
          </math:math>
        </parameter>
      </changes>
    </run>
    <run checked="1" id="x81F801C0D43011E0B54CFCD292ACCBC2"
name="S034_GAL-CLB5dbdel">
      <description>Lethal.
Schwob et al., 1994, Fig. 7, DNA synthesis is not significantly
advanced;
Jacobson et al., 2000, Table 1 and Fig. 8,
cells lose viability quickly upon galactose induction.
attributable to the ability of these cells to divide but they
do not efficiently replicate their DNA after division,
accounting for the accumulation of cells with 1C DNA.
</description>
      <parents>
        <parent id="x6D5ADA76D43011E0B54CFCD292ACCBC2"/>
        <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
      </parents>
    </run>
    <run checked="1" id="x8DE2E676EB96101999CBDBFDE496CCF4"
name="S035_triple-cln">
      <description>Inviable, G1 arrest.
Richardson et al., 1989, Fig. 1.</description>
      <parents>
        <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
        <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
      </parents>
    </run>
    <run checked="1" id="x4535D4C8ECEE101A98F38D7315B4725B"
name="S036_mbp1-del">
      <description>Viable, 1.2-1.3x.
Koch et al., 1993, Fig. 7 (viable),
Bean et al., 2005, Table 2 (1.2x);
Ferrezuelo et al., 2009 (1.3x).
</description>
      <changes>
        <initialConcentration id="MBP1_1">
          <math:math>
            <math:cn>0</math:cn>
          </math:math>
        </initialConcentration>
      </changes>
    </run>

```

```

        </math:math>
    </initialConcentration>
</changes>
</run>
<run checked="1" id="xB248AD28EC98101AA5C6F531B8FA19A2"
name="S037_swi4-del">
    <description>Viable, 1.3–1.5x, >mbp1-del
Nasmyth and Dirick, 1991, Table 1 (viable);
Wijnen and Futcher, 1999, Table 4 (1.3x)
</description>
    <changes>
        <initialConcentration id="SWI4_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
    </changes>
</run>
<run checked="1" id="xCA2402FDF1C8101A8DF5D44553776F6A"
name="S038_swi6-del">
    <description>Viable, 2.4x
Nasmyth and Dirick, 1991, Table 1 (viable);
Wijnen et al., 2002, Fig. 1 (2.4x).</description>
    <changes>
        <initialConcentration id="SWI6_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
    </changes>
</run>
<run checked="1" id="xF9E971E46D121014A9AFD0E7E83BDF2B"
name="S038b_swi6-del in gal">
    <description>Viable.
Wijnen et al., 2002, Fig. 2.
</description>
    <parents>
        <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
        <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    </parents>
</run>
<run checked="1" id="x20AE70748954101CAC6C0AD212BBB88"
name="S039_msn5-del">
    <description>Viable, 1.4x.
Queralt and Igual, 2003, Fig. 1.</description>
    <changes>
        <parameter id="MSN5_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>

```

```

    </parameter>
  </changes>
</run>
<run checked="1" id="xEF6ED98EECAA10198658DED00ABC83BE"
name="S040_sic1-del">
  <description>Viable, &lt;1x.
Schneider et al., 1996, Fig. 3;
Tyers, 1996, Fig. 2;
DNA synthesis is advanced relative to bud initiation.</description>
  <changes>
    <parameter id="ksc1_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksc1_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="SIC1_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="SIC1P_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="C2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="C2P_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="C5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="C5P_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>

```

```

    </changes>
  </run>
  <run checked="1" id="x48E29A94D12411E0ABC131AB92ACCBC2"
name="S041_mc-SIC1">
    <description>Viable, >1x.
Tyers, 1996, Fig. 3.
Simulation with 4 copies.</description>
    <changes>
      <parameter id="ksc1_1">
        <math:math>
          <math:apply>
            <math:times/>
            <math:ci>kmcsic1_1</math:ci>
            <math:ci>ksc1_1</math:ci>
          </math:apply>
        </math:math>
      </parameter>
      <parameter id="ksc1_2">
        <math:math>
          <math:apply>
            <math:times/>
            <math:ci>kmcsic1_1</math:ci>
            <math:ci>ksc1_2</math:ci>
          </math:apply>
        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="1" id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"
name="S042_GAL-SIC1">
    <description>Viable, >1xgal.
Nugroho and Mendenhall, 1994 Fig. 3 (viable and large);
Verma et al., 1997, Fig. 3B, viable
Jaspersen et al., 1998, Table 4, viable.

</description>
    <parents>
      <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    </parents>
    <changes>
      <parameter id="ksc1_1">
        <math:math>
          <math:ci>kgalsic1_1</math:ci>
        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="1" id="x1D7B66FED42D11E0B54CFCD292ACCBC2"
name="S043_GAL-SIC1dbdel">
    <description>Inviable, G1 arrest.

```

Verma et al., 1997, Fig. 3.

</description>

<parents>

<parent id="x14C5B5B4D42D11E0B54CFCD292ACCB2"/>

</parents>

<changes>

<parameter id="kd3c1_1">

<math:math>

<math:cn>0</math:cn>

</math:math>

</parameter>

</changes>

</run>

<run checked="1" id="x88ACABEE6C2A1014B4C0DAEFDC210EA2"

name="S044_cdc6-del">

<description>Viable, <1x.

Calzada et al., 2001;

Nguyen et al., 2001.

The deletion of n-terminal 47 amino acids (#2-#49) eliminates the CKI activity, but the role as DNA licensing factor is intact. </description>

<changes>

<parameter id="ksf6_1">

<math:math>

<math:cn>0</math:cn>

</math:math>

</parameter>

<parameter id="ksf6_2">

<math:math>

<math:cn>0</math:cn>

</math:math>

</parameter>

<parameter id="ksf6_3">

<math:math>

<math:cn>0</math:cn>

</math:math>

</parameter>

<initialConcentration id="CDC6_1">

<math:math>

<math:cn>0</math:cn>

</math:math>

</initialConcentration>

<initialConcentration id="CDC6P_1">

<math:math>

<math:cn>0</math:cn>

</math:math>

</initialConcentration>

<initialConcentration id="F2_1">

<math:math>

<math:cn>0</math:cn>

```

    </math:math>
  </initialConcentration>
  <initialConcentration id="F2P_1">
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </initialConcentration>
  <initialConcentration id="F5_1">
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </initialConcentration>
  <initialConcentration id="F5P_1">
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </initialConcentration>
</changes>
</run>
<run checked="1" id="xF627B2E4D43411E0B54CFCD292ACCBC2"
name="S045_mc-CDC6">
  <description>Viable.
Archambault et al., 2003, Fig. 7.
Simulation with 5 copies.</description>
  <changes>
    <parameter id="ksf6_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccdc6_1</math:ci>
          <math:ci>ksf6_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksf6_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccdc6_1</math:ci>
          <math:ci>ksf6_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksf6_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccdc6_1</math:ci>
          <math:ci>ksf6_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>

```

```

        </math:math>
    </parameter>
</changes>
</run>
<run checked="1" id="x802F3F3B6C2A10148E158F84654E9DDD"
name="S047_cki-del">
    <description>Viable, &lt;1x.
Archambault et al., 2003, Fig. 4.</description>
    <parents>
        <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
        <parent id="x88ACABEE6C2A1014B4C0DAEFDC210EA2"/>
    </parents>
</run>
<run checked="1" id="xFDFFA720D42E11E0B54CFCD292ACCBC2"
name="S048_swi5-del">
    <description>Viable,
Giaever et al., 2002;
Toyn et al., 1997.</description>
    <changes>
        <parameter id="ksc1_2">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <parameter id="ksf6_2">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="1" id="x93AF015BFF11101ABEC8EFC807D7659B"
name="S049_cdh1-del">
    <description>Viable, &lt;1x.
Schwab et al., 1997;
Wasch and Cross, 2002 (viable);
Jorgensen et al., 2002, Fig. 2 (&lt;1x).</description>
    <changes>
        <parameter id="kscdh_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <initialConcentration id="CDH1_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
        <initialConcentration id="CDH1i_1">
            <math:math>

```

```

        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="x3A600A92D12411E0ABC131AB92ACCBC2"
name="S050_CDH1 const active">
  <description>Inviabile, G2 arrest.
Zachariae et al., 1998a, Fig. 4, GALLp-HA3-Hct1-m11.
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="kicdh_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="kscdh_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>3</math:cn>
          <math:ci>kscdh_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="xC1F474347355101CADD9FD167EA14D84"
name="S051_bck2-del cln1,2-del">
  <description>Viable, 2.55x.
Epstein and Cross, 1994, text.</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
  </parents>
</run>
<run checked="1" id="x972AF0C56D3310149392890749378603"
name="S052_bck2-del clb56-del">
  <description>Predict viable.</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="1" id="xC9E0E905E4B1101A8498EC6D152D3D1A"
name="S053_bck2-del cln3-del">
  <description>Inviabile, G1 arrest.

```


Epstein and Cross, 1994;
Wijnen and Futcher, 1999 Table 3.

```
</description>
  <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
  </parents>
</run>
<run checked="1" id="x89230208EC2510199682B95B4683BBA1"
name="S054_bck2-del cln3-del whi5-del">
  <description>Viable, 1.4x. whi5-del can rescue bck2-del cln3-
del.
```

Costanzo et al., 2004, Fig 2E (viable);
de Bruin et al., 2004, Fig. 3 (viable);
Jorgensen et al., 2004, Fig. 3 (1.4x).

```
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="1" id="x1AFBC2606BF8101483BAC9E6AE6E5A3A"
name="S055_bck2-del cln3-del whi5-del mbp1-del">
  <description>Viable, size=S054 bck2-del cln3-del whi5-
del=1.4x.
de Bruin et al., 2004, Fig. 3.
```

```
</description>
  <parents>
    <parent id="x89230208EC2510199682B95B4683BBA1"/>
    <parent id="x4535D4C8ECE101A98F38D7315B4725B"/>
  </parents>
</run>
<run checked="1" id="x288A3C4D6BF81014BD13896DB0C4B85A"
name="S056_bck2-del cln3-del whi5-del swi4-del">
  <description>Inviable.
de Bruin et al., 2004, Fig. 3 (inviable).
```

```
</description>
  <parents>
    <parent id="x89230208EC2510199682B95B4683BBA1"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="1" id="x4788D12AD12111E0ABC131AB92ACCBC2"
name="S057_bck2-del cln3-del GAL-CLN2">
  <description>Rescued.
Di Como et al., 1995, Fig. 1 (viable with Sp-ADH promoter);
Wijnen and Futcher, 1999, Table 3 (rescued).
```

```

</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCCBC2"/>
  </parents>
</run>
  <run checked="1" id="x4A52EC426E6810148659B26557FF9280"
name="S058_bck2-del cln3-del 2x-CLN2">
  <description>Inviable, not able to rescue bck2-del cln3-del
with 1 more copy of CLN2.
Di Como et al., 1995, Fig. 1.
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
  </parents>
  <changes>
    <parameter id="ksn2_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksn2_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksn2_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksn2_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
  <run checked="1" id="x3370F6366C0810148969BD16C7A2B620"
name="S059_bck2-del cln3-del GAL-CLB5">
  <description>Predict: viable.
GAL-CLB5 is predicted to rescue bck2-del cln3-del.</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCCBC2"/>
  </parents>
</run>
  <run checked="1" id="x2BF56C586CD71014BB0BBD342272B0FC"
name="S060_bck2-del cln3-del GAL-SWI4">
  <description>Rescued, GAL-SWI4 is able to rescue bck2-del
cln3-del.
Di Como et al., 1995, Fig. 1 (viable with Sp-ADH promoter);

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Wijnen and Futcher, 1999, Table 3 (viable with high-copy plasmid 2 mu).

Simulation with 5 copies of SWI4 in galactose media.

</description>

<parents>

<parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>

<parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>

</parents>

<changes>

<initialConcentration id="SWI4_1">

<math:math>

<math:cn>22</math:cn>

</math:math>

</initialConcentration>

</changes>

</run>

<run checked="1" id="x76242F1B6D5F1014B5F2F17A0FADA53C"

name="S061_bck2-del cln3-del 2x-SWI4">

<description>Inviabile, not able to rescue bck2-del cln3-del with more cop of SWI4.

Di Como et al., 1995, Fig. 1.

</description>

<parents>

<parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>

</parents>

<changes>

<initialConcentration id="SWI4_1">

<math:math>

<math:cn>11</math:cn>

</math:math>

</initialConcentration>

</changes>

</run>

<run checked="1" id="x937F33086D171014891EA08D9554AE14"

name="S062_bck2-del cln3-del GAL-MBP1">

<description>Inviabile.

Wijnen and Futcher, 1999, Table 3, not able to rescue bck2-del cln3-del

with high copy plasmids 2 mu of MBP1.

</description>

<parents>

<parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>

<parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>

</parents>

<changes>

<initialConcentration id="MBP1_1">

<math:math>

<math:cn>22</math:cn>

</math:math>

</initialConcentration>

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    </changes>
  </run>
  <run checked="1" id="xE8E6FA146D171014A6BE95F584BF9819"
name="S063_bck2-del cln3-del GAL-SWI6">
  <description>Inviabile
Wijnen and Futcher, 1999, Table 3, not able to rescue bck2-del cln3del
with high copy plasmids 2 mu of SWI6.
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <initialConcentration id="SWI6_1">
      <math:math>
        <math:cn>150</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
  <run checked="1" id="x68351C26D12111E0ABC131AB92ACCBC2"
name="S064_bck2-del cln3-del sic1-del">
  <description>Inviabile. sic1-del is not able to rescue bck2-del
cln3-del.
Wijnen and Futcher, 1999, Fig. 5, not able to rescue.
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
  <run checked="1" id="x07F8706C6CD810149671DC0BE10A3B3C"
name="S065_bck2-del cln3-del GAL-CLN3">
  <description>Rescued, GAL-CLN3 is able to rescue bck2-del
cln3-del.
Wijnen and Futcher, 1999, Table 3.</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
  <run checked="1" id="x3320C7956CD81014BEB9E04706CC5FD6"
name="S066_bck2-del cln3-del swi6-del">
  <description>Inviabile, swi6del cannot rescue bck2-del cln3-
del.
Wijnen and Futcher, 1999, Table 3.
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>

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    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
  </parents>
</run>
<run checked="1" id="x802755E86CD010148F159D60B03A1EDE"
name="S067_bck2-del cln3-del swi6-del GAL-CLN2">
  <description>Rescued,
Wijnen and Futcher, 1999, Table 3 (viable).
Deletion of Swi6 does not affect the viability of bck2-del cln3-del
GAL-CLN2.
</description>
  <parents>
    <parent id="x3320C7956CD81014BEB9E04706CC5FD6"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x9116B56ED00411E0BE5B349C92ACCBC2"
name="S068_bck2-del mbp1-del">
  <description>predict viable</description>
  <parents>
    <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
  </parents>
</run>
<run checked="1" id="xF0326AD8D00511E0BE5B349C92ACCBC2"
name="S069_bck2-del mbp1-del GAL-WHI5">
  <description>predict alive
</description>
  <parents>
    <parent id="x9116B56ED00411E0BE5B349C92ACCBC2"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x00D72B347E72101CA07084D5F216CAB9"
name="S070_bck2-del swi4-del">
  <description>Viable, 1.55x.
Wijnen and Futcher, 1999, Table 4.
</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="1" id="x8872E6D77D53101CB3EAF78A981B893A"
name="S071_bck2-del swi6-del">
  <description>Inviablle, G1 arrest.
Wijnen and Futcher, 1999, text.
</description>
  <parents>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>

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    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
  </parents>
</run>
<run checked="1" id="x133517C76C371014A0FAED5BC8626286"
name="S072_bck2-del swi6-del SWI6-SA4">
  <description>Rescued,
Wijnen et al., 2002, text.
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
  </parents>
  <changes>
    <initialConcentration id="SWI6_1">
      <math:math>
        <math:cn>30</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="x127913A06F2D1014A9BBB65255B3112B"
name="S073_bck2-del swi6-del mc-BCK2">
  <description>predict viable
Simulation with 5 copies of BCK2.
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="xE71B8A3AD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xDA4470BA6D111014AE29886B938BCF1C"
name="S074_bck2-del swi6-del GAL-CLN2">
  <description>Rescued. GAL-CLN2 can rescue bck2-del swi6-del.
Wijnen and Futcher, 1999, Table 3 (rescued with MET-CLN2).
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x1D2885E16CD81014B3D1EC45650F48F1"
name="S075_bck2-del swi6-del cln3-del GAL-CLN3">
  <description>Inviable, GAL-CLN3 cannot rescue bck2-del swi6-
del.
Wijnen and Futcher, 1999, Table 3;
Wijnen et al., 2002, text.
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCBC2"/>

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    </parents>
  </run>
  <run checked="1" id="x1C5C658A6DC610149CB6D3FA3E37BD3E"
name="S076_bck2-del swi6-del GAL-CLB5">
    <description>Predict rescued. bck2-del swi6-del GAL-CLB5 is
predicted to be viable.
</description>
    <parents>
      <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
      <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
    </parents>
  </run>
  <run checked="1" id="x43EA243C7D76101C93F9EA3B5ACA55B5"
name="S077_bck2-del swi6-del whi5-del">
    <description>Inviabile, whi5-del cannot rescue bck2-del swi6-
del.
de Bruin et al., 2004, text.

</description>
    <parents>
      <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
      <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    </parents>
  </run>
  <run checked="1" id="x4F76DBF06D8D1014B9DCE97934877101"
name="S078_GAL-BCK2 swi6-del">
    <description>Viable, smaller than swi6-del,
Ferrezuelo et al., 2009, text (smaller than swi6Δ in gal=1.38 xgal).</
description>
    <parents>
      <parent id="x6CB1A216D00311E0BE5B349C92ACCBC2"/>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
  </run>
  <run checked="1" id="x015F793ACF4411E0BC2C567592ACCBC2"
name="S079_bck2-del whi5-del">
    <description>Viable, &lt;1x.
Costanzo et al., 2004, Fig. 3, whi5-del&lt;S079&lt;wt&lt;bck2-del.
</description>
    <parents>
      <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
      <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    </parents>
  </run>
  <run checked="1" id="xFF0320FCD00511E0BE5B349C92ACCBC2"
name="S080_bck2-del GAL-WHI5">
    <description>Viable, >GAL-WHI5.
Costanzo et al., 2004, text.

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</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x0569665ED00611E0BE5B349C92ACCBC2"
name="S081_bck2-del GAL-WHI5-12A">
  <description>Predict viable, larger than S080 bck2-del GAL-
WHI5.</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="x692914D0D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xE66FB930D00311E0BE5B349C92ACCBC2"
name="S082_GAL-BCK2 whi5-del">
  <description>Viable, smaller than whi5-del, smaller than GAL-
BCK2.
Costanzo et al., 2004, Fig. 3.</description>
  <parents>
    <parent id="x6CB1A216D00311E0BE5B349C92ACCBC2"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="1" id="xFE571EA6EC6D10198F18CE1CB14B92C3"
name="S083_cln1,2-del clb5,6-del">
  <description>Inviable, G1 arrest.
Schwob and Nasmyth, 1993, Fig. 5.</description>
  <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="1" id="x765527236D3410148E2B9BA6B2280156"
name="S084_cln1,2-del clb5,6-del GAL-CLN2">
  <description>Predict viable.
</description>
  <parents>
    <parent id="xFE571EA6EC6D10198F18CE1CB14B92C3"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x819263C86D3410148A48902C6DCD8A2A"
name="S085_cln1,2-del clb5,6-del GAL-CLB5">
  <description>Predict viable.</description>
  <parents>
    <parent id="xFE571EA6EC6D10198F18CE1CB14B92C3"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
  </parents>

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```

    </run>
    <run checked="1" id="xF1381502D11F11E0ABC131AB92ACCBC2"
name="S086_cln1,2-del cdh1-del">
    <description>Viable,
Cross et al., 2002, Fig. 3.
However, model prediction is inviable. Telophase arrested.
This is one of the 8 problems the model has that is not consistent
with expt.
</description>
    <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
</run>
    <run checked="1" id="x29851540D12011E0ABC131AB92ACCBC2"
name="S087_cln1,2-del GAL-CLN2 cdh1-del">
    <description>Viable,
Cross et al., 2002, Fig. 3B, viable.
Although simulation shows the mutant to be viable,
but it is extremely small, only 10% wild type size.
This is the another problem that the model has.
</description>
    <parents>
    <parent id="xF1381502D11F11E0ABC131AB92ACCBC2"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
    </parents>
</run>
    <run checked="1" id="xDF133B90D11F11E0ABC131AB92ACCBC2"
name="S088_cln1,2-del sic1-del">
    <description>Viable.
Dirick et al., 1995, Fig. 4, (size WT<lt; mutant<lt; cln1,2Δ)
</description>
    <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
    </parents>
</run>
    <run checked="1" id="x6AF997B6D42D11E0B54CFCD292ACCBC2"
name="S089_cln1,2-del GAL-SIC1">
    <description>Inviabile. G1 arrest.
Cross et al., 2002, Fig. 3B, inviable.
</description>
    <parents>
    <parent id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"/>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    </parents>
</run>
    <run checked="1" id="x75A59282D42D11E0B54CFCD292ACCBC2"
name="S090_cln1,2-del GAL-CLN2 GAL-SIC1">
    <description>Viable.

```

Cross et al., 2002, Fig. 3B.

```
</description>
  <parents>
    <parent id="x6AF997B6D42D11E0B54CFCD292ACCBC2"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x7F0B9EC0D42D11E0B54CFCD292ACCBC2"
name="S091_cln1,2-del GAL-CLN2 GAL-SIC1 cdh1-del">
```

```
  <description>Viable,
Cross et al., 2002, Fig. 3B, viable.
```

```
</description>
  <parents>
    <parent id="x75A59282D42D11E0B54CFCD292ACCBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="1" id="x9B6390E6D42D11E0B54CFCD292ACCBC2"
name="S092_cln1,2-del GAL-SIC1 cdh1-del">
```

```
  <description>Inviabile
Cross et al., 2002, Fig. 3B.
```

```
</description>
  <parents>
    <parent id="x6AF997B6D42D11E0B54CFCD292ACCBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="1" id="x667F241C6D4B10148323F287EFBB28A5"
name="S093_cln1,2-del GAL-SIC1 GAL-CLB5">
  <description>Predict no rescue.
```

```
</description>
  <parents>
    <parent id="x6AF997B6D42D11E0B54CFCD292ACCBC2"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xE35CB13B6CD71014ACB7864B38852503"
name="S094_cln1,2-del swi6-del">
```

```
  <description>Inviabile.
Nasmyth & Dirik 1991, Table 1, Strain K2326.
```

```
</description>
  <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
  </parents>
</run>
<run checked="1" id="x9177E1EE6CD110149508F402D0B62C15"
name="S095_cln1-del CLN2 swi6-del">
```

<description>Viable.
Nasmyth 1991. Table 1, strain K2026.
However, simulation shows the mutant dies after 3 cycles. It is a
parameter
problem. swi6-del is already quite large ,its SBF is not very active.
Further
deletion of CLN1 makes the cell G1 too long, and the cell too big, it
has problem
in exiting mitosis after 3 cycles.</description>

<parents>
<parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
<parent id="xF0D3A16A6C9B10149E4F801A2F3C6CE0"/>
</parents>

</run>

<run checked="1" id="x9819EA656CD11014AEF9E0285638ED50"
name="S096_CLN1 cln2-del swi6-del">

<description>Growth poor, inviable.
Nasmyth and Dirick, 1991, Table 1, strain K2028.</description>

<parents>
<parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
<parent id="x1967C9EA6C9C101487848D98B2B5EB1E"/>
</parents>

</run>

<run checked="1" id="x8677FB706CD2101494089BE588747B20"
name="S097_cln1,2-del CLN3-1 swi6-del">

<description>Inviable.
Nasmyth and Dirick, 1991, Table 1 K2337.
Adding CLN3-1 will not help cln12-del swi6-del, since CLN3 cannot
activate the SBFa6 (the SBF responsible for swi6-del mutant).
</description>

<parents>
<parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
<parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
<parent id="x632415CA7B27101C837BBB2556A15896"/>
</parents>

</run>

<run checked="1" id="xF14F60696F2D10148B33F50B29289D74"
name="S098_cln1,2-del swi6-del GAL-CLB5">

<description>Predict viable</description>

<parents>
<parent id="xE35CB13B6CD71014ACB7864B38852503"/>
<parent id="xCEF955B6D12211E0ABC131AB92ACCB2"/>
</parents>

</run>

<run checked="1" id="x148B09166C7C1014B937B34943944BE3"
name="S099_cln1,2-del whi5-del">

<description>Viable,
Skotheim et al., 2008, Suppl. Table 2.</description>

<parents>
<parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>

```

    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="1" id="x6A45F0C26CBB10148037E9F40E11EF3F"
name="S100_cln1,2-del GAL-WHI5">
  <description>Viable, retarded growth.
Costanzo et al., 2004, Fig. 2D (poor growth).
</description>
  <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="x66800180D00311E0BE5B349C92ACCB2"/>
  </parents>
</run>
<run checked="1" id="x2EC13C596C021014BAA9B79EE0A3F2CB"
name="S101_cln1,2-del swi4-del">
  <description>Inviabile.
Nasmyth 1991 Table 1. Strain K2324 and K2325
(with either swi4-ts or swi4-del),
</description>
  <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="1" id="xBE02A48A6D2110149349C49486C2EA0F"
name="S102_cln1-del CLN2 cln3-del swi4-del">
  <description>Inviabile,
Nasmyth and Dirick, 1991, Table 1. strain K2561.
Since cln3-del swi4-del is inviable, adding cln1-del will not help
it.</description>
  <parents>
    <parent id="xF0D3A16A6C9B10149E4F801A2F3C6CE0"/>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="1" id="xDF1252B16D211014922CB9478269D062"
name="S103_CLN1 cln2-del cln3-del swi4-del">
  <description>Inviabile,
Nasmyth and Dirick, 1991, Table 1, strain K2559.
Since cln3-del swi4-del is inviable, adding cln2-del will not help
it.</description>
  <parents>
    <parent id="x1967C9EA6C9C101487848D98B2B5EB1E"/>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="1" id="x3955714B6C021014976BF41A05E0C797"
name="S104_cln1,2-del mbp1-del">

```

<description>Predict to be inviable.
Without the positive feedback of Cln1 and Cln2,
SBF activation is sluggish. It does not make enough Clb5 and Clb6
for the timely initiation of DNA synthesis. In simulation, the mutant
shows a G1 arrest.

</description>

<parents>

<parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>

<parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>

</parents>

</run>

<run checked="1" id="x7EBE63166D531014AA5BEEDEA74D15A4"
name="S200_cln1,2-del swi4-del CLN3-1">

<description>Predict to be viable. CLN3-1 can rescue the
inviability of cln1-del cln2-del swi4-del.</description>

<parents>

<parent id="x2EC13C596C021014BAA9B79EE0A3F2CB"/>

<parent id="x632415CA7B27101C837BBB2556A15896"/>

</parents>

</run>

<run checked="1" id="x9C23B5A06D5310148B3D9B083712FF5C"
name="S201_cln1,2-del mbp1-del CLN3-1">

<description>Predict to be inviable, CLN3-1 cannot rescue the
inviability
mutant cln1-del cln2-del mbp1-del.</description>

<parents>

<parent id="x3955714B6C021014976BF41A05E0C797"/>

<parent id="x632415CA7B27101C837BBB2556A15896"/>

</parents>

</run>

<run checked="1" id="x6BA814A8D00411E0BE5B349C92ACCBC2"
name="S105_cln3-del mbp1-del">

<description>Viable and large.
Bean et al., 2006, Fig. 6, cells are large.
</description>

<parents>

<parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>

<parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>

</parents>

</run>

<run checked="1" id="x51B62648D00411E0BE5B349C92ACCBC2"
name="S106_cln3-del mbp1-del swi6-del">

<description>Predict viable, size=swi6-del
</description>

<parents>

<parent id="x6BA814A8D00411E0BE5B349C92ACCBC2"/>

<parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>

</parents>

</run>

```

    <run checked="1" id="x6E6EFC186C381014824BE67C946E5DE9"
name="S107_cln3-del mbp1-del whi5-del">
    <description>Predict viable.
</description>
    <parents>
    <parent id="x6BA814A8D00411E0BE5B349C92ACCBC2"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    </parents>
</run>
    <run checked="1" id="xAE9067E16C381014AC1EEB14ADE178EB"
name="S108_cln3-del mbp1-del GAL-WHI5">
    <description>Predict inviable.

</description>
    <parents>
    <parent id="x6BA814A8D00411E0BE5B349C92ACCBC2"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
    </parents>
</run>
    <run checked="1" id="xA58DADCD7E4E101C9AC3DCAF353D497D"
name="S109_cln3-del swi4-del">
    <description>Inviabile.
Nasmyth and Dirick, 1991, Table 1, strain K1944;
BioGRID;
Jorgensen et al., 2002, Fig. 2;
Ferrezuelo et al., 2009, text.
</description>
    <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    </parents>
</run>
    <run checked="1" id="x0A2D68836D4310149F1BD44063C123DC"
name="S110_cln3-del swi4-del 2xCLN2">
    <description>Predict to be rescued.</description>
    <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
    </parents>
    <changes>
    <parameter id="ksn2_2">
    <math:math>
    <math:apply>
    <math:times/>
    <math:cn>2</math:cn>
    <math:ci>ksn2_2</math:ci>
    </math:apply>
    </math:math>
    </parameter>
    <parameter id="ksn2_3">
    <math:math>

```

```

        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksn2_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x550C2A996E5D1014B2F6941693E590E7"
name="S111_cln3-del swi4-del GAL-CLN2">
  <description>Rescued.
  Ferrezuelo et al., 2009, text.
</description>
  <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x7810601AD00411E0BE5B349C92ACCBC2"
name="S113_cln3-del swi4-del whi5-del">
  <description>Predict to be rescued, but large.</description>
  <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="1" id="x45B614D76BFC1014899B81B0907E1AD9"
name="S114_cln3-del swi4-del 2x-BCK2">
  <description>Predict to be rescued.</description>
  <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
  </parents>
  <changes>
    <parameter id="BCK2T_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>BCK2T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x56C6B40C6BFC10148AD5FDF1ED8F97F9"
name="S115_cln3-del swi4-del cdh1-del">
  <description>Predict no rescue.
</description>
  <parents>

```

```

        <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
        <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
</run>
<run checked="1" id="xCDDDAE846BFC101480E0FD0A9FE06866"
name="S116_cln3-del swi4-del GAL-CLB2 ">
    <description>Predict no rescue.

</description>
    <parents>
        <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
        <parent id="xD942EB44D12311E0ABC131AB92ACCB2"/>
    </parents>
</run>
<run checked="1" id="x1DF5347D6D4C10149739B685348E306A"
name="S117_cln3-del swi4-del 3xCLB5">
    <description>Predict rescued.

</description>
    <parents>
        <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
    </parents>
    <changes>
        <parameter id="ksb5_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>3</math:cn>
                    <math:ci>ksb5_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
        <parameter id="ksb5_2">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>3</math:cn>
                    <math:ci>ksb5_2</math:ci>
                </math:apply>
            </math:math>
        </parameter>
        <parameter id="ksb5_3">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>3</math:cn>
                    <math:ci>ksb5_3</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>

```



```

    </run>
    <run checked="1" id="x139F63737BC1101C89378E15336AB324"
name="S118_cln3-del swi6-del">
    <description>Viable, size=swi6-del,
Nasmyth and Dirick, 1991, Table 1, strain K2090 (viable);
Wijnen et al., 2002, Fig. 1 (size=swi6Δ).
</description>
    <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
</run>
    <run checked="1" id="x999C075E6E1F101480D0CD67641E9B81"
name="S119_cln3-del SWI6-SA4">
    <description>Viable, size = cln3-del.
Wijnen et al., 2002, text size(=cln3Δ).
</description>
    <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
    </parents>
</run>
    <run checked="1" id="x98242C6B7C75101C8F49EB1155BA7B8C"
name="S120_CLN3-1 swi6-del">
    <description>Viable, size =swi6-del.
Wijnen et al., 2002, Fig. 1 (size=swi6Δ).</description>
    <parents>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    <parent id="x632415CA7B27101C837BBB2556A15896"/>
    </parents>
</run>
    <run checked="1" id="x36518076EB7410198A3B95E62AF07A7C"
name="S121_cln3-del whi5-del">
    <description>Vable, 0.7-1.0x.
Costanzo et al., 2004, Fig. 3 (size close to WT);
de Bruin et al., 2004, Fig. 2 (size in btw whi5Δ and wt),
Fig. 3 (size of bud initiation close to whi5Δ).</description>
    <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    </parents>
</run>
    <run checked="1" id="xF3E4939CD00311E0BE5B349C92ACCBC2"
name="S122_CLN3-1 whi5-del">
    <description>Viable, size small.
Costanzo et al., 2004, Fig. 3, size small.
</description>
    <parents>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    <parent id="x632415CA7B27101C837BBB2556A15896"/>

```

```

    </parents>
  </run>
  <run checked="1" id="x7E7DE760D00411E0BE5B349C92ACCBC2"
name="S123_cln3-del GAL-WHI5">
  <description>Inviabile, G1 arrest.
Costanzo et al., 2004, Fig. 2D;
Wagner et al., 2009, Fig. 3C.
</description>
  <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
  <run checked="1" id="x84CE24A4D00411E0BE5B349C92ACCBC2"
name="S124_cln3-del GAL-WHI5-12A">
  <description>Inviabile, G1 arrest.
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3C.
</description>
  <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="x692914D0D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
  <run checked="1" id="x988FAFC56D121014A476AFDCF07F7DC8"
name="S125_cln3-del GAL-WHI5 swi6-del">
  <description>Predict viable, size=swi6del in galactose.
</description>
  <parents>
    <parent id="x7E7DE760D00411E0BE5B349C92ACCBC2"/>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
  </parents>
</run>
  <run checked="1" id="xBFD02E056D1210148B0AE0FB3DFB6483"
name="S126_cln3-del GAL-WHI5 mbp1-del swi6-del">
  <description>Predict it still can be rescued by swi6-del.</
description>
  <parents>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    <parent id="xAE9067E16C381014AC1EEB14ADE178EB"/>
  </parents>
</run>
  <run checked="1" id="x071A4F576D041014B76F904EAA7716EA"
name="S127_cln3-del clb5,6-del">
  <description>Predict viable.
</description>
  <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>

```

```

</run>
<run checked="1" id="xCC03EFA2D12111E0ABC131AB92ACCBC2"
name="S128_triple-cln GAL-CLN2">
  <description>Rescued.
Cross and Tinkelenberg, 1991, Fig. 4, viable.</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x1F4837FB6CFA1014ABE5FDBE0488174C"
name="S129_triple-dln GAL-CLN2 clb5,6-del">
  <description>Predict viable.</description>
  <parents>
    <parent id="xCC03EFA2D12111E0ABC131AB92ACCBC2"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="1" id="xCF8EE3F2D12111E0ABC131AB92ACCBC2"
name="S130_triple-cln GAL-CLN3">
  <description>Viable.
Cross and Tinkelenberg, 1991 (viable);
Schwob and Nasmyth, 1993, Fig. 2 (SBF activated soon
after galactose induction).
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x8C541325ECE71019B5FDDF420B74B6FA"
name="S131_triple-cln sic1-del">
  <description>Viable and large.
Schneider et al., 1996, Fig. 3 viable;
Tyers, 1996, Fig. 2, viable with short G1 and large cells.
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
<run checked="1" id="xC3581BDB6CF91014A6F2B45928362DA7"
name="S132_triple-cln cdc6-del">
  <description>Predict to be inviable.</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x88ACABEE6C2A1014B4C0DAEFDC210EA2"/>
  </parents>
</run>
<run checked="1" id="xD602B3EED12111E0ABC131AB92ACCBC2"

```

```

name="S133_triple-cln cdh1-del">
  <description>Inviabile, Telophase arrest.
Schwab et al., 1997, Fig. 3. these cells do not arrest uniformly in
G1,
a fraction of the cell population proceeds through S phase
and arrests with 2C DNA content.
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="1" id="xDD977D56D12111E0ABC131AB92ACCBC2"
name="S134_triple-cln mc-CLB5">
  <description>Viable.
Epstein and Cross, 1992, text and Fig. 1,
a low copy number (CEN) plasmid carrying the CLB5 gene
can suppress the lethality of triple-cln deletion.
Simulation with 4 copies of CLB5.</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xA6EEF3FAD12211E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xE7EB938CD12111E0ABC131AB92ACCBC2"
name="S135_triple-cln GAL-CLB5">
  <description>Viable.
Schwob and Nasmyth, 1993, Fig. 6.
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xEF6BC78AD12111E0ABC131AB92ACCBC2"
name="S136_triple-cln mc-BCK2">
  <description>Viable.
Epstein and Cross, 1994. low copy number (CEN) plasmid carrying the
BCK2 gene can suppress the
ethality of triple-cln deletion.
Simulation with 5 copies of Bck2.</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xE71B8A3AD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xF400DBC8D12111E0ABC131AB92ACCBC2"
name="S137_triple-cln GAL-CLB2">
  <description>G1 arrest.
Amon et al., 1994, Fig. 8. G1 arrest.

```

A problem for the model. Simulation show a telophase arrest rather than a G1 arrest. Parameter problem.

```
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xFAC1686AD12111E0ABC131AB92ACCBC2"
name="S138_triple-cln apc-ts">
  <description>Inviabile, metaphase arrest.
Irniger and Nasmyth, 1997, Fig. 2, metaphase arrest.</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x6E2C2348D12311E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x82DD2E4C6CD810149349FEFA4F2F1B6D"
name="S139_triple-cln whi5-del">
  <description>Inviabile, G1 arrest.
de Bruin et al., 2004, text, still G1 arrested.
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="1" id="x17B9265C6CFC1014805C8CBD233B4F83"
name="S140_triple-cln whi5-del 2x-BCK2">
  <description>Predict viable.
</description>
  <parents>
    <parent id="x82DD2E4C6CD810149349FEFA4F2F1B6D"/>
  </parents>
  <changes>
    <parameter id="BCK2T_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>BCK2T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x89957943ED2A101AB03EEDAB0BDE046F"
name="S141_mbp1-del swi4-del">
  <description>Inviabile, G1 arrest.
```

```

Koch et al., 1993, Fig. 7.</description>
  <parents>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    <parent id="x4535D4C8ECEEE101A98F38D7315B4725B"/>
  </parents>
</run>
<run checked="1" id="x62898AA26CD81014BE6CCBDFBE363F05"
name="S142_mbp1-del swi4-del GAL-CLN2">
  <description>Rescued.
Koch et al., 1993, text (rescued with ADH-CLN2);
Wijnen and Futcher, 1999, Table 3 (rescued with Met-CLN2).
</description>
  <parents>
    <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x0E36148C6CDC1014A6F5E92AD4F74D0E"
name="S143_mbp1-del swi4-del GAL-CLN2 clb5,6-del">
  <description>Predict viable.
</description>
  <parents>
    <parent id="x62898AA26CD81014BE6CCBDFBE363F05"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="1" id="x6C52A4A16CF3101497BD9F20ECBA3ECD"
name="S144_mbp1-del swi4-del GAL-CLN2 2x-CDC14">
  <description>Predict inviable.
</description>
  <parents>
    <parent id="x62898AA26CD81014BE6CCBDFBE363F05"/>
  </parents>
  <changes>
    <parameter id="ks14_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ks14_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x72E18FBB6CD81014AA739CEE0C987722"
name="S145_mbp1-del swi4-del GAL-BCK2">
  <description>Not rescued,
Wijnen and Futcher, 1999, Table 3.</description>
  <parents>

```

```

        <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
        <parent id="x6CB1A216D00311E0BE5B349C92ACCB2"/>
    </parents>
</run>
<run checked="1" id="x240A241B6CDC10148B0BCCD51DFF7241"
name="S146_mbp1-del swi4-del GAL-CLB5">
    <description>Predict viable.
</description>
    <parents>
        <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
        <parent id="xCEF955B6D12211E0ABC131AB92ACCB2"/>
    </parents>
</run>
<run checked="1" id="xFCDC80CA6C7F10149990EC1D973196F9"
name="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1">
    <description>Predict inviable.</description>
    <parents>
        <parent id="x240A241B6CDC10148B0BCCD51DFF7241"/>
    </parents>
    <changes>
        <parameter id="ksc1_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>2</math:cn>
                    <math:ci>ksc1_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
        <parameter id="ksc1_2">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>2</math:cn>
                    <math:ci>ksc1_2</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="1" id="x42EF348A6CDC1014BA9AF4B869796809"
name="S148_mbp1-del swi4-del GAL-CLN3">
    <description>Predict G1 arrest.</description>
    <parents>
        <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
        <parent id="xB5A77DBAD12011E0ABC131AB92ACCB2"/>
    </parents>
</run>
<run checked="1" id="x51203F036CDC101490E3E4A33F4283AC"
name="S149_mbp1-del swi4-del whi5-del">

```

```

        <description>Predict inviable
</description>
        <parents>
            <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
            <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
        </parents>
    </run>
    <run checked="1" id="x3687F2FE6CF31014A0DDF4210306B02A"
name="S150_mbp1-del swi4-del sic1-del">
        <description>Predict inviable.
</description>
        <parents>
            <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
            <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
        </parents>
    </run>
    <run checked="1" id="x56B35AC16CF31014A5D9979668E36CF3"
name="S151_mbp1-del swi4-del cdh1-del">
        <description>Predict inviable.</description>
        <parents>
            <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
            <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
        </parents>
    </run>
    <run checked="1" id="x3E5A244B7EDD101C93F2DFDDE5F995BF"
name="S152_mbp1-del whi5-del">
        <description>Viable, &lt;1x.
de Bruin et al., 2004, text.</description>
        <parents>
            <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
            <parent id="x4535D4C8ECEEE101A98F38D7315B4725B"/>
        </parents>
    </run>
    <run checked="1" id="x0BCDCF86D00511E0BE5B349C92ACCBC2"
name="S153_mbp1-del GAL-WHI5">
        <description>Predict viable.
</description>
        <parents>
            <parent id="x4535D4C8ECEEE101A98F38D7315B4725B"/>
            <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
        </parents>
    </run>
    <run checked="1" id="x0F10B582D00511E0BE5B349C92ACCBC2"
name="S154_mbp1-del GAL-WHI5-12A">
        <description>Predict viable.</description>
        <parents>
            <parent id="x4535D4C8ECEEE101A98F38D7315B4725B"/>
            <parent id="x692914D0D00311E0BE5B349C92ACCBC2"/>
        </parents>
    </run>

```



```

    <run checked="1" id="x134EF8107CCF101C85F7AD31985E2E36"
name="S155_mbp1-del swi6-del">
    <description>Viable, size=swi6-del.
Koch et al., 1993, text ( size close to swi6Δ).
Ferrezuelo et al., 2009.
</description>
    <parents>
        <parent id="x4535D4C8ECEEE101A98F38D7315B4725B"/>
        <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
</run>
    <run checked="1" id="xACBC61F46E1F1014B8B38CF67AAFE958"
name="S156_mbp1-del SWI6-SA4">
    <description>Viable, sizesimilar to mbp1-del.
Wijnen et al., 2002, text.
</description>
    <parents>
        <parent id="x4535D4C8ECEEE101A98F38D7315B4725B"/>
        <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
    </parents>
</run>
    <run checked="1" id="x5CBD63F4F217101A8F66CC835414F125"
name="S157_swi4-del swi6-del">
    <description>Inviable, G1 arrest.
Nasmyth and Dirick, 1991, Table 1, strain K2003, inviable.
Koch et al., 1993, text, inviable.
</description>
    <parents>
        <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
        <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
</run>
    <run checked="1" id="xBFE3EDBC6C361014902697BD2323458A"
name="S158_swi4-del swi6-del SWI6-SA4">
    <description>Rescued.
Wijnen et al., 2002, text.</description>
    <parents>
        <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
        <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
    </parents>
    <changes>
        <initialConcentration id="SWI6_1">
            <math:math>
                <math:cn>30</math:cn>
            </math:math>
        </initialConcentration>
    </changes>
</run>
    <run checked="1" id="x46F71C846CD810149CD5D7BAD0F0108F"

```

```

name="S159_swi4-del swi6-del GAL-CLN2">
  <description>Rescued,
Nasmyth and Dirick, 1991, Table 1 strain K2390 (rescued with ADH-
CLN2);
Wijnen and Futcher, 1999, Table 3;
Bean et al., 2005.
</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x8C6EE4FD6CCB10149190B5EBDC41D9F8"
name="S160_swi4-del swi6-del GAL-CLN2 clb5,6-del ">
  <description>Predict rescued.</description>
  <parents>
    <parent id="x46F71C846CD810149CD5D7BAD0F0108F"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="1" id="x5491851F6CD810148E35F7011C395303"
name="S161_swi4-del swi6-del GAL-BCK2">
  <description>Not rescued.
Wijnen and Futcher, 1999, Table 3 (no rescue).
</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="x6CB1A216D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xE5F5D55F6C391014977D8554C8D66CFA"
name="S162_swi4-del swi6-del GAL-CLB5">
  <description>Predict rescued.</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xF930B252D00511E0BE5B349C92ACCBC2"
name="S163_swi4-del swi6-del whi5-del">
  <description>Predict inviable.</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="1" id="xA03674FA6C081014BE34B8E16A961750"
name="S164 swi4-del swi6-del GAL-CLN3">
  <description>Inviable.
Wijnen and Futcher, 1999, Table 3 (no rescue).

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</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xD15D24C96CE31014B4F8BA3A8E4B3F51"
name="S165_swi4-del swi6-del sic1-del">
  <description>Inviabile.
Wijnen and Futcher, 1999, text (no rescue).
</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
<run checked="1" id="x5AABF1147EB3101C91F3D8479A22A47F"
name="S166_swi4-del whi5-del">
  <description>Viable, size similar to swi4-del.
de Bruin et al., 2004, Fig. 2; Jorgensen et al., 2002, Fig. 3.
</description>
  <parents>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="1" id="x2EE0BFB6D00411E0BE5B349C92ACCBC2"
name="S167_swi4-del GAL-WHI5">
  <description>Viable, size similar to swi4-del.
de Bruin et al., 2004, text (size close to swi4-del);
Costanzo Fig 2D (viable).
</description>
  <parents>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x4EE76A247CF5101C9B30A1133C66AE23"
name="S168_swi6-del whi5-del">
  <description>Viable,
Costanzo et al., 2004, Fig. 3 size=swi6-del.

</description>
  <parents>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
  </parents>
</run>
<run checked="1" id="x08F95036D00611E0BE5B349C92ACCBC2"
name="S169_swi6-del GAL-WHI5">

```

```

    <description>Inviable,
Costanzo et al., 2004, Fig. 2D (inviable)
But model predict to be viable.
</description>
    <parents>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
    </parents>
  </run>
  <run checked="1" id="x37FC62576CBE1014973BB7068F65B41C"
name="S170_SWI6-SA4 GAL-WHI5">
    <description>Viable,
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3D.
</description>
    <parents>
      <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
      <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
    </parents>
  </run>
  <run checked="1" id="x0F115B9ED00611E0BE5B349C92ACCBC2"
name="S171_msn5-del swi4-del">
    <description>Inviable.
Queralt and Igual, 2003, Fig. 2A (inviable)
But the model predicts it to be viable, with size close to swi4-
del.</description>
    <parents>
      <parent id="x20AE70748954101CACCC6C0AD212BBB88"/>
      <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    </parents>
  </run>
  <run checked="1" id="x12433012D00611E0BE5B349C92ACCBC2"
name="S172_msn5-del swi6-del">
    <description>Inviable.
Queralt and Igual, 2003, Fig. 2B (inviable).
But the model predicts it to be viable, with size=swi6-del.</
description>
    <parents>
      <parent id="x20AE70748954101CACCC6C0AD212BBB88"/>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
  </run>
  <run checked="1" id="x0A4FB50BFF3C101A8280C4792D13C4E8"
name="S173_cdh1-del sic1-del">
    <description>Inviable.
Schwab et al., 1997;
Archambault et al., 2003.
Model predicts it to be telophase arrested.
</description>
    <parents>

```

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        <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
        <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
    </parents>
</run>
<run checked="1" id="xF7DBD7E8D42D11E0B54CFCD292ACCBC2"
name="S174_cdh1-del sic1-del GALL-CDC20">
    <description>Viable.
Cross, 2003, Suppl. Fig. 4, viable.
</description>
    <parents>
        <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
        <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
        <parent id="x256EAE90D12411E0ABC131AB92ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x0075EBBED42E11E0B54CFCD292ACCBC2"
name="S175_cdh1-del cdc6-del">
    <description>Viable.
Calzada et al., 2001, Fig3B, the mutants are viable.</description>
    <parents>
        <parent id="x88ACABEE6C2A1014B4C0DAEFDC210EA2"/>
        <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
</run>
<run checked="1" id="x15208920D42E11E0B54CFCD292ACCBC2"
name="S176_cdh1-del sic1-del cdc6-del">
    <description>Inviable.
Archambault et al., 2003, Fig. 5, inviable.
Simulation, telophase arrested.
</description>
    <parents>
        <parent id="x802F3F3B6C2A10148E158F84654E9DDD"/>
        <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
</run>
<run checked="1" id="x60970BED6E141014BC22EE0D4B2A69F1"
name="S176b_cdh1-del sic1-del cdc6-del GAL-SIC1">
    <description>Viable.
Archambault et al., 2003, Fig. 5, rescued.</description>
    <parents>
        <parent id="x15208920D42E11E0B54CFCD292ACCBC2"/>
        <parent id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x02BC3086D42E11E0B54CFCD292ACCBC2"
name="S177_cdh1-del sic1-del cdc6-del GALL-CDC20">
    <description>Viable.
Cross, 2003, Supplementary information, rescued.
</description>
    <parents>

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    <parent id="x15208920D42E11E0B54CFCD292ACCBC2"/>
    <parent id="x256EAE90D12411E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x08C2CF34D42F11E0B54CFCD292ACCBC2"
name="S178_cdh1-del swi5-del">
  <description>Inviabile.
Archambault et al., 2003, Fig. 5, inviable.
Simulation shows telophase arrest.
</description>
  <parents>
    <parent id="xFDFFA720D42E11E0B54CFCD292ACCBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="1" id="x127AAC0ED42F11E0B54CFCD292ACCBC2"
name="S179_cdh1-del swi5-del GAL-SIC1">
  <description>Rescued.
Archambault et al., 2003, Fig. 8, viable.
</description>
  <parents>
    <parent id="x08C2CF34D42F11E0B54CFCD292ACCBC2"/>
    <parent id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x638956EED43011E0B54CFCD292ACCBC2"
name="S180_GAL-CLB5 cdh1-del">
  <description>Inviabile.
Comments: This is unpublished results from Dr. Cross's lab.
The mutant is inviable for other unknown causes.
Personal communication from Dr. Cross:
"Although the mutant is ultimately inviable on galactose,
this is not associated with any obvious problems in a
short-term experiment. These cells clearly go through several
doublings, probably without much difficulty, on galactose medium,
and they remain reasonably viable when returned to glucose,
like GAL-CLB5 cells. The DNA profile looks like that of GAL-CLB5
ontrols, mostly 2C DNA. So I think at the level of a computational
model, it is not reasonable to expect the model to predict inviability
of GAL-CLB5 cdh1Δ mutants. They should probably look pretty viable".</
description>
  <parents>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="1" id="x60B3230AD43011E0B54CFCD292ACCBC2"
name="S181_GAL-CLB5 sic1-del">
  <description>Lethal.

```

Jacobson, et al., 2000. Origin relicensing problem.

</description>

<parents>

<parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>

<parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>

</parents>

</run>

<run checked="1" id="x71FFC7D0D43011E0B54CFCD292ACCBC2" name="S182_CLB5-dbdel sic1-del">

<description>Inviabile.

Jacobson et al., 2000; Wasch and Cross, 2002, Fig. 2.

Origin licensing problem.

</description>

<parents>

<parent id="x6D5ADA76D43011E0B54CFCD292ACCBC2"/>

<parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>

</parents>

</run>

<run checked="1" id="x75F28896D43011E0B54CFCD292ACCBC2" name="S183_CLB5-dbdel pds1-del">

<description>Viable.

Wasch and Cross, 2002, Fig. 1.

</description>

<parents>

<parent id="x6D5ADA76D43011E0B54CFCD292ACCBC2"/>

<parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>

</parents>

</run>

<run checked="1" id="x7CD7AF1AD43011E0B54CFCD292ACCBC2" name="S184_CLB5-dbdel pds1-del cdc20-del">

<description>Inviabile, telophase arrest.

Wasch and Cross, 2002, Fig. 1.

</description>

<parents>

<parent id="x75F28896D43011E0B54CFCD292ACCBC2"/>

<parent id="xABEC1F166BF41014AE7CF70EDF046860"/>

</parents>

</run>

<run checked="1" id="xBA4895016C3C1014B9CFA0B4E99293AA" name="S185_SIC1-0P">

<description>Viable.

Cross et al., 2007 Fig. 2 (long G1), Table 2 (short unbudded period).

</description>

<changes>

<parameter id="ec1n3_1">

<math:math>

<math:cn>0</math:cn>

</math:math>

```

    </parameter>
    <parameter id="ec1b2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ec1b5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ec1n2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ec1k2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="xD326FD5C6CCA1014944FCA76EDE8DB57"
name="S186_GAL-SIC1-0P">
  <description>Inviabile.
Costanzo et al., 2004, Fig. 5 (G1 arrest, but Whi5 is not nuclear).
</description>
  <parents>
    <parent id="x14C5B5B4D42D11E0B54CFCD292ACCB2"/>
    <parent id="xBA4895016C3C1014B9CFA0B4E99293AA"/>
  </parents>
</run>
<run checked="1" id="x6169DE0D6C3D1014A73BC0065302CE2C"
name="S187_SIC1-0P cdh1-del">
  <description>Viable.
Cross et al., 2007, Fig. 2.</description>
  <parents>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    <parent id="xBA4895016C3C1014B9CFA0B4E99293AA"/>
  </parents>
</run>
<run checked="1" id="x3B9F1B796C41101496968DAFCAFE93D3"
name="S188_SIC1-0P clb5-del">
  <description>Inviabile, G1 arrest.
Cross et al., 2007, Fig. 8.</description>
  <parents>
    <parent id="xBA4895016C3C1014B9CFA0B4E99293AA"/>
    <parent id="xE9993E2E6E88101485D585EE42CD4A6C"/>
  </parents>

```



```

    </run>
    <run checked="1" id="xFAB65F716D471014B8B8AF6570B8C7D0"
name="S189_SIC1-0P clb5-del GAL-CLN2">
    <description>Predict G1 arrest.</description>
    <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
    </parents>
    </run>
    <run checked="1" id="x7976930B6D4A10149440D8F99026E73B"
name="S190_SIC1-0P clb5-del GAL-CLB5">
    <description>Predict viable.</description>
    <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
    </parents>
    </run>
    <run checked="1" id="x10E169106C0C10148F22A5FDAE26D930"
name="S191_SIC1-0P clb5-del GAL-CLB2">
    <description>Predict viable.</description>
    <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
    </parents>
    </run>
    <run checked="1" id="xCC2AD87A6C471014B3F6C615106A9667"
name="S192_SIC1-0P clb5-del swi5-del">
    <description>Viable.
Cross et al., 2007, Fig. 8.</description>
    <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="xFDFFA720D42E11E0B54CFCD292ACCBC2"/>
    </parents>
    </run>
    <run checked="1" id="x9BDE8EDCD43111E0B54CFCD292ACCBC2"
name="S193_TAB6-1">
    <description>Viable.
Shou et al., 2001, Fig. 7E.
Tab6-1 is a dominant mutation of Cdc14, it is not inhibited by NET1.
Simulation assumes that the mutated Cdc14 does not bind well with
Net1.</description>
    <changes>
    <parameter id="kasrent_1">
    <math:math>
    <math:apply>
    <math:times/>
    <math:cn>0.04</math:cn>
    <math:ci>kasrent_1</math:ci>
    </math:apply>
    </math:math>

```

```

        </parameter>
    </changes>
</run>
<run checked="1" id="xB7F36426D43111E0B54CFCD292ACCBC2"
name="S194_clb5,6-del TAB6-1">
    <description>Inviabile, G1 arrest.
Shou et al., 2001, Fig. 7E.</description>
    <parents>
        <parent id="x9BDE8EDCD43111E0B54CFCD292ACCBC2"/>
        <parent id="xDBB6FD947D2210169313831916AD2692"/>
    </parents>
</run>
<run checked="1" id="xBB8131806D4E1014B401A51BAD46C14E"
name="S195_clb5,6-del TAB6-1 GAL-CLB2">
    <description>Predict rescued</description>
    <parents>
        <parent id="xB7F36426D43111E0B54CFCD292ACCBC2"/>
        <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x12F9B0BC6D4F101498C5DDCD9EB81CAD"
name="S196_clb5,6-del TAB6-1 GAL-CLB5">
    <description>Predict rescued
</description>
    <parents>
        <parent id="xB7F36426D43111E0B54CFCD292ACCBC2"/>
        <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x41FDC0A06D4F1014B040A33B7B2A2063"
name="S197_clb5,6-del TAB6-1 GAL-CLN2">
    <description>Predict no rescue.</description>
    <parents>
        <parent id="xB7F36426D43111E0B54CFCD292ACCBC2"/>
        <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x25C1EA676C181014915BA057F581F101"
name="S198_cln3-del bck2-del whi5-del clb5-del clb6-del">
    <parents>
        <parent id="x89230208EC2510199682B95B4683BBA1"/>
        <parent id="xDBB6FD947D2210169313831916AD2692"/>
    </parents>
</run>
<run checked="1" id="x3F1AC2606C18101480A8DECCDDAD4528"
name="S199_cln1-del cln2-del clb5-del clb6-del GAL-CLB2">
    <parents>
        <parent id="xFE571EA6EC6D10198F18CE1CB14B92C3"/>
        <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
    </parents>

```

```

    </run>
    <run checked="1" id="xB83398E0D42F11E0B54CFCD292ACCBC2"
name="F001_clb1,2-del">
    <description>G2 arrest.
Surana et al., 1991, Table 1.</description>
    <changes>
        <parameter id="ksb2_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <parameter id="ksb2_2">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
    <run checked="1" id="xBDDC9A62D42F11E0B54CFCD292ACCBC2"
name="F002_CLB1 clb2-del">
    <description>Viable.
Richardson et al., 1992 (viable);
Cross et al., 2002, Table 1, Clb1=1/3*(Clb1+Clb2).
</description>
    <changes>
        <parameter id="ksb2_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>0.33</math:cn>
                    <math:ci>ksb2_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
        <parameter id="ksb2_2">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>0.33</math:cn>
                    <math:ci>ksb2_2</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>
</run>
    <run checked="1" id="xD942EB44D12311E0ABC131AB92ACCBC2"
name="F003_GAL-CLB2">
    <description>Viable.
Surana et al., 1993, Fig. 3.</description>
    <parents>

```

```

    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ksb2_1">
      <math:math>
        <math:ci>kgalclb2_1</math:ci>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x57E60DD04B4D11E0832AFD5658E6C801"/>
name="F004_mc-GAL-CLB2">
  <description>Telophase arrest.
  Surana et al., 1993, Fig. 4 (8 copies, T arrest with no bud);
  Cross et al., 2005, Fig. 3 (diploid cells with 2 copies showed T
  arrest with no bud).
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ksb2_1">
      <math:math>
        <math:cn>0.72</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x57E60DD04B4D11E0832AFD5658E6C801"/>
name="F005_CLB2-dbd1">
  <description>Telophase arrest.
  Pfleger and Kirschner, 2000;
  Wasch and Cross, 2002, Fig. 2 (telophase arrest)
</description>
  <changes>
    <parameter id="kdb2_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.32</math:cn>
          <math:ci>kdb2_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="kdb2_3">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>

```

```

    </run>
    <run checked="1" id="xF6F6B684D42F11E0B54CFCD292ACCBC2"
name="F006_CLB2-dbdel in GAL">
      <description>Telophase arrest.
Wasch and Cross, 2002, Supplem. info (still T arrest)
</description>
      <parents>
        <parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
        <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
      </parents>
    </run>
    <run checked="1" id="x3010DF62D43011E0B54CFCD292ACCBC2"
name="F007_GAL-CLB2dbdel">
      <description>Telophase arrest.
Amon et al., 1994, T arrest.</description>
      <parents>
        <parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
        <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
      </parents>
    </run>
    <run checked="1" id="xABEC1F166BF41014AE7CF70EDF046860"
name="F008_cdc20-del">
      <description>Metphase arrest.
Lim et al., 1998;
Shirayama et al., 1998, Fig. 6A (metaphase arrest)</description>
      <changes>
        <parameter id="ks20_1">
          <math:math>
            <math:cn>0</math:cn>
          </math:math>
        </parameter>
        <parameter id="ks20_2">
          <math:math>
            <math:cn>0</math:cn>
          </math:math>
        </parameter>
      </changes>
    </run>
    <run checked="1" id="x4DD21638D12411E0ABC131AB92ACCBC2"
name="F009_mc-CDC20">
      <description>Viable, no mitotic catastrophe.
Pan and Chen, 2004, Fig. 3, cells with cdc20-del 5xCDC20-myc is
viable in the absense of Benomyl,
but inviable in the presence of 7.5ug/ml Benomyl.</description>
      <changes>
        <parameter id="ks20_1">
          <math:math>
            <math:apply>
              <math:times/>
              <math:cn>5</math:cn>
            </math:math>
          </parameter>
        </changes>

```

```

        <math:ci>ks20_1</math:ci>
      </math:apply>
    </math:math>
  </parameter>
  <parameter id="ks20_2">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>5</math:cn>
        <math:ci>ks20_2</math:ci>
      </math:apply>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="1" id="x256EAE90D12411E0ABC131AB92ACCBC2"
name="F010_GALL-CDC20">
  <description>Viable, no mitotic catastrophe.
GALL promoter is a reduced strength GAL-promoter.
Shirayama et al., 1999, viable.</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ks20_1">
      <math:math>
        <math:cn>0.6</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x0E35CA6AD12411E0ABC131AB92ACCBC2"
name="F011_GAL-CDC20">
  <description>Inviable, mitotic catastrophe.
Hwang et al., 1998 (defect in spindle assembly checkpoint);
Shirayama et al., 1998, Fig. 7 (inviable, mitotic catastrophe).
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ks20_1">
      <math:math>
        <math:cn>6</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="xA95287FED43011E0B54CFCD292ACCBC2"
name="F012_esp1-ts">

```

<description>Inviabale, sister chromatids not separated, Clb2 is degraded with a 20 min delay. Cohen-Fix and Koshland, 1999, Fig. 6A (inviabale, sisters are not separated, but Clb2 is degraded with a 20 min lag); Tinker-Kulberg and Morgan, 1999, Fig. 3 (inviabale).</description>

<changes>

<parameter id="ki_1">

<math:math>

<math:apply>

<math:times/>

<math:cn>0.04</math:cn>

<math:ci>ki_1</math:ci>

</math:apply>

</math:math>

</parameter>

<parameter id="eesp1_1">

<math:math>

<math:apply>

<math:times/>

<math:cn>0.04</math:cn>

<math:ci>eesp1_1</math:ci>

</math:apply>

</math:math>

</parameter>

</changes>

</run>

<run checked="1" id="x28E88AF0D12411E0ABC131AB92ACCBC2" name="F013_GAL-ESP1">

<description>Inviabale. mitotic catastrophe. Ciosk et al., 1998., Fig. 7.</description>

<parents>

<parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>

</parents>

<changes>

<initialConcentration id="ESP1_1">

<math:math>

<math:apply>

<math:times/>

<math:cn>4</math:cn>

<math:ci>ESP1_1</math:ci>

</math:apply>

</math:math>

</initialConcentration>

<initialConcentration id="PE_1">

<math:math>

<math:apply>

<math:times/>

<math:cn>4</math:cn>

<math:ci>PE_1</math:ci>

```

        </math:apply>
        </math:math>
    </initialConcentration>
</changes>
</run>
<run checked="1" id="xE9C4D07B6BF5101481069FB89CDB0DE3"
name="F014_pds1-del">
    <description>Viable.
Yamamoto et al., 1996, Fig. 3 (viable, with high Esp1 throughout the
cycle,
which may not be fully active in the absence of Pds1);
Hornig et al., 2002 (Pds1 promotes nuclear accumulation of
Esp1 and helps Esp 1 to become fully activated).</description>
    <changes>
        <parameter id="kspds_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <initialConcentration id="PDS1_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
        <initialConcentration id="PE_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
        <initialConcentration id="ESP1_1">
            <math:math>
                <math:cn>1</math:cn>
            </math:math>
        </initialConcentration>
    </changes>
</run>
<run checked="1" id="x2BC0190AD12411E0ABC131AB92ACCBC2"
name="F015_GAL-PDS1">
    <description>Inviable, sister not separated.
Cohen-Fix et al., 1996, text (both Gal-Pds1 and GAL-Pds1-dbΔ are
lethal).</description>
    <parents>
        <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    </parents>
    <changes>
        <parameter id="kspds_1">
            <math:math>
                <math:cn>0.2</math:cn>
            </math:math>
        </parameter>

```



```

    </changes>
  </run>
  <run checked="1" id="xACBDCBA6D43011E0B54CFCD292ACCBC2"
name="F016_PDS1-dbdel">
    <description> Inviabile, sister not separated.
Cohen-Fix et al., 1996, text </description>
    <changes>
      <parameter id="kdpds_2">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <parameter id="kdpds_3">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="1" id="xB0823A92D43011E0B54CFCD292ACCBC2"
name="F017_GAL-PDS1-dbdel">
    <description>Lethal.
Cohen-Fix et al., 1996, lethal.
</description>
    <parents>
      <parent id="x2BC0190AD12411E0ABC131AB92ACCBC2"/>
      <parent id="xACBDCBA6D43011E0B54CFCD292ACCBC2"/>
    </parents>
  </run>
  <run checked="1" id="x291CCC14D43C11E0B54CFCD292ACCBC2"
name="F018_tem1-ts">
    <description>Telophase arrest.
Jaspersen et al., 1998; Shirayama et al., 1994b.
</description>
    <changes>
      <parameter id="ka15_2">
        <math:math>
          <math:apply>
            <math:times/>
            <math:cn>0.003</math:cn>
            <math:ci>ka15_2</math:ci>
          </math:apply>
        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="1" id="x553C42C2D12411E0ABC131AB92ACCBC2"
name="F019_mc-TEM1">
    <description>Viable.
Jaspersen et al., 1998, Table 2.</description>

```

```

<changes>
  <initialConcentration id="TEM1GDP_1">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>20</math:cn>
        <math:ci>TEM1GDP_1</math:ci>
      </math:apply>
    </math:math>
  </initialConcentration>
  <initialConcentration id="TEM1GTP_1">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>20</math:cn>
        <math:ci>TEM1GTP_1</math:ci>
      </math:apply>
    </math:math>
  </initialConcentration>
</changes>
</run>
<run checked="1" id="x37540844D12411E0ABC131AB92ACCBC2"
name="F020_GAL-TEM1">
  <description>Viable.
Shirayama et al., 1994b.</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    <parent id="x553C42C2D12411E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x2A789C60D43111E0B54CFCD292ACCBC2"
name="F021_cdc15-del">
  <description>Telophase arrest.
Jaspersen et al., 1998; Shirayama et al., 1996.</description>
  <changes>
    <parameter id="kpnet_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x5C70CD38D12411E0ABC131AB92ACCBC2"
name="F022_mc-CDC15">
  <description>Viable.
Jaspersen et al., 1998, Table 2, Table 4, viable.
</description>
  <changes>
    <initialConcentration id="CDC15i_1">
      <math:math>

```

```

        <math:apply>
          <math:times/>
          <math:cn>20</math:cn>
          <math:ci>CDC15i_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
    <initialConcentration id="CDC15_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>20</math:cn>
          <math:ci>CDC15_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="x30A3516CD12411E0ABC131AB92ACCBC2"
name="F023_GAL-CDC15">
  <description>Viable.
Jaspersen et al., 1998, Table 4, viable.</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    <parent id="x5C70CD38D12411E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xF3A8F1938085101CB572C21C78057C0B"
name="F024_net1-ts">
  <description>Viable, long G1.
The defect is less severe than GAL-CDC14 (G1 arrest).
Visintin et al., 1999, Fig. 4 (viable, but growth is retarded);
Shou et al., 1999.</description>
  <changes>
    <parameter id="kasrent_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.02</math:cn>
          <math:ci>kasrent_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x3322FD3ED12411E0ABC131AB92ACCBC2"
name="F025_GAL-NET1">
  <description>Telophase arrest.
Visintin et al., 1999, Fig. 5 (telophase arrest).
</description>

```

```

<parents>
  <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
</parents>
<changes>
  <parameter id="ksnet_1">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>4</math:cn>
        <math:ci>ksnet_1</math:ci>
      </math:apply>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="1" id="xB791914D88AB101CAA4180490F1201CF"
name="F026_cdc14-del">
  <description>Telophase arrest.
Fitzpatrick et al., 1998; Visintin et al., 1999.</description>
  <changes>
    <parameter id="ks14_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="CDC14_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="x34E1BE12D12411E0ABC131AB92ACCBC2"
name="F027_GAL-CDC14">
  <description>G1 arrest.
Visintin et al., 1999 (defects similar to net1-ts but more severe. G1
arrest).
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ks14_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>4</math:cn>
          <math:ci>ks14_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>

```

```

        </parameter>
    </changes>
</run>
<run checked="1" id="x510A0F7CD12411E0ABC131AB92ACCBC2"
name="F028_mc-CDC14">
    <description>Viable.
Jaspersen et al., 1998, Table 2 (viable).
Simulation with 3 copies.</description>
    <changes>
        <parameter id="ks14_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>3</math:cn>
                    <math:ci>ks14_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="1" id="xC68D31BAD43111E0B54CFCD292ACCBC2"
name="F029_mad2-del">
    <description>Viable,
Alexandru et al., 1999 (viable,
no mitotic catastrophe in the absence of nocodazole).
</description>
    <changes>
        <parameter id="mad2h_1">
            <math:math>
                <math:cn>0.01</math:cn>
            </math:math>
        </parameter>
        <initialConcentration id="MAD2_1">
            <math:math>
                <math:cn>0.01</math:cn>
            </math:math>
        </initialConcentration>
    </changes>
</run>
<run checked="1" id="xC8499B24D43111E0B54CFCD292ACCBC2"
name="F030_bub2-del">
    <description>Viable,
Alexandru et al., 1999 (viable,
no mitotic catastrophe in the absence of nocodazole).
</description>
    <changes>
        <parameter id="bub2h_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>

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    </parameter>
    <parameter id="bub2l_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="BUB2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="1" id="xCCC3C2B0D43111E0B54CFCD292ACCBC2"
name="F031_mad2-del bub2-del">
  <description>Viable,
Alexandru et al., 1999 (viable,
no mitotic catastrophe in the absence of nocodazole).
</description>
  <parents>
    <parent id="x68D31BAD43111E0B54CFCD292ACCBC2"/>
    <parent id="x8499B24D43111E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xF12C202F88D7101CB908C504D55ACE3E"
name="F032_cdc55-del">
  <description>Viable.
Queralt et al., 2006 (PPX is identified as Cdc55);
Healy et al., 1991 (cdc55Δ is viable, cold sensitive).</description>
  <changes>
    <parameter id="PP2AT_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="1" id="x2E56E73ED12411E0ABC131AB92ACCBC2"
name="F033_GAL-CDC55">
  <description>Viable.
Queralt et al., 2006 (PPX is identified as Cdc55);
Chiroli et al., 2007, Fig. 10 (GAL-CDC55 causes delay in nuclear
division).</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="PP2AT_1">
      <math:math>
        <math:cn>5</math:cn>
      </math:math>
    </parameter>
  </changes>

```

```

        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="1" id="x6E2C2348D12311E0ABC131AB92ACCBC2"
name="F034_apc-ts">
    <description>Metaphase arrest.
Visintin et al., 1997; Zachariae et al., 1998b.</description>
    <changes>
      <parameter id="ks20_1">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <parameter id="ks20_2">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <parameter id="kscdh_1">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <initialConcentration id="CDH1_1">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </initialConcentration>
      <initialConcentration id="CDH1i_1">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </initialConcentration>
    </changes>
  </run>
  <run checked="1" id="x0D96429AD43211E0B54CFCD292ACCBC2"
name="F035_APC-A">
    <description>Viable.
Rudner and Murray, 2000b. Sister separation is delayed by 20 min,
Clb2 degradation is delayed by more than 40 min.
Cross, 2003, viable.
</description>
    <changes>
      <parameter id="ka20_2">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
    </changes>

```

```

    </run>
    <run checked="1" id="xDBC6A336D43111E0B54CFCD292ACCBC2"
name="F036_WT in noc">
    <description>Metaphase arrest.
Hoyt et al., 1991; Alexandru et al., 1999. Fig. 1, Fig. 5B, Fig. 9.</
description>
    <changes>
    <parameter id="ksspn_1">
    <math:math>
    <math:cn>0</math:cn>
    </math:math>
    </parameter>
    </changes>
    </run>
    <run checked="1" id="xC10DB6ECD43111E0B54CFCD292ACCBC2"
name="F037_CLB1 clb2-del TAB6-1">
    <description>Viable.
Shou et al., 2001, Fig. 7E.</description>
    <parents>
    <parent id="x9BDE8EDCD43111E0B54CFCD292ACCBC2"/>
    <parent id="xBDDC9A62D42F11E0B54CFCD292ACCBC2"/>
    </parents>
    </run>
    <run checked="1" id="xDA5936BED42F11E0B54CFCD292ACCBC2"
name="F038_CLB1 clb2-del cdh1-del">
    <description>Inviable.
Cross, 2003 Suppl. Fig. 1, Table 6, double mutant grows well in
galactose medium, but exhibited poor viability when transferred to
glucose medium.
In simulation, the mutant is viable. Problem for the model.
In simulation, the mutant would be viable.
</description>
    <parents>
    <parent id="xBDDC9A62D42F11E0B54CFCD292ACCBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
    </run>
    <run checked="1" id="xDE645D4CD42F11E0B54CFCD292ACCBC2"
name="F039_CLB1 clb2-del pds1-del">
    <description>Inviable.
Shirayama et al., 1999, text, inviable.
However in simulation, the mutant is viable. Problem for the model.
</description>
    <parents>
    <parent id="xBDDC9A62D42F11E0B54CFCD292ACCBC2"/>
    <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
    </parents>
    </run>
    <run checked="1" id="x07E0A3BAD43011E0B54CFCD292ACCBC2"
name="F040_CLB2-dbdel mc-SIC1">

```


<description>Partial rescue.
Cross, 2003. Suppl. Fig. 5. Low copy number (CEN) plasmids containing SIC1 gene result in partial rescue of the inviability, whereas high copy number (2 micron) plasmids show strong rescue. In simulation, the mutant shows Telophase, not rescued by 4 copies of Sic1.</description>

<parents>
<parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
<parent id="x48E29A94D12411E0ABC131AB92ACCBC2"/>
</parents>

</run>

<run checked="1" id="x0C721792D43011E0B54CFCD292ACCBC2"
name="F041_CLB2-dbdel GAL-SIC1">

<description>Rescued.

Cross, 2003, suppl Fig. 5, rescued.

</description>

<parents>
<parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
<parent id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"/>
</parents>

</run>

<run checked="1" id="x1CDA9302D43011E0B54CFCD292ACCBC2"
name="F042_CLB2-dbdel mc-CDC6">

<description>Partial rescue.

Cross, 2003, suppl Fig. 5 low copy number plasmid show partial rescue, high copy number show strong rescue. In simulation, no rescue with 5 copies.

</description>

<parents>
<parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
<parent id="xF627B2E4D43411E0B54CFCD292ACCBC2"/>
</parents>

</run>

<run checked="1" id="x2237EB60D43011E0B54CFCD292ACCBC2"
name="F043_CLB2-dbdel clb5-del">

<description>T arrest.

Cross, 2003, suppl information.

</description>

<parents>
<parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
<parent id="xE9993E2E6E88101485D585EE42CD4A6C"/>
</parents>

</run>

<run checked="1" id="x2CAA8300D43011E0B54CFCD292ACCBC2"
name="F044_CLB2-dbdel clb5-del in GAL">

<description>Rescued.

Cross, 2003, suppl. information, rescued.
 </description>
 <parents>
 <parent id="x2237EB60D43011E0B54CFCD292ACCB2"/>
 <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
 </parents>
 </run>
 <run checked="1" id="xEC0529CCD42F11E0B54CFCD292ACCB2"
 name="F045_GAL-CLB2 cdh1-del">
 <description>T arrest.
 Cross, 2003, text (inviable, data not shown).
 </description>
 <parents>
 <parent id="xD942EB44D12311E0ABC131AB92ACCB2"/>
 <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
 </parents>
 </run>
 <run checked="1" id="xE51C4E60D42F11E0B54CFCD292ACCB2"
 name="F046_GAL-CLB2 sic1-del">
 <description>Telophase arrest.
 Toyn et al., 1997.

In the simulation, [BUD] never reaches 1 ([Bud]max=0.3), because high Clb2 kinase turns off SBF-dependent synthesis of Cln2. This failure should elicit inhibition of Clb2-kinase activity by the morphogenetic checkpoint (Lew, 2000; Ciliberto et al, 2003). A delay in the onset of mitosis may allow Clb2 to accumulate to such high levels that cells arrest in telophase.</description>

<parents>
 <parent id="xD942EB44D12311E0ABC131AB92ACCB2"/>
 <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
 </parents>
 </run>
 <run checked="1" id="x05406A60D42F11E0B54CFCD292ACCB2"
 name="F047_GAL-CLB2 swi5-del">
 <description>Inviabile.
 Toyn et al., 1997.</description>
 <parents>
 <parent id="xFDFFA720D42E11E0B54CFCD292ACCB2"/>
 <parent id="xD942EB44D12311E0ABC131AB92ACCB2"/>
 </parents>
 </run>
 <run checked="1" id="xD60A74E36BF51014B743F1B23D569374"
 name="F048_cdc20-del clb5-del">
 <description>Metaphase arrest.
 Shirayama et al., 1999, Fig. 1.</description>
 <parents>
 <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>

```

    <parent id="xE9993E2E6E88101485D585EE42CD4A6C"/>
  </parents>
</run>
<run checked="1" id="x10E9F8306BF610149C3D95C1ACEF1F71"
name="F049_cdc20-del pds1-del">
  <description>Telophase arrest. Cdc14 is released.
Shirayama et al., 1999, Fig. 1.</description>
  <parents>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
  </parents>
</run>
<run checked="1" id="x0457C3E26BF61014AD99CD9A9D7DFF9E"
name="F050_cdc20-del clb5-del pds1-del">
  <description>Viable. Size>1x.
Shirayama et al., 1999, Fig. 1.
</description>
  <parents>
    <parent id="xD60A74E36BF51014B743F1B23D569374"/>
    <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
  </parents>
</run>
<run checked="1" id="x8F1EB40CD43011E0B54CFCD292ACCBC2"
name="F051_cdc20-ts mad2-del">
  <description>Metaphase arrest, as cdc20-ts.
Shirayama et al., 1998. Fig. 8.
</description>
  <parents>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    <parent id="xC68D31BAD43111E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x9A1A069AD43011E0B54CFCD292ACCBC2"
name="F052_cdc20-ts bub2-del">
  <description>Metaphase arrest, as cdc20-ts.
Shirayama et al., 1998. Fig. 8.
</description>
  <parents>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    <parent id="xC8499B24D43111E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xFD8EA6F4D43011E0B54CFCD292ACCBC2"
name="F053_cdc20-ts GAL-ESP1">
  <description>Telophase arrest. Cdc14 is released from
nucleolus.
Ciosk et al., 1998 (sister chromatids separate, Clb2 not be degraded);
Sullivan and Uhlmann, 2003, Fig. 1
(Cdc14 is released, but Cdh1 not activated).
</description>

```

```

    <parents>
      <parent id="x28E88AF0D12411E0ABC131AB92ACCB2"/>
      <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    </parents>
  </run>
  <run checked="1" id="x6832D08ED43111E0B54CFCD292ACCB2"
name="F054_cdc20-ts net1-ts">
    <description>Inviabile.
Visintin et al., 1999, Table 1,
M phase arrest, Cdc14 is released from nucleolus.</description>
    <parents>
      <parent id="xF3A8F1938085101CB572C21C78057C0B"/>
      <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    </parents>
  </run>
  <run checked="1" id="xB8F2FA22D43011E0B54CFCD292ACCB2"
name="F055_esp1-ts GAL-PDS1-dbdel">
    <description>Sister chromatids not separate, Clb2 degrade
delayed by 6hrs.
Cohen-Fix and Koshland, 1999; Tinker-Kulberg and Morgan, 1999
(Clb2 degradation is much delayed compared to esp1Δ).</description>
    <parents>
      <parent id="xB0823A92D43011E0B54CFCD292ACCB2"/>
      <parent id="xA95287FED43011E0B54CFCD292ACCB2"/>
    </parents>
  </run>
  <run checked="1" id="x0C5CE7CCD43111E0B54CFCD292ACCB2"
name="F056_tem1-ts mc-CDC15 ">
    <description>Viable.
Jaspersen et al., 1998, Table 2.</description>
    <parents>
      <parent id="x291CCC14D43C11E0B54CFCD292ACCB2"/>
      <parent id="x5C70CD38D12411E0ABC131AB92ACCB2"/>
    </parents>
  </run>
  <run checked="1" id="x12EB7568D43111E0B54CFCD292ACCB2"
name="F057_tem1-ts GAL-CDC15">
    <description>Viable.
Jaspersen et al., 1998, Table 4.
</description>
    <parents>
      <parent id="x30A3516CD12411E0ABC131AB92ACCB2"/>
      <parent id="x291CCC14D43C11E0B54CFCD292ACCB2"/>
    </parents>
  </run>
  <run checked="1" id="x1DF433AAD43111E0B54CFCD292ACCB2"
name="F058_tem1-ts net1-ts ">
    <description>Viable.
Visintin et al., 1999, Table 1.
</description>

```

```
<parents>
  <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
  <parent id="xF3A8F1938085101CB572C21C78057C0B"/>
</parents>
</run>
<run checked="1" id="x24AFD0FAD43111E0B54CFCD292ACCBC2"
name="F059_tem1-ts mc-CDC14">
  <description>Rescued.
Jaspersen et al., 1998, Table 2.</description>
  <parents>
    <parent id="x510A0F7CD12411E0ABC131AB92ACCBC2"/>
    <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="xDE68B76F6E141014B626A5B5B83E0712"
name="F059b_tem1-ts TAB6-1">
  <description>Rescued.
Shou et al., 2001, Fig. 6.</description>
  <parents>
    <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
    <parent id="x9BDE8EDCD43111E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x4575CF6AD43111E0B54CFCD292ACCBC2"
name="F060_cdc15-del mc-TEM1">
  <description>Not rescued.
Jaspersen et al., 1998, Table 2.
</description>
  <parents>
    <parent id="x2A789C60D43111E0B54CFCD292ACCBC2"/>
    <parent id="x553C42C2D12411E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x4B39B0B0D43111E0B54CFCD292ACCBC2"
name="F061_cdc15-del net1-ts">
  <description>Rescued.
Visintin et al., 1999, Table 1.
</description>
  <parents>
    <parent id="x2A789C60D43111E0B54CFCD292ACCBC2"/>
    <parent id="xF3A8F1938085101CB572C21C78057C0B"/>
  </parents>
</run>
<run checked="1" id="x50921872D43111E0B54CFCD292ACCBC2"
name="F062_cdc15-del mc-CDC14">
  <description>Rescued.
Jaspersen et al., 1998, Table 2.
</description>
```

```

    <parents>
      <parent id="x2A789C60D43111E0B54CFCD292ACCCBC2"/>
      <parent id="x510A0F7CD12411E0ABC131AB92ACCCBC2"/>
    </parents>
  </run>
  <run checked="1" id="xAE50413CD43111E0B54CFCD292ACCCBC2"
name="F063_cdc15-ts TAB6-1">
    <description>Rescued.
Shou et al., 2001, Fig. 6.

</description>
    <parents>
      <parent id="x9BDE8EDCD43111E0B54CFCD292ACCCBC2"/>
      <parent id="x2A789C60D43111E0B54CFCD292ACCCBC2"/>
    </parents>
  </run>
  <run checked="1" id="x6D433D02D43111E0B54CFCD292ACCCBC2"
name="F064_cdc14-ts GAL-SIC1">
    <description>Weak rescue.
Jaspersen et al., 1998, Table 4 (weak rescue);
Yuste-Rojas and Cross, 2000, Fig. 3D (weak rescue).</description>
    <parents>
      <parent id="xB791914D88AB101CAA4180490F1201CF"/>
      <parent id="x14C5B5B4D42D11E0B54CFCD292ACCCBC2"/>
    </parents>
  </run>
  <run checked="1" id="x63004448D43111E0B54CFCD292ACCCBC2"
name="F065_GAL-CDC14 GAL-NET1">
    <description>Rescued.
Visintin et al., 1999, text.

</description>
    <parents>
      <parent id="x34E1BE12D12411E0ABC131AB92ACCCBC2"/>
      <parent id="x3322FD3ED12411E0ABC131AB92ACCCBC2"/>
    </parents>
  </run>
  <run checked="1" id="xDEE6369ED43111E0B54CFCD292ACCCBC2"
name="F066_mad2-del in noc">
    <description>Exit mitosis at t>300 min.
Alexandru et al., 1999, Fig. 1B, 2B, 5D and 9B. exit mitosis t>300
min.</description>
    <parents>
      <parent id="xC68D31BAD43111E0B54CFCD292ACCCBC2"/>
      <parent id="xDBC6A336D43111E0B54CFCD292ACCCBC2"/>
    </parents>
  </run>
  <run checked="1" id="xE3B379E8D43111E0B54CFCD292ACCCBC2"
name="F067_mad2-del GAL-TEM1 in noc">
    <description>Exit mitosis earlier than mad2 in nocodazole.

```

Alexandru et al., 1999. Fig. 9B,
Clb2 degradation occurs earlier than for mad2del in nocodazole.</
description>

```
<parents>  
  <parent id="x37540844D12411E0ABC131AB92ACCBC2"/>  
  <parent id="xDEE6369ED43111E0B54CFCD292ACCBC2"/>  
</parents>
```

```
</run>
```

```
<run checked="1" id="xEA2E767ED43111E0B54CFCD292ACCBC2"  
name="F069_bub2-del in noc">
```

```
<description>Exit mitosis later than mad2-del in noc.  
Hoyt et al., 1991, bub2-del cells lose viability after many hours in  
nocodazole.  
Alexandru et al., 1999, Fig. 7, exit mitosis later than mad2-del in  
noc.
```

```
</description>
```

```
<parents>  
  <parent id="xC8499B24D43111E0B54CFCD292ACCBC2"/>  
  <parent id="xDBC6A336D43111E0B54CFCD292ACCBC2"/>  
</parents>
```

```
</run>
```

```
<run checked="1" id="xF1383CDED43111E0B54CFCD292ACCBC2"  
name="F070_bub2-del mad2-del in noc">
```

```
<description>cannot be arrested in nocodazole.  
Alexandru et al., 1999. Figs. 6C and 9A,  
spindle-assembly checkpoint is defective.
```

```
</description>
```

```
<parents>  
  <parent id="xDEE6369ED43111E0B54CFCD292ACCBC2"/>  
  <parent id="xC8499B24D43111E0B54CFCD292ACCBC2"/>  
</parents>
```

```
</run>
```

```
<run checked="1" id="xEE064B5AD43111E0B54CFCD292ACCBC2"  
name="F071_bub2-del pds1-del in noc">
```

```
<description>Exit mitosis earlier than bub2-del in nocodazole.  
Alexandru et al., 1999, Fig. 6B  
(able to exit from mitosis earlier than bub2-del).</description>
```

```
<parents>  
  <parent id="xEA2E767ED43111E0B54CFCD292ACCBC2"/>  
  <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>  
</parents>
```

```
</run>
```

```
<run checked="1" id="xF98BA22CD43111E0B54CFCD292ACCBC2"  
name="F072_pds1 in noc">
```

```
<description>Arrested in nocodazole.  
Alexandru et al., 1999, Fig. 2 (arrested).
```

```
</description>
```

```
<parents>  
  <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
```

```

    <parent id="xDBC6A336D43111E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x073EAAAED43211E0B54CFCD292ACCBC2"
name="F073_net1-ts in noc">
  <description>Cannot be arrested in nocodazole, Clb2 is
degraded.
Shou et al., 2001, text (net1-1 cells do not arrest well in
nocodazole);
Visintin et al., 1999, text. (not arrested in nocodazole).
This is a problem for the model. Since we want net1-ts cdc20-del to
shwo metaphase arrest,
we would get net1-ts arrested in nocodazole automatically.</
description>
  <parents>
    <parent id="xF3A8F1938085101CB572C21C78057C0B"/>
    <parent id="xDBC6A336D43111E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="1" id="x1451F1D8D43211E0B54CFCD292ACCBC2"
name="F074_APC-A cdh1-del">
  <description>T arrest.
Cross, 2003, Table 1.

</description>
  <parents>
    <parent id="x0D96429AD43211E0B54CFCD292ACCBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="1" id="x1927BB98D43211E0B54CFCD292ACCBC2"
name="F075_APC-A cdh1-del in galactose">
  <description>Partially viable.
Cross, 2003, Table 1. 8% viable spores.
With the deterministic model, for mdt=150 min for galactose,
this mutant shows T arrest. However, if mdt=155 min, then
the mutant becomes viable.

</description>
  <parents>
    <parent id="x1451F1D8D43211E0B54CFCD292ACCBC2"/>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
</run>
<run checked="1" id="x3485792AD43211E0B54CFCD292ACCBC2"
name="F076_APC-A cdh1-del mc-SIC1">
  <description>Rescued.
Cross, 2003, Table 1.
Simulation with 4 copies of SIC1, it shows rescue.</description>
  <parents>

```



```

        <parent id="x1451F1D8D43211E0B54CFCD292ACCBC2"/>
        <parent id="x48E29A94D12411E0ABC131AB92ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x38C2B71ED43211E0B54CFCD292ACCBC2"
name="F077_APC-A cdh1-del GAL-SIC1">
    <description>Rescued.
Cross, 2003, Table 1.
</description>
    <parents>
        <parent id="x1451F1D8D43211E0B54CFCD292ACCBC2"/>
        <parent id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x3F3EDB04D43211E0B54CFCD292ACCBC2"
name="F078_APC-A cdh1-del mc-CDC6">
    <description>Rescued.
Cross, 2003, Fig. 4.
Simulation with 5 copies of Cdc6.
</description>
    <parents>
        <parent id="x1451F1D8D43211E0B54CFCD292ACCBC2"/>
        <parent id="xF627B2E4D43411E0B54CFCD292ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x4E94BB5AD43211E0B54CFCD292ACCBC2"
name="F080_APC-A cdh1-del mc-CDC20">
    <description>Rescued.
Cross, 2003, Suppl. Fig. 3.
Simulation with 5 copies of CDC20.</description>
    <parents>
        <parent id="x1451F1D8D43211E0B54CFCD292ACCBC2"/>
        <parent id="x4DD21638D12411E0ABC131AB92ACCBC2"/>
    </parents>
</run>
<run checked="1" id="x51CF2C2ED43211E0B54CFCD292ACCBC2"
name="F081_APC-A sic1-del">
    <description>Viable,
Cross, 2003, text, APC-A sic1-del is viable.</description>
    <parents>
        <parent id="x0D96429AD43211E0B54CFCD292ACCBC2"/>
        <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
    </parents>
</run>
<run checked="1" id="x5547CE38D43211E0B54CFCD292ACCBC2"
name="F082_APC-A GAL-CLB2">
    <description>Inviable.
Cross, 2003, Fig. 2. APC-A GAL-CLB2 telophase arrest.
</description>
    <parents>

```

```

        <parent id="x0D96429AD43211E0B54CFCD292ACCB2"/>
        <parent id="xD942EB44D12311E0ABC131AB92ACCB2"/>
    </parents>
</run>
<run checked="1" id="x12951C8A6E151014A846B4F856FE2585"
name="F083_APC-A cdh1-del clb5-del">
    <description>Telophase arrest.
Cross, 2003, text, APCA cdh1-del clb5-del inviable.</description>
    <parents>
        <parent id="x1451F1D8D43211E0B54CFCD292ACCB2"/>
        <parent id="xE9993E2E6E88101485D585EE42CD4A6C"/>
    </parents>
</run>
<run checked="1" id="x2219706C6E15101494AAB5E561246C85"
name="F084_APC-A cdh1-del pds1-del">
    <description>Telophase arrest.
Cross, 2003, text, APCA cdh1-del pds1-del inviable.
</description>
    <parents>
        <parent id="x1451F1D8D43211E0B54CFCD292ACCB2"/>
        <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
    </parents>
</run>
</runs>
</runFile>
<experimentaldata version="0.1">
    <run name=" swi46del GAL-CLN3 GAL-CLB2">
        <TimeSeries>
            <points/>
        </TimeSeries>
    </run>
    <run name=" swi46del GAL-CLN3 mc-CLB2">
        <TimeSeries>
            <points/>
        </TimeSeries>
    </run>
    <run name="10 whi5 bck2" weight="1">
        <TimeSeries>
            <settings/>
            <points/>
        </TimeSeries>
    </run>
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<run name="S074_bck2-del swi6-del GAL-CLN2" weight="1">
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<run name="S089_cln3-del mbp1-del whi5-del bck2-del" weight="1">
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<run name="S093_cln1,2-del GAL-SIC1 GAL-CLB5" weight="1">
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<run name="S094_cln1,2-del swi6-del" weight="1">
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<run name="S095_cln1-del CLN2 swi6-del" weight="1">
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<run name="S098_cln1,2-del swi6-del GAL-CLB5" weight="1">
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<run name="S100_cln1,2-del GAL-WHI5" weight="1">
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<run name="S101_cln1,2-del swi4-del" weight="1">
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</run>
<run name="S102_cln1-del CLN2 cln3-del swi4-del" weight="1">
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</run>
<run name="S103_CLN1 cln2-del cln3-del swi4-del" weight="1">
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</run>
<run name="S104_cln1,2-del mbp1-del" weight="1">
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</run>
<run name="S105_cln3-del GAL-WHI5 mbp1-del" weight="1">
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<run name="S105_cln3-del mbp1-del" weight="1">
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</run>
<run name="S106_cln3-del mbp1-del swi6-del" weight="1">
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<run name="S107_cln3-del mbp1-del whi5-del" weight="1">
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<run name="S108_cln3-del mpb1-del GAL-WHI5" weight="1">
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<run name="S109_cln3-del swi4-del" weight="1">
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<run name="S110_cln3-del swi4-del 2xCLN2" weight="1">
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<run name="S111_cln3-del swi4-del GAL-CLN2" weight="1">
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<run name="S112_cln3-del swi4-del sic1-del" weight="1">
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<run name="S113_cln3-del swi4-del whi5-del" weight="1">
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<run name="S114_cln3-del swi4-del 2x-BCK2" weight="1">
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<run name="S116_cln3-del swi4-del GAL-CLB2 " weight="1">
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</run>
<run name="S117_cln3-del swi4-del 3xCLB5" weight="1">
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<run name="S118_cln3-del swi6-del" weight="1">
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<run name="S119_cln3-del SWI6-SA4" weight="1">
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</run>
<run name="S119_cln3-del swi6-del cln1-del CLN2" weight="1">
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<run name="S120_cln3-del swi6-del CLN1 cln2-del" weight="1">
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<run name="S122_CLN3-1 whi5-del" weight="1">
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<run name="S123_cln3-del GAL-WHI5" weight="1">
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<run name="S124_cln3-del GAL-WHI5-12A" weight="1">
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<run name="S125_cln3-del GAL-WHI5 swi6-del" weight="1">
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<run name="S127_cln3-del clb5,6-del" weight="1">
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<run name="S129_triple-dln GAL-CLN2 clb5,6-del" weight="1">
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<run name="S131_triple-cln sic1-del" weight="1">
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<run name="S132_triple-cln cdc6-del" weight="1">
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<run name="S133_triple-cln cdh1-del" weight="1">
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<run name="S134_triple-cln mc-CLB5" weight="1">
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<run name="S135_triple-cln GAL-CLB5" weight="1">
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</run>
<run name="S136_triple-cln mc-BCK2" weight="1">
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<run name="S137_triple-cln GAL-CLB2" weight="1">
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<run name="S138_triple-cln apc-ts" weight="1">
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<run name="S139_triple-cln whi5-del" weight="1">
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</run>
<run name="S140_triple-cln whi5-del 2x-BCK2" weight="1">
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<run name="S141_mbp1-del swi4-del" weight="1">
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<run name="S142_mbp1-del swi4-del GAL-CLN2" weight="1">
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<run name="S143_mbp1-del swi4-del GAL-CLN2 clb5,6-del" weight="1">
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<run name="S144_mbp1-del swi4-del GAL-CLN2 2x-CDC14" weight="1">
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<run name="S145_mbp1-del swi4-del GAL-BCK2" weight="1">
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<run name="S153_mbp1-del GAL-WHI5" weight="1">
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<run name="S154_mbp1-del GAL-WHI5-12A" weight="1">
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<run name="S156_mbp1-del SWI6-SA4" weight="1">
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<run name="S157_swi4-del swi6-del" weight="1">
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</run>
<run name="S158_swi4-del swi6-del SWI6-SA4" weight="1">
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</run>
<run name="S159_swi4-del swi6-del GAL-CLN2" weight="1">
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<run name="S160_swi4-del swi6-del GAL-CLN2 clb5,6-del "
weight="1">
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<run name="S161_swi4-del swi6-del GAL-BCK2" weight="1">
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</run>
<run name="S162_swi4-del swi6-del GAL-CLB5" weight="1">
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<run name="S163_swi4-del swi6-del whi5-del" weight="1">
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<run name="S164 swi4-del swi6-del GAL-CLN3" weight="1">
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</run>
<run name="S165_swi4-del swi6-del sic1-del" weight="1">
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<run name="S166_swi4-del whi5-del" weight="1">
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</run>
<run name="S167_swi4-del GAL-WHI5" weight="1">
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<run name="S168_swi6-del whi5-del" weight="1">
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<run name="S169_swi6-del GAL-WHI5" weight="1">
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</run>
<run name="S169b_ swi6-del mc-WHI5" weight="1">
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<run name="S170_SWI6-SA4 GAL-WHI5" weight="1">
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<run name="S172_msn5-del swi6-del" weight="1">
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<run name="S173_cdh1-del sic1-del" weight="1">
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<run name="S174_cdh1-del sic1-del GALL-CDC20" weight="1">
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<run name="S175_cdh1-del cdc6-del" weight="1">
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</run>
<run name="S176_cdh1-del sic1-del cdc6-del" weight="1">
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<run name="S176b_cdh1-del sic1-del cdc6-del GAL-SIC1" weight="1">
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</run>
<run name="S177_cdh1-del sic1-del cdc6-del GALL-CDC20" weight="1">
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</run>
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<run name="S179_cdh1-del swi5-del GAL-SIC1" weight="1">
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<run name="S180_GAL-CLB5 cdh1-del" weight="1">
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<run name="S181_GAL-CLB5 sic1-del" weight="1">
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<run name="S183_CLB5-dbdel pds1-del" weight="1">
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</run>
<run name="S184_CLB5-dbdel pds1-del cdc20-del" weight="1">
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<run name="S185_SIC1-0P" weight="1">
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<run name="S188_SIC1-0P clb5-del" weight="1">
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</run>
<run name="S189_SIC1-0P clb5-del GAL-CLN2" weight="1">
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</run>
<run name="S192_SIC1-0P clb5-del swi5-del" weight="1">
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<run name="S193_TAB6-1" weight="1">
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</run>
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<run name="S194_clb5,6-del TAB6-1" weight="1">
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<run name="S197_clb5,6-del TAB6-1 GAL-CLN2" weight="1">
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</run>
<run name="S198_cln3-del bck2-del whi5-del clb5-del clb6-del"
weight="1">
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</run>
<run name="S199_cln1-del cln2-del clb5-del clb6-del GAL-CLB2"
weight="1">
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  </TimeSeries>
</run>
<run name="S200_cln1,2-del swi4-del CLN3-1" weight="1">
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</run>
<run name="S201_cln1,2-del mbp1-del CLN3-1" weight="1">
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</run>
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</run>
<run name="SA4" weight="1">
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</run>
<run name="SIC10p clb5 rescue">
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</run>
<run name="TAB6-1 clb56del rescue">
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<run name="bck2-del swi6-del GAL-CLB5">
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</run>
<run name="cdh1del pds1del" weight="1">
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<run name="cln1, 2-del bck2-del">
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<run name="cln2 GAL-SIC1 rescue" weight="1">
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</run>
<run name="cln3 bck2 GAL-CLN2 cln1 cln2">
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</run>
<run name="cln3 bck2 sic1">
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</run>
<run name="cln3 mbp1 mc-WHI5 swi6" weight="1">
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</run>
<run name="cln3 swi4 rescue">
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<run name="cln3-del bck2-del" weight="1">
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<run name="cln3-del bck2-del whi5-del" weight="1">
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<run name="kasbf3-only" weight="1">
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    <points/>
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</run>
<run name="kasbf4-only" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="kasbf5-only" weight="1">
  <TimeSeries>
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</run>
<run name="mbp1-del bck2-del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="mbp1-del bck2-del GAL-WHI5" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="mbp1-del cln3-del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
```

```
</run>
<run name="mc-WHI5">
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</run>
<run name="mc_BCK2 swi6-del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="msn5-del" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
<run name="net1-ts">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="net1-ts2" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="sa4 12a" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi4-del bck2-del" weight="1">
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  </TimeSeries>
</run>
<run name="swi4-del cln3-del" weight="1">
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  </TimeSeries>
</run>
<run name="swi4-del cln3-del whi5-del" weight="1">
  <TimeSeries>
    <settings/>
```



```
    <points/>
  </TimeSeries>
</run>
<run name="swi4-del mbp1-del" weight="1">
  <TimeSeries>
    <settings/>
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  </TimeSeries>
</run>
<run name="swi4-del swi6-del in GAL" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi46-del GAL-CLN3 mc-BCK2" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi46del GAL-CLN2 CLB1 clb2del">
  <TimeSeries>
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</run>
<run name="swi46del GAL-CLN2 sic1del">
  <TimeSeries>
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</run>
<run name="swi46del GAL-CLN3 sic1del">
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</run>
<run name="swi46del GAL-CLN3 cdh1del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi46del clb56del GAL-CLN2">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi4del cln3 del sic1del">
  <TimeSeries>
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```

```
</TimeSeries>
</run>
<run name="swi4del swi6del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi6-del CLN3-1" weight="1">
  <TimeSeries>
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    <points/>
  </TimeSeries>
</run>
<run name="swi6-del Multicopy-WHI5" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi6-del bck2-del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi6-del bck2-del whi5-del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi6-del cln3-del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi6-del in GAL" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
<run name="swi6-del in galactose" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
```

```
<run name="swi6-del mbp1-del" weight="1">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="swi6-del mbp1-del cln3-del" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
<run name="swi6-del whi5-del" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
<run name="test cln2 GAL-SIC1 CLB5dbdel">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="test cln2 GAL-SIC1 GAL-CLN3 whi5">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="test cln2 GAL-SIC1 GALCLB2" weight="1">
  <TimeSeries>
    <settings/>
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  </TimeSeries>
</run>
<run name="triple cln GAL-CLB2">
  <TimeSeries>
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  </TimeSeries>
</run>
<run name="triple cln GAL-CLB5">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="triple cln GAL-CLN2">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="triple cln GAL-CLN3">
```

```
<TimeSeries>
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</TimeSeries>
</run>
<run name="triple cln apc-ts">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="triple cln cdh1">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="triple cln cki-del" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
<run name="triple cln ckidel" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
<run name="triple cln multi-copy BCK2">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="triple cln multi-copy CLB5">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="triple-cln sic1del">
  <TimeSeries>
    <points/>
  </TimeSeries>
</run>
<run name="whi5- del" weight="1">
  <TimeSeries>
    <settings/>
    <points/>
  </TimeSeries>
</run>
<run name="whi5-del CLN3-1" weight="1">
  <TimeSeries>
    <settings/>
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```

        <points/>
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</run>
<run name="whi5-del bck2-del" weight="1">
    <TimeSeries>
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        <points/>
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</run>
<run name="whi5-del mbp1-del" weight="1">
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        <points/>
    </TimeSeries>
</run>
<run name="wt mdt=90" weight="1">
    <TimeSeries>
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        <points/>
    </TimeSeries>
</run>
<run name="x" weight="1">
    <TimeSeries>
        <settings/>
        <points/>
    </TimeSeries>
</run>
<run name="x1">
    <TimeSeries>
        <settings/>
        <points/>
    </TimeSeries>
</run>
</experimentaldata>
<rungroups>
    <group checked="1" name="WILD_TYPE">
        <run name="S001_WT in glucose mdt=90"/>
        <run name="S003_WT in galactose mdt=150"/>
    </group>
    <group checked="1" name="START_mutants">
        <run name="S001_WT in glucose mdt=90"/>
        <run name="S003_WT in galactose mdt=150"/>
        <run name="S009_WHI5-12A"/>
        <run name="S010_SWI6-SA4"/>
        <run name="S011_SWI6-SA4 WHI5-12A"/>
        <run name="S012_GAL-WHI5-12A"/>
        <run name="S013_GAL-WHI5-12A SWI6-SA4"/>
        <run name="S014_bck2-del"/>
        <run name="S015_mc-BCK2"/>
        <run name="S016_GAL-BCK2"/>
    </group>
</rungroups>

```

```
<run name="S017_cln1,2-del"/>
<run name="S018_cln1-del CLN2"/>
<run name="S019_CLN1 cln2-del"/>
<run name="S020_GAL-CLN2 "/>
<run name="S021_mc-CLN2"/>
<run name="S022_cln3-del"/>
<run name="S023_cln1-del CLN2 cln3-del"/>
<run name="S024_CLN1 cln2-del cln3-del"/>
<run name="S025_CLN3-1"/>
<run name="S026_GAL-CLN3"/>
<run name="S027_whi5-del"/>
<run name="S028_GAL-WHI5"/>
<run name="S029_clb5,6-del"/>
<run name="S030_clb5-del CLB6"/>
<run name="S031_mc-CLB5"/>
<run name="S032_GAL-CLB5"/>
<run name="S033_CLB5-dbdel"/>
<run name="S034_GAL-CLB5dbdel"/>
<run name="S035_triple-cln"/>
<run name="S036_mbp1-del"/>
<run name="S037_swi4-del"/>
<run name="S038_swi6-del"/>
<run name="S038b_swi6-del in gal"/>
<run name="S039_msn5-del"/>
<run name="S040_sic1-del"/>
<run name="S041_mc-SIC1"/>
<run name="S042_GAL-SIC1"/>
<run name="S043_GAL-SIC1dbdel"/>
<run name="S044_cdc6-del"/>
<run name="S045_mc-CDC6"/>
<run name="S047_cki-del"/>
<run name="S048_swi5-del"/>
<run name="S049_cdh1-del"/>
<run name="S050_CDH1 const active"/>
<run name="S051_bck2-del cln1,2-del"/>
<run name="S053_bck2-del cln3-del"/>
<run name="S054_bck2-del cln3-del whi5-del"/>
<run name="S055_bck2-del cln3-del whi5-del mbp1-del"/>
<run name="S056_bck2-del cln3-del whi5-del swi4-del"/>
<run name="S057_bck2-del cln3-del GAL-CLN2"/>
<run name="S058_bck2-del cln3-del 2x-CLN2"/>
<run name="S060_bck2-del cln3-del GAL-SWI4"/>
<run name="S061_bck2-del cln3-del 2x-SWI4"/>
<run name="S062_bck2-del cln3-del GAL-MBP1"/>
<run name="S063_bck2-del cln3-del GAL-SWI6"/>
<run name="S064_bck2-del cln3-del sic1-del"/>
<run name="S065_bck2-del cln3-del GAL-CLN3"/>
<run name="S066_bck2-del cln3-del swi6-del"/>
<run name="S067_bck2-del cln3-del swi6-del GAL-CLN2"/>
<run name="S070_bck2-del swi4-del"/>
```

<run name="S071_bck2-del swi6-del"/>
<run name="S072_bck2-del swi6-del SWI6-SA4"/>
<run name="S074_bck2-del swi6-del GAL-CLN2"/>
<run name="S075_bck2-del swi6-del cln3-del GAL-CLN3"/>
<run name="S077_bck2-del swi6-del whi5-del"/>
<run name="S078_GAL-BCK2 swi6-del"/>
<run name="S079_bck2-del whi5-del"/>
<run name="S080_bck2-del GAL-WHI5"/>
<run name="S082_GAL-BCK2 whi5-del"/>
<run name="S083_cln1,2-del clb5,6-del"/>
<run name="S086_cln1,2-del cdh1-del"/>
<run name="S087_cln1,2-del GAL-CLN2 cdh1-del"/>
<run name="S088_cln1,2-del sic1-del"/>
<run name="S089_cln1,2-del GAL-SIC1"/>
<run name="S090_cln1,2-del GAL-CLN2 GAL-SIC1"/>
<run name="S091_cln1,2-del GAL-CLN2 GAL-SIC1 cdh1-del"/>
<run name="S092_cln1,2-del GAL-SIC1 cdh1-del"/>
<run name="S094_cln1,2-del swi6-del"/>
<run name="S095_cln1-del CLN2 swi6-del"/>
<run name="S096_CLN1 cln2-del swi6-del"/>
<run name="S097_cln1,2-del CLN3-1 swi6-del"/>
<run name="S099_cln1,2-del whi5-del"/>
<run name="S100_cln1,2-del GAL-WHI5"/>
<run name="S101_cln1,2-del swi4-del"/>
<run name="S102_cln1-del CLN2 cln3-del swi4-del"/>
<run name="S103_CLN1 cln2-del cln3-del swi4-del"/>
<run name="S105_cln3-del mbp1-del"/>
<run name="S109_cln3-del swi4-del"/>
<run name="S111_cln3-del swi4-del GAL-CLN2"/>
<run name="S118_cln3-del swi6-del"/>
<run name="S119_cln3-del SWI6-SA4"/>
<run name="S120_CLN3-1 swi6-del"/>
<run name="S121_cln3-del whi5-del"/>
<run name="S122_CLN3-1 whi5-del"/>
<run name="S123_cln3-del GAL-WHI5"/>
<run name="S124_cln3-del GAL-WHI5-12A"/>
<run name="S128_triple-cln GAL-CLN2"/>
<run name="S130_triple-cln GAL-CLN3"/>
<run name="S131_triple-cln sic1-del"/>
<run name="S133_triple-cln cdh1-del"/>
<run name="S134_triple-cln mc-CLB5"/>
<run name="S135_triple-cln GAL-CLB5"/>
<run name="S136_triple-cln mc-BCK2"/>
<run name="S137_triple-cln GAL-CLB2"/>
<run name="S138_triple-cln apc-ts"/>
<run name="S139_triple-cln whi5-del"/>
<run name="S141_mbp1-del swi4-del"/>
<run name="S142_mbp1-del swi4-del GAL-CLN2"/>
<run name="S145_mbp1-del swi4-del GAL-BCK2"/>
<run name="S152_mbp1-del whi5-del"/>

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<run name="S155_mbp1-del swi6-del"/>
<run name="S156_mbp1-del SWI6-SA4"/>
<run name="S157_swi4-del swi6-del"/>
<run name="S158_swi4-del swi6-del SWI6-SA4"/>
<run name="S159_swi4-del swi6-del GAL-CLN2"/>
<run name="S161_swi4-del swi6-del GAL-BCK2"/>
<run name="S164_swi4-del swi6-del GAL-CLN3"/>
<run name="S165_swi4-del swi6-del sic1-del"/>
<run name="S166_swi4-del whi5-del"/>
<run name="S167_swi4-del GAL-WHI5"/>
<run name="S168_swi6-del whi5-del"/>
<run name="S169_swi6-del GAL-WHI5"/>
<run name="S170_SWI6-SA4 GAL-WHI5"/>
<run name="S171_msn5-del swi4-del"/>
<run name="S172_msn5-del swi6-del"/>
<run name="S173_cdh1-del sic1-del"/>
<run name="S174_cdh1-del sic1-del GALL-CDC20"/>
<run name="S175_cdh1-del cdc6-del"/>
<run name="S176_cdh1-del sic1-del cdc6-del"/>
<run name="S176b_cdh1-del sic1-del cdc6-del GAL-SIC1"/>
<run name="S177_cdh1-del sic1-del cdc6-del GALL-CDC20"/>
<run name="S178_cdh1-del swi5-del"/>
<run name="S179_cdh1-del swi5-del GAL-SIC1"/>
<run name="S180_GAL-CLB5 cdh1-del"/>
<run name="S181_GAL-CLB5 sic1-del"/>
<run name="S182_CLB5-dbdel sic1-del"/>
<run name="S183_CLB5-dbdel pds1-del"/>
<run name="S184_CLB5-dbdel pds1-del cdc20-del"/>
<run name="S185_SIC1-0P"/>
<run name="S186_GAL-SIC1-0P"/>
<run name="S187_SIC1-0P cdh1-del"/>
<run name="S188_SIC1-0P clb5-del"/>
<run name="S192_SIC1-0P clb5-del swi5-del"/>
<run name="S193_TAB6-1"/>
<run name="S194_clb5,6-del TAB6-1"/>
</group>
<group checked="1" name="PREDICTIONS">
<run name="S052_bck2-del clb56-del"/>
<run name="S059_bck2-del cln3-del GAL-CLB5"/>
<run name="S068_bck2-del mbp1-del"/>
<run name="S069_bck2-del mbp1-del GAL-WHI5"/>
<run name="S073_bck2-del swi6-del mc-BCK2"/>
<run name="S076_bck2-del swi6-del GAL-CLB5"/>
<run name="S081_bck2-del GAL-WHI5-12A"/>
<run name="S084_cln1,2-del clb5,6-del GAL-CLN2"/>
<run name="S085_cln1,2-del clb5,6-del GAL-CLB5"/>
<run name="S093_cln1,2-del GAL-SIC1 GAL-CLB5"/>
<run name="S098_cln1,2-del swi6-del GAL-CLB5"/>
<run name="S104_cln1,2-del mbp1-del"/>
<run name="S200_cln1,2-del swi4-del CLN3-1"/>

```



```
<run name="S201_cln1,2-del mbp1-del CLN3-1"/>
<run name="S106_cln3-del mbp1-del swi6-del"/>
<run name="S107_cln3-del mbp1-del whi5-del"/>
<run name="S108_cln3-del mbp1-del GAL-WHI5"/>
<run name="S110_cln3-del swi4-del 2xCLN2"/>
<run name="S113_cln3-del swi4-del whi5-del"/>
<run name="S114_cln3-del swi4-del 2x-BCK2"/>
<run name="S115_cln3-del swi4-del cdh1-del"/>
<run name="S116_cln3-del swi4-del GAL-CLB2 "/>
<run name="S117_cln3-del swi4-del 3xCLB5"/>
<run name="S125_cln3-del GAL-WHI5 swi6-del"/>
<run name="S126_cln3-del GAL-WHI5 mbp1-del swi6-del"/>
<run name="S127_cln3-del clb5,6-del"/>
<run name="S129_triple-dln GAL-CLN2 clb5,6-del"/>
<run name="S132_triple-cln cdc6-del"/>
<run name="S140_triple-cln whi5-del 2x-BCK2"/>
<run name="S143_mbp1-del swi4-del GAL-CLN2 clb5,6-del"/>
<run name="S144_mbp1-del swi4-del GAL-CLN2 2x-CDC14"/>
<run name="S146_mbp1-del swi4-del GAL-CLB5"/>
<run name="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1"/>
<run name="S148_mbp1-del swi4-del GAL-CLN3"/>
<run name="S149_mbp1-del swi4-del whi5-del"/>
<run name="S150_mbp1-del swi4-del sic1-del"/>
<run name="S151_mbp1-del swi4-del cdh1-del"/>
<run name="S153_mbp1-del GAL-WHI5"/>
<run name="S154_mbp1-del GAL-WHI5-12A"/>
<run name="S160_swi4-del swi6-del GAL-CLN2 clb5,6-del "/>
<run name="S162_swi4-del swi6-del GAL-CLB5"/>
<run name="S163_swi4-del swi6-del whi5-del"/>
<run name="S189_SIC1-0P clb5-del GAL-CLN2"/>
<run name="S190_SIC1-0P clb5-del GAL-CLB5"/>
<run name="S191_SIC1-0P clb5-del GAL-CLB2"/>
<run name="S195_clb5,6-del TAB6-1 GAL-CLB2"/>
<run name="S196_clb5,6-del TAB6-1 GAL-CLB5"/>
<run name="S197_clb5,6-del TAB6-1 GAL-CLN2"/>
<run name="S198_cln3-del bck2-del whi5-del clb5-del clb6-del"/>
<run name="S199_cln1-del cln2-del clb5-del clb6-del GAL-CLB2"/>
</group>
<group checked="1" name="FINISH_mutants">
  <run name="F001_clb1,2-del"/>
  <run name="F002_CLB1 clb2-del"/>
  <run name="F003_GAL-CLB2"/>
  <run name="F004_mc-GAL-CLB2"/>
  <run name="F005_CLB2-dbdel"/>
  <run name="F006_CLB2-dbdel in GAL"/>
  <run name="F007_GAL-CLB2dbdel"/>
  <run name="F008_cdc20-del"/>
  <run name="F009_mc-CDC20"/>
  <run name="F010_GALL-CDC20"/>
  <run name="F011_GAL-CDC20"/>
</group>
```

<run name="F012_esp1-ts"/>
<run name="F013_GAL-ESP1"/>
<run name="F014_pds1-del"/>
<run name="F015_GAL-PDS1"/>
<run name="F016_PDS1-dbdel"/>
<run name="F017_GAL-PDS1-dbdel"/>
<run name="F018_tem1-ts"/>
<run name="F019_mc-TEM1"/>
<run name="F020_GAL-TEM1"/>
<run name="F021_cdc15-del"/>
<run name="F022_mc-CDC15"/>
<run name="F023_GAL-CDC15"/>
<run name="F024_net1-ts"/>
<run name="F025_GAL-NET1"/>
<run name="F026_cdc14-del"/>
<run name="F027_GAL-CDC14"/>
<run name="F028_mc-CDC14"/>
<run name="F029_mad2-del"/>
<run name="F030_bub2-del"/>
<run name="F031_mad2-del bub2-del"/>
<run name="F032_cdc55-del"/>
<run name="F033_GAL-CDC55"/>
<run name="F034_apc-ts"/>
<run name="F035_APC-A"/>
<run name="F036_WT in noc"/>
<run name="F037_CLB1 clb2-del TAB6-1"/>
<run name="F038_CLB1 clb2-del cdh1-del"/>
<run name="F039_CLB1 clb2-del pds1-del"/>
<run name="F040_CLB2-dbdel mc-SIC1"/>
<run name="F041_CLB2-dbdel GAL-SIC1"/>
<run name="F042_CLB2-dbdel mc-CDC6"/>
<run name="F043_CLB2-dbdel clb5-del"/>
<run name="F044_CLB2-dbdel clb5-del in GAL"/>
<run name="F045_GAL-CLB2 cdh1-del"/>
<run name="F046_GAL-CLB2 sic1-del"/>
<run name="F047_GAL-CLB2 swi5-del"/>
<run name="F048_cdc20-del clb5-del"/>
<run name="F049_cdc20-del pds1-del"/>
<run name="F050_cdc20-del clb5-del pds1-del"/>
<run name="F051_cdc20-ts mad2-del"/>
<run name="F052_cdc20-ts bub2-del"/>
<run name="F053_cdc20-ts GAL-ESP1"/>
<run name="F054_cdc20-ts net1-ts"/>
<run name="F055_esp1-ts GAL-PDS1-dbdel"/>
<run name="F056_tem1-ts mc-CDC15 "/>
<run name="F057_ tem1-ts GAL-CDC15"/>
<run name="F058_tem1-ts net1-ts "/>
<run name="F059_ tem1-ts mc-CDC14"/>
<run name="F059b_tem1-ts TAB6-1"/>
<run name="F060_cdc15-del mc-TEM1"/>

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<run name="F061_cdc15-del net1-ts"/>
<run name="F062_cdc15-del mc-CDC14"/>
<run name="F063_cdc15-ts TAB6-1"/>
<run name="F064_cdc14-ts GAL-SIC1"/>
<run name="F065_GAL-CDC14 GAL-NET1"/>
<run name="F066_mad2-del in noc"/>
<run name="F067_mad2-del GAL-TEM1 in noc"/>
<run name="F069_bub2-del in noc"/>
<run name="F070_bub2-del mad2-del in noc"/>
<run name="F071_bub2-del pds1-del in noc"/>
<run name="F072_pds1 in noc"/>
<run name="F073_net1-ts in noc"/>
<run name="F074_APC-A cdh1-del"/>
<run name="F075_APC-A cdh1-del in galactose"/>
<run name="F076_APC-A cdh1-del mc-SIC1"/>
<run name="F077_APC-A cdh1-del GAL-SIC1"/>
<run name="F078_APC-A cdh1-del mc-CDC6"/>
<run name="F080_APC-A cdh1-del mc-CDC20"/>
<run name="F081_APC-A sic1-del"/>
<run name="F082_APC-A GAL-CLB2"/>
<run name="F083_APC-A cdh1-del clb5-del"/>
<run name="F084_APC-A cdh1-del pds1-del"/>
</group>
<group checked="1" name="BCK2_mutants">
  <run name="S014_bck2-del"/>
  <run name="S015_mc-BCK2"/>
  <run name="S016_GAL-BCK2"/>
  <run name="S051_bck2-del cln1,2-del"/>
  <run name="S052_bck2-del clb56-del"/>
  <run name="S053_bck2-del cln3-del"/>
  <run name="S054_bck2-del cln3-del whi5-del"/>
  <run name="S055_bck2-del cln3-del whi5-del mbp1-del"/>
  <run name="S056_bck2-del cln3-del whi5-del swi4-del"/>
  <run name="S057_bck2-del cln3-del GAL-CLN2"/>
  <run name="S058_bck2-del cln3-del 2x-CLN2"/>
  <run name="S059_bck2-del cln3-del GAL-CLB5"/>
  <run name="S060_bck2-del cln3-del GAL-SWI4"/>
  <run name="S061_bck2-del cln3-del 2x-SWI4"/>
  <run name="S062_bck2-del cln3-del GAL-MBP1"/>
  <run name="S063_bck2-del cln3-del GAL-SWI6"/>
  <run name="S064_bck2-del cln3-del sic1-del"/>
  <run name="S065_bck2-del cln3-del GAL-CLN3"/>
  <run name="S066_bck2-del cln3-del swi6-del"/>
  <run name="S067_bck2-del cln3-del swi6-del GAL-CLN2"/>
  <run name="S068_bck2-del mbp1-del"/>
  <run name="S069_bck2-del mbp1-del GAL-WHI5"/>
  <run name="S070_bck2-del swi4-del"/>
  <run name="S071_bck2-del swi6-del"/>
  <run name="S072_bck2-del swi6-del SWI6-SA4"/>
  <run name="S073_bck2-del swi6-del mc-BCK2"/>

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<run name="S074_bck2-del swi6-del GAL-CLN2"/>
<run name="S075_bck2-del swi6-del cln3-del GAL-CLN3"/>
<run name="S076_bck2-del swi6-del GAL-CLB5"/>
<run name="S077_bck2-del swi6-del whi5-del"/>
<run name="S078_GAL-BCK2 swi6-del"/>
<run name="S079_bck2-del whi5-del"/>
<run name="S080_bck2-del GAL-WHI5"/>
<run name="S081_bck2-del GAL-WHI5-12A"/>
<run name="S082_GAL-BCK2 whi5-del"/>
<run name="S114_cln3-del swi4-del 2x-BCK2"/>
<run name="S136_triple-cln mc-BCK2"/>
<run name="S140_triple-cln whi5-del 2x-BCK2"/>
<run name="S145_mbp1-del swi4-del GAL-BCK2"/>
<run name="S161_swi4-del swi6-del GAL-BCK2"/>
</group>
<group checked="1" name="CLN1,2_mutants">
  <run name="S017_cln1,2-del"/>
  <run name="S018_cln1-del CLN2"/>
  <run name="S019_CLN1 cln2-del"/>
  <run name="S020_GAL-CLN2 "/>
  <run name="S021_mc-CLN2"/>
  <run name="S083_cln1,2-del clb5,6-del"/>
  <run name="S084_cln1,2-del clb5,6-del GAL-CLN2"/>
  <run name="S085_cln1,2-del clb5,6-del GAL-CLB5"/>
  <run name="S086_cln1,2-del cdh1-del"/>
  <run name="S087_cln1,2-del GAL-CLN2 cdh1-del"/>
  <run name="S088_cln1,2-del sic1-del"/>
  <run name="S089_cln1,2-del GAL-SIC1"/>
  <run name="S090_cln1,2-del GAL-CLN2 GAL-SIC1"/>
  <run name="S091_cln1,2-del GAL-CLN2 GAL-SIC1 cdh1-del"/>
  <run name="S092_cln1,2-del GAL-SIC1 cdh1-del"/>
  <run name="S093_cln1,2-del GAL-SIC1 GAL-CLB5"/>
  <run name="S094_cln1,2-del swi6-del"/>
  <run name="S095_cln1-del CLN2 swi6-del"/>
  <run name="S096_CLN1 cln2-del swi6-del"/>
  <run name="S097_cln1,2-del CLN3-1 swi6-del"/>
  <run name="S098_cln1,2-del swi6-del GAL-CLB5"/>
  <run name="S099_cln1,2-del whi5-del"/>
  <run name="S100_cln1,2-del GAL-WHI5"/>
  <run name="S101_cln1,2-del swi4-del"/>
  <run name="S102_cln1-del CLN2 cln3-del swi4-del"/>
  <run name="S103_CLN1 cln2-del cln3-del swi4-del"/>
  <run name="S104_cln1,2-del mbp1-del"/>
  <run name="S051_bck2-del cln1,2-del"/>
  <run name="S057_bck2-del cln3-del GAL-CLN2"/>
  <run name="S058_bck2-del cln3-del 2x-CLN2"/>
  <run name="S067_bck2-del cln3-del swi6-del GAL-CLN2"/>
  <run name="S074_bck2-del swi6-del GAL-CLN2"/>
  <run name="S023_cln1-del CLN2 cln3-del"/>
  <run name="S024_CLN1 cln2-del cln3-del"/>
</group>
```

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<run name="S110_cln3-del swi4-del 2xCLN2"/>
<run name="S111_cln3-del swi4-del GAL-CLN2"/>
<run name="S035_triple-cln"/>
<run name="S128_triple-cln GAL-CLN2"/>
<run name="S129_triple-dln GAL-CLN2 clb5,6-del"/>
<run name="S142_mbp1-del swi4-del GAL-CLN2"/>
<run name="S143_mbp1-del swi4-del GAL-CLN2 clb5,6-del"/>
<run name="S144_mbp1-del swi4-del GAL-CLN2 2x-CDC14"/>
<run name="S159_swi4-del swi6-del GAL-CLN2"/>
<run name="S160_swi4-del swi6-del GAL-CLN2 clb5,6-del "/>
<run name="S189_SIC1-0P clb5-del GAL-CLN2"/>
<run name="S197_clb5,6-del TAB6-1 GAL-CLN2"/>
</group>
<group checked="1" name="CLN3_mutants">
  <run name="S022_cln3-del"/>
  <run name="S023_cln1-del CLN2 cln3-del"/>
  <run name="S024_CLN1 cln2-del cln3-del"/>
  <run name="S025_CLN3-1"/>
  <run name="S026_GAL-CLN3"/>
  <run name="S105_cln3-del mbp1-del"/>
  <run name="S106_cln3-del mbp1-del swi6-del"/>
  <run name="S107_cln3-del mbp1-del whi5-del"/>
  <run name="S108_cln3-del mbp1-del GAL-WHI5"/>
  <run name="S109_cln3-del swi4-del"/>
  <run name="S110_cln3-del swi4-del 2xCLN2"/>
  <run name="S111_cln3-del swi4-del GAL-CLN2"/>
  <run name="S113_cln3-del swi4-del whi5-del"/>
  <run name="S114_cln3-del swi4-del 2x-BCK2"/>
  <run name="S115_cln3-del swi4-del cdh1-del"/>
  <run name="S116_cln3-del swi4-del GAL-CLB2 "/>
  <run name="S117_cln3-del swi4-del 3xCLB5"/>
  <run name="S118_cln3-del swi6-del"/>
  <run name="S119_cln3-del SWI6-SA4"/>
  <run name="S120_CLN3-1 swi6-del"/>
  <run name="S121_cln3-del whi5-del"/>
  <run name="S122_CLN3-1 whi5-del"/>
  <run name="S123_cln3-del GAL-WHI5"/>
  <run name="S124_cln3-del GAL-WHI5-12A"/>
  <run name="S125_cln3-del GAL-WHI5 swi6-del"/>
  <run name="S126_cln3-del GAL-WHI5 mbp1-del swi6-del"/>
  <run name="S127_cln3-del clb5,6-del"/>
  <run name="S053_bck2-del cln3-del"/>
  <run name="S054_bck2-del cln3-del whi5-del"/>
  <run name="S055_bck2-del cln3-del whi5-del mbp1-del"/>
  <run name="S056_bck2-del cln3-del whi5-del swi4-del"/>
  <run name="S057_bck2-del cln3-del GAL-CLN2"/>
  <run name="S058_bck2-del cln3-del 2x-CLN2"/>
  <run name="S059_bck2-del cln3-del GAL-CLB5"/>
  <run name="S060_bck2-del cln3-del GAL-SWI4"/>
  <run name="S061_bck2-del cln3-del 2x-SWI4"/>

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<run name="S062_bck2-del cln3-del GAL-MBP1"/>
<run name="S063_bck2-del cln3-del GAL-SWI6"/>
<run name="S064_bck2-del cln3-del sic1-del"/>
<run name="S065_bck2-del cln3-del GAL-CLN3"/>
<run name="S066_bck2-del cln3-del swi6-del"/>
<run name="S067_bck2-del cln3-del swi6-del GAL-CLN2"/>
<run name="S075_bck2-del swi6-del cln3-del GAL-CLN3"/>
<run name="S097_cln1,2-del CLN3-1 swi6-del"/>
<run name="S102_cln1-del CLN2 cln3-del swi4-del"/>
<run name="S103_CLN1 cln2-del cln3-del swi4-del"/>
<run name="S035_triple-cln"/>
<run name="S130_triple-cln GAL-CLN3"/>
<run name="S148_mbp1-del swi4-del GAL-CLN3"/>
<run name="S164 swi4-del swi6-del GAL-CLN3"/>
</group>
<group checked="1" name="Triple-cln mutants">
  <run name="S035_triple-cln"/>
  <run name="S128_triple-cln GAL-CLN2"/>
  <run name="S129_triple-dln GAL-CLN2 clb5,6-del"/>
  <run name="S130_triple-cln GAL-CLN3"/>
  <run name="S131_triple-cln sic1-del"/>
  <run name="S132_triple-cln cdc6-del"/>
  <run name="S133_triple-cln cdh1-del"/>
  <run name="S134_triple-cln mc-CLB5"/>
  <run name="S135_triple-cln GAL-CLB5"/>
  <run name="S136_triple-cln mc-BCK2"/>
  <run name="S137_triple-cln GAL-CLB2"/>
  <run name="S138_triple-cln apc-ts"/>
  <run name="S139_triple-cln whi5-del"/>
  <run name="S140_triple-cln whi5-del 2x-BCK2"/>
</group>
<group checked="1" name="MBP1_mutants">
  <run name="S036_mbp1-del"/>
  <run name="S141_mbp1-del swi4-del"/>
  <run name="S142_mbp1-del swi4-del GAL-CLN2"/>
  <run name="S143_mbp1-del swi4-del GAL-CLN2 clb5,6-del"/>
  <run name="S144_mbp1-del swi4-del GAL-CLN2 2x-CDC14"/>
  <run name="S145_mbp1-del swi4-del GAL-BCK2"/>
  <run name="S146_mbp1-del swi4-del GAL-CLB5"/>
  <run name="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1"/>
  <run name="S148_mbp1-del swi4-del GAL-CLN3"/>
  <run name="S149_mbp1-del swi4-del whi5-del"/>
  <run name="S150_mbp1-del swi4-del sic1-del"/>
  <run name="S151_mbp1-del swi4-del cdh1-del"/>
  <run name="S152_mbp1-del whi5-del"/>
  <run name="S153_mbp1-del GAL-WHI5"/>
  <run name="S154_mbp1-del GAL-WHI5-12A"/>
  <run name="S155_mbp1-del swi6-del"/>
  <run name="S156_mbp1-del SWI6-SA4"/>
  <run name="S055_bck2-del cln3-del whi5-del mbp1-del"/>

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<run name="S062_bck2-del cln3-del GAL-MBP1"/>
<run name="S068_bck2-del mbp1-del"/>
<run name="S069_bck2-del mbp1-del GAL-WHI5"/>
<run name="S104_cln1,2-del mbp1-del"/>
<run name="S105_cln3-del mbp1-del"/>
<run name="S106_cln3-del mbp1-del swi6-del"/>
<run name="S107_cln3-del mbp1-del whi5-del"/>
<run name="S108_cln3-del mbp1-del GAL-WHI5"/>
<run name="S126_cln3-del GAL-WHI5 mbp1-del swi6-del"/>
</group>
<group checked="1" name="SWI4_mutants">
  <run name="S037_swi4-del"/>
  <run name="S157_swi4-del swi6-del"/>
  <run name="S158_swi4-del swi6-del SWI6-SA4"/>
  <run name="S159_swi4-del swi6-del GAL-CLN2"/>
  <run name="S160_swi4-del swi6-del GAL-CLN2 clb5,6-del "/>
  <run name="S161_swi4-del swi6-del GAL-BCK2"/>
  <run name="S162_swi4-del swi6-del GAL-CLB5"/>
  <run name="S163_swi4-del swi6-del whi5-del"/>
  <run name="S164_swi4-del swi6-del GAL-CLN3"/>
  <run name="S165_swi4-del swi6-del sic1-del"/>
  <run name="S166_swi4-del whi5-del"/>
  <run name="S167_swi4-del GAL-WHI5"/>
  <run name="S056_bck2-del cln3-del whi5-del swi4-del"/>
  <run name="S060_bck2-del cln3-del GAL-SWI4"/>
  <run name="S061_bck2-del cln3-del 2x-SWI4"/>
  <run name="S070_bck2-del swi4-del"/>
  <run name="S101_cln1,2-del swi4-del"/>
  <run name="S102_cln1-del CLN2 cln3-del swi4-del"/>
  <run name="S103_CLN1 cln2-del cln3-del swi4-del"/>
  <run name="S109_cln3-del swi4-del"/>
  <run name="S110_cln3-del swi4-del 2xCLN2"/>
  <run name="S111_cln3-del swi4-del GAL-CLN2"/>
  <run name="S113_cln3-del swi4-del whi5-del"/>
  <run name="S114_cln3-del swi4-del 2x-BCK2"/>
  <run name="S115_cln3-del swi4-del cdh1-del"/>
  <run name="S116_cln3-del swi4-del GAL-CLB2 "/>
  <run name="S117_cln3-del swi4-del 3xCLB5"/>
  <run name="S141_mbp1-del swi4-del"/>
  <run name="S142_mbp1-del swi4-del GAL-CLN2"/>
  <run name="S143_mbp1-del swi4-del GAL-CLN2 clb5,6-del"/>
  <run name="S144_mbp1-del swi4-del GAL-CLN2 2x-CDC14"/>
  <run name="S145_mbp1-del swi4-del GAL-BCK2"/>
  <run name="S146_mbp1-del swi4-del GAL-CLB5"/>
  <run name="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1"/>
  <run name="S148_mbp1-del swi4-del GAL-CLN3"/>
  <run name="S149_mbp1-del swi4-del whi5-del"/>
  <run name="S150_mbp1-del swi4-del sic1-del"/>
  <run name="S151_mbp1-del swi4-del cdh1-del"/>
  <run name="S171_msn5-del swi4-del"/>

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</group>
<group checked="1" name="SWI6_mutants">
  <run name="S038_swi6-del"/>
  <run name="S038b_swi6-del in gal"/>
  <run name="S010_SWI6-SA4"/>
  <run name="S011_SWI6-SA4 WHI5-12A"/>
  <run name="S013_GAL-WHI5-12A SWI6-SA4"/>
  <run name="S168_swi6-del whi5-del"/>
  <run name="S169_swi6-del GAL-WHI5"/>
  <run name="S170_SWI6-SA4 GAL-WHI5"/>
  <run name="S063_bck2-del cln3-del GAL-SWI6"/>
  <run name="S066_bck2-del cln3-del swi6-del"/>
  <run name="S067_bck2-del cln3-del swi6-del GAL-CLN2"/>
  <run name="S071_bck2-del swi6-del"/>
  <run name="S072_bck2-del swi6-del SWI6-SA4"/>
  <run name="S073_bck2-del swi6-del mc-BCK2"/>
  <run name="S074_bck2-del swi6-del GAL-CLN2"/>
  <run name="S075_bck2-del swi6-del cln3-del GAL-CLN3"/>
  <run name="S076_bck2-del swi6-del GAL-CLB5"/>
  <run name="S077_bck2-del swi6-del whi5-del"/>
  <run name="S078_GAL-BCK2 swi6-del"/>
  <run name="S094_cln1,2-del swi6-del"/>
  <run name="S095_cln1-del CLN2 swi6-del"/>
  <run name="S096_CLN1 cln2-del swi6-del"/>
  <run name="S097_cln1,2-del CLN3-1 swi6-del"/>
  <run name="S098_cln1,2-del swi6-del GAL-CLB5"/>
  <run name="S106_cln3-del mbp1-del swi6-del"/>
  <run name="S118_cln3-del swi6-del"/>
  <run name="S119_cln3-del SWI6-SA4"/>
  <run name="S120_CLN3-1 swi6-del"/>
  <run name="S125_cln3-del GAL-WHI5 swi6-del"/>
  <run name="S126_cln3-del GAL-WHI5 mbp1-del swi6-del"/>
  <run name="S155_mbp1-del swi6-del"/>
  <run name="S156_mbp1-del SWI6-SA4"/>
  <run name="S157_swi4-del swi6-del"/>
  <run name="S158_swi4-del swi6-del SWI6-SA4"/>
  <run name="S159_swi4-del swi6-del GAL-CLN2"/>
  <run name="S160_swi4-del swi6-del GAL-CLN2 clb5,6-del "/>
  <run name="S161_swi4-del swi6-del GAL-BCK2"/>
  <run name="S162_swi4-del swi6-del GAL-CLB5"/>
  <run name="S163_swi4-del swi6-del whi5-del"/>
  <run name="S164_swi4-del swi6-del GAL-CLN3"/>
  <run name="S165_swi4-del swi6-del sic1-del"/>
  <run name="S168_swi6-del whi5-del"/>
  <run name="S169_swi6-del GAL-WHI5"/>
  <run name="S170_SWI6-SA4 GAL-WHI5"/>
  <run name="S172_msn5-del swi6-del"/>
</group>
<group checked="1" name="WHI5_mutants">
  <run name="S027_whi5-del"/>

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<run name="S028_GAL-WHI5"/>
<run name="S009_WHI5-12A"/>
<run name="S012_GAL-WHI5-12A"/>
<run name="S054_bck2-del cln3-del whi5-del"/>
<run name="S055_bck2-del cln3-del whi5-del mbp1-del"/>
<run name="S056_bck2-del cln3-del whi5-del swi4-del"/>
<run name="S069_bck2-del mbp1-del GAL-WHI5"/>
<run name="S077_bck2-del swi6-del whi5-del"/>
<run name="S079_bck2-del whi5-del"/>
<run name="S080_bck2-del GAL-WHI5"/>
<run name="S081_bck2-del GAL-WHI5-12A"/>
<run name="S082_GAL-BCK2 whi5-del"/>
<run name="S099_cln1,2-del whi5-del"/>
<run name="S100_cln1,2-del GAL-WHI5"/>
<run name="S107_cln3-del mbp1-del whi5-del"/>
<run name="S108_cln3-del mpb1-del GAL-WHI5"/>
<run name="S113_cln3-del swi4-del whi5-del"/>
<run name="S121_cln3-del whi5-del"/>
<run name="S122_CLN3-1 whi5-del"/>
<run name="S123_cln3-del GAL-WHI5"/>
<run name="S124_cln3-del GAL-WHI5-12A"/>
<run name="S125_cln3-del GAL-WHI5 swi6-del"/>
<run name="S126_cln3-del GAL-WHI5 mbp1-del swi6-del"/>
<run name="S139_triple-cln whi5-del"/>
<run name="S140_triple-cln whi5-del 2x-BCK2"/>
<run name="S149_mbp1-del swi4-del whi5-del"/>
<run name="S152_mbp1-del whi5-del"/>
<run name="S153_mbp1-del GAL-WHI5"/>
<run name="S154_mbp1-del GAL-WHI5-12A"/>
<run name="S163_swi4-del swi6-del whi5-del"/>
<run name="S166_swi4-del whi5-del"/>
<run name="S167_swi4-del GAL-WHI5"/>
<run name="S168_swi6-del whi5-del"/>
<run name="S169_swi6-del GAL-WHI5"/>
<run name="S170_SWI6-SA4 GAL-WHI5"/>
<run name="S011_SWI6-SA4 WHI5-12A"/>
<run name="S013_GAL-WHI5-12A SWI6-SA4"/>
</group>
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  <run name="S029_clb5,6-del"/>
  <run name="S030_clb5-del CLB6"/>
  <run name="S031_mc-CLB5"/>
  <run name="S032_GAL-CLB5"/>
  <run name="S033_CLB5-dbdel"/>
  <run name="S034_GAL-CLB5dbdel"/>
  <run name="S059_bck2-del cln3-del GAL-CLB5"/>
  <run name="S076_bck2-del swi6-del GAL-CLB5"/>
  <run name="S083_cln1,2-del clb5,6-del"/>
  <run name="S084_cln1,2-del clb5,6-del GAL-CLN2"/>
  <run name="S085_cln1,2-del clb5,6-del GAL-CLB5"/>

```

```
<run name="S093_cln1,2-del GAL-SIC1 GAL-CLB5"/>
<run name="S098_cln1,2-del swi6-del GAL-CLB5"/>
<run name="S117_cln3-del swi4-del 3xCLB5"/>
<run name="S127_cln3-del clb5,6-del"/>
<run name="S129_triple-dln GAL-CLN2 clb5,6-del"/>
<run name="S134_triple-cln mc-CLB5"/>
<run name="S135_triple-cln GAL-CLB5"/>
<run name="S143_mbp1-del swi4-del GAL-CLN2 clb5,6-del"/>
<run name="S146_mbp1-del swi4-del GAL-CLB5"/>
<run name="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1"/>
<run name="S160_swi4-del swi6-del GAL-CLN2 clb5,6-del "/>
<run name="S162_swi4-del swi6-del GAL-CLB5"/>
<run name="S180_GAL-CLB5 cdh1-del"/>
<run name="S181_GAL-CLB5 sic1-del"/>
<run name="S182_CLB5-dbdel sic1-del"/>
<run name="S183_CLB5-dbdel pds1-del"/>
<run name="S184_CLB5-dbdel pds1-del cdc20-del"/>
<run name="S188_SIC1-0P clb5-del"/>
<run name="S189_SIC1-0P clb5-del GAL-CLN2"/>
<run name="S190_SIC1-0P clb5-del GAL-CLB5"/>
<run name="S191_SIC1-0P clb5-del GAL-CLB2"/>
<run name="S192_SIC1-0P clb5-del swi5-del"/>
<run name="S194_clb5,6-del TAB6-1"/>
<run name="S195_clb5,6-del TAB6-1 GAL-CLB2"/>
<run name="S196_clb5,6-del TAB6-1 GAL-CLB5"/>
<run name="S197_clb5,6-del TAB6-1 GAL-CLN2"/>
<run name="F043_CLB2-dbdel clb5-del"/>
<run name="F044_CLB2-dbdel clb5-del in GAL"/>
<run name="F048_cdc20-del clb5-del"/>
<run name="F050_cdc20-del clb5-del pds1-del"/>
<run name="F083_APC-A cdh1-del clb5-del"/>
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<group checked="1" name="SIC1,CDC6_mutants">
  <run name="S040_sic1-del"/>
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  <run name="S042_GAL-SIC1"/>
  <run name="S043_GAL-SIC1dbdel"/>
  <run name="S185_SIC1-0P"/>
  <run name="S186_GAL-SIC1-0P"/>
  <run name="S187_SIC1-0P cdh1-del"/>
  <run name="S188_SIC1-0P clb5-del"/>
  <run name="S189_SIC1-0P clb5-del GAL-CLN2"/>
  <run name="S190_SIC1-0P clb5-del GAL-CLB5"/>
  <run name="S191_SIC1-0P clb5-del GAL-CLB2"/>
  <run name="S192_SIC1-0P clb5-del swi5-del"/>
  <run name="S044_cdc6-del"/>
  <run name="S045_mc-CDC6"/>
  <run name="S047_cki-del"/>
  <run name="S048_swi5-del"/>
  <run name="S173_cdh1-del sic1-del"/>
</group>
```

```
<run name="S174_cdh1-del sic1-del GALL-CDC20"/>
<run name="S175_cdh1-del cdc6-del"/>
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<run name="S176b_cdh1-del sic1-del cdc6-del GAL-SIC1"/>
<run name="S177_cdh1-del sic1-del cdc6-del GALL-CDC20"/>
<run name="S178_cdh1-del swi5-del"/>
<run name="S179_cdh1-del swi5-del GAL-SIC1"/>
<run name="S064_bck2-del cln3-del sic1-del"/>
<run name="S088_cln1,2-del sic1-del"/>
<run name="S089_cln1,2-del GAL-SIC1"/>
<run name="S090_cln1,2-del GAL-CLN2 GAL-SIC1"/>
<run name="S091_cln1,2-del GAL-CLN2 GAL-SIC1 cdh1-del"/>
<run name="S092_cln1,2-del GAL-SIC1 cdh1-del"/>
<run name="S093_cln1,2-del GAL-SIC1 GAL-CLB5"/>
<run name="S131_triple-cln sic1-del"/>
<run name="S132_triple-cln cdc6-del"/>
<run name="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1"/>
<run name="S150_mbp1-del swi4-del sic1-del"/>
<run name="S165_swi4-del swi6-del sic1-del"/>
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<run name="S182_CLB5-dbdel sic1-del"/>
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<run name="F041_CLB2-dbdel GAL-SIC1"/>
<run name="F042_CLB2-dbdel mc-CDC6"/>
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<run name="F047_GAL-CLB2 swi5-del"/>
<run name="F064_cdc14-ts GAL-SIC1"/>
<run name="F076_APC-A cdh1-del mc-SIC1"/>
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  <run name="S176b_cdh1-del sic1-del cdc6-del GAL-SIC1"/>
  <run name="S177_cdh1-del sic1-del cdc6-del GALL-CDC20"/>
  <run name="S178_cdh1-del swi5-del"/>
  <run name="S179_cdh1-del swi5-del GAL-SIC1"/>
  <run name="S180_GAL-CLB5 cdh1-del"/>
  <run name="S086_cln1,2-del cdh1-del"/>
  <run name="S087_cln1,2-del GAL-CLN2 cdh1-del"/>
  <run name="S091_cln1,2-del GAL-CLN2 GAL-SIC1 cdh1-del"/>
  <run name="S092_cln1,2-del GAL-SIC1 cdh1-del"/>
  <run name="S115_cln3-del swi4-del cdh1-del"/>
  <run name="S133_triple-cln cdh1-del"/>

```

```

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<run name="S187_SIC1-0P cdh1-del"/>
<run name="F038_CLB1 clb2-del cdh1-del"/>
<run name="F045_GAL-CLB2 cdh1-del"/>
<run name="F074_APC-A cdh1-del"/>
<run name="F075_APC-A cdh1-del in galactose"/>
<run name="F076_APC-A cdh1-del mc-SIC1"/>
<run name="F077_APC-A cdh1-del GAL-SIC1"/>
<run name="F078_APC-A cdh1-del mc-CDC6"/>
<run name="F080_APC-A cdh1-del mc-CDC20"/>
<run name="F083_APC-A cdh1-del clb5-del"/>
<run name="F084_APC-A cdh1-del pds1-del"/>
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  <run name="S010_SWI6-SA4"/>
  <run name="S011_SWI6-SA4 WHI5-12A"/>
  <run name="S012_GAL-WHI5-12A"/>
  <run name="S013_GAL-WHI5-12A SWI6-SA4"/>
  <run name="S072_bck2-del swi6-del SWI6-SA4"/>
  <run name="S124_cln3-del GAL-WHI5-12A"/>
  <run name="S154_mbp1-del GAL-WHI5-12A"/>
  <run name="S156_mbp1-del SWI6-SA4"/>
  <run name="S158_swi4-del swi6-del SWI6-SA4"/>
  <run name="S170_SWI6-SA4 GAL-WHI5"/>
</group>
<group checked="1" name="TAB6_mutants">
  <run name="S193_TAB6-1"/>
  <run name="S194_clb5,6-del TAB6-1"/>
  <run name="S195_clb5,6-del TAB6-1 GAL-CLB2"/>
  <run name="S196_clb5,6-del TAB6-1 GAL-CLB5"/>
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  <run name="F037_CLB1 clb2-del TAB6-1"/>
  <run name="F063_cdc15-ts TAB6-1"/>
</group>
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  </estimator>
</settings>

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      <setting name="ymax" type="real">4</setting>
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thickness="8" title="SBFact"/>
      <line color="Orange" plotableid="MBFact" showing="yes"
thickness="8" title="MBFact"/>
      <line color="Blue" plotableid="CLN2" showing="yes"
thickness="3" title="CLN2"/>
      <line color="Red" plotableid="CLB2T" showing="yes"
thickness="3" title="CLB2T"/>
      <line color="DarkGreen" plotableid="CLB5T" showing="yes"
thickness="3" title="CLB5T"/>
      <line color="Magenta" plotableid="CLN310x" showing="no"
thickness="3" title="CLN310x"/>
      <line color="DarkCyan" plotableid="SIC1T" showing="yes"
thickness="3" title="SIC1T"/>
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thickness="3" title="CDH1"/>
      <line color="DarkGreen" plotableid="CDC14" showing="no"
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      <line color="Orange" plotableid="CDC20" showing="no"
thickness="3" title="CDC20"/>
      <line color="DarkOrchid" plotableid="SBFa1" showing="no"
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```

```

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thickness="3" title="SBFa6"/>
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  <line color="Black" plotableid="UDNA" showing="yes"
thickness="1" title="S-phase"/>
  <line color="Green" plotableid="ORI" showing="no"
thickness="3" title="ORI"/>
  <line color="Blue" plotableid="BUD" showing="no"
thickness="3" title="BUD"/>
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thickness="3" title="MCM1"/>
  <line color="OrangeRed" plotableid="SWI5" showing="no"
thickness="3" title="SWI5"/>
  <line color="DarkBlue" plotableid="SWI4nucf" showing="no"
thickness="3" title="SWI4nucf"/>
  <line color="DarkCyan" plotableid="SWI6nucf" showing="no"
thickness="4" title="SWI6nucf"/>
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thickness="2" title="SPN"/>
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  <run runid="4 WHI5-12A SWI6-SA4">
    <settings>
      <setting name="ymax" type="real">2.5</setting>
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  </run>
  <run runid="6 cln3-del">
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```

```
</run>
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  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
  </settings>
</run>
<run runid="A3 cln1 cln2 sic1">
  <settings>
    <setting name="ymax" type="real">3</setting>
  </settings>
</run>
<run runid="A4 cdh1-del cln2-del">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="A4 cln1 cln2 cdh1">
  <settings>
    <setting name="ymax" type="real">4</setting>
  </settings>
</run>
<run runid="A6 cln3-del">
  <settings>
    <setting name="xmax" type="real">2000</setting>
    <setting name="xmin" type="real">1500</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="B5 cln3 bck2 GAL-CLN2 cln1 cln2">
  <settings>
    <setting name="ymax" type="real">5</setting>
  </settings>
</run>
<run runid="C6 triple cln multi-copy CLB5">
  <settings>
    <setting name="xmax" type="real">2000</setting>
    <setting name="ymax" type="real">4</setting>
  </settings>
</run>
<run runid="C7 triple cln GAL-CLB5">
  <settings>
    <setting name="xmax" type="real">2000</setting>
    <setting name="ymax" type="real">8</setting>
  </settings>
</run>
<run runid="C8 triple cln multi-copy BCK2">
  <settings>
```

```
    <setting name="ymax" type="real">5</setting>
  </settings>
</run>
<run runid="Cross_cln2 cdh">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F001_clb1,2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F004_mc-GAL-CLB2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F005_CLB2-dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F006_CLB2-dbdel in GAL">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F007_GAL-CLB2dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F008_cdc20-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F011_GAL-CDC20">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
</run>
<run runid="F012_esp1-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F013_GAL-ESP1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F015_GAL-PDS1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F016_PDS1-dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F017_GAL-PDS1dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F018_tem1-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F021_cdc15-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F025_GAL-NET1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F026_cdc14-del">
```

```
<settings>
  <setting name="xmax" type="real">500</setting>
  <setting name="xmin" type="real">0</setting>
</settings>
</run>
<run runid="F027_GAL-CDC14">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F028_mc-CDC14">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F029_mad2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F030_bub2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F031_mad2-del bub2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">6</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="F033_GAL-PPX">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">6</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="F034_apc-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
```

```
</run>
<run runid="F036_WT in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F042_CLB2-dbdel mc-CDC6">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F043_CLB2-dbdel clb5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F044_CLB2-dbdel clb5-del in GAL">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F045_GAL-CLB2 cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F046_GAL-CLB2 sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F047_GAL-CLB2 swi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F048_cdc20-del clb5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F049_cdc20-del pds1-del">
```

```
<settings>
  <setting name="xmax" type="real">500</setting>
  <setting name="xmin" type="real">0</setting>
</settings>
</run>
<run runid="F051_cdc20-ts mad2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F052_cdc20-ts bub2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F053_cdc20-ts GAL-ESP1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F054_cdc20-ts net1-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F055_esp1-ts GAL-PDS1dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F059_tem1-ts mc-CDC14">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F060_cdc15-del mc-TEM1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F062_cdc15-del mc-CDC14">
  <settings>
    <setting name="xmax" type="real">1000</setting>
```



```
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F064_cdc14-ts GAL-SIC1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F066_mad2-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F067_mad2-del GAL-TEM1 in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F068_mad2-del pds1-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F069_bub2-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F070_bub2-del mad2-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F071_bub2-del pds1-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F072_pds1 in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
</run>
<run runid="F073_net1-ts in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F074_APC-A cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F075_APC-A cdh1-del in galactose">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F082_APC-A GAL-CLB2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F083_APC-A cdh1-del clb5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="F084_APC-A cdh1-del pds1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">6</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="F1 clb56-del">
  <settings>
    <setting name="ymax" type="real">2.5</setting>
  </settings>
</run>
<run runid="GAL-CLN2 cdh1 mdt high">
  <settings>
    <setting name="xmax" type="real">500</setting>
  </settings>
</run>
<run runid="GAL-CLN2 cln1 cln2 cdh1">
```

```
<settings>
  <setting name="xmax" type="real">2500</setting>
</settings>
</run>
<run runid="GAL-WHI5-12A">
  <settings>
    <setting name="ymax" type="real">3.5</setting>
  </settings>
</run>
<run runid="GAL-WHI5-12A SWI6-SA4">
  <settings>
    <setting name="xmax" type="real">2000</setting>
    <setting name="ymax" type="real">4.5</setting>
  </settings>
</run>
<run runid="GAL-WHI5">
  <settings>
    <setting name="ymax" type="real">4</setting>
  </settings>
</run>
<run runid="J1 net1-ts">
  <settings>
    <setting name="ymax" type="real">4.5</setting>
  </settings>
</run>
<run runid="M003_mdt=150 WT in GAL">
  <settings>
    <setting name="xmax" type="real">3000</setting>
    <setting name="xmin" type="real">2500</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M008_mdt=300">
  <settings>
    <setting name="xmax" type="real">3000</setting>
    <setting name="xmin" type="real">2500</setting>
  </settings>
</run>
<run runid="M013_GAL-WHI5-12A SWI6-SA4">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M029_GAL-CLB5dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
</run>
<run runid="M030_triple-cln">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">6</setting>
  </settings>
</run>
<run runid="M032_swi4-del">
  <settings>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M037_GAL-SIC1dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M045_CDH1 const active">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M047_bck2-del cln3-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M048c_add_swi4-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M050_bck2-del cln3-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M054_bck2-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
</settings>
</run>
<run runid="M055_bck2-del swi6-del whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M060_cln12-del clb56-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M060_cln2-del clb56-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
  </settings>
</run>
<run runid="M061_cln2-del cdh1-del">
  <settings>
    <setting name="xmax" type="real">2000</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M061c_cln2-del cdh1-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">8</setting>
  </settings>
</run>
<run runid="M062_GAL-CLN2 cdh1-del">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M064_cln2-del GAL-SIC1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M064b_cln2del GAL-SIC1 GAL-CLB5">
  <settings>
```

```
        <setting name="xmax" type="real">1000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M066_cln2del GAL-SIC1 GAL-CLN2 cdh1del">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M067_cln2-del cdh1-del GAL-SIC1">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M067_cln2del GAL-SIC1 cdh1del">
    <settings>
        <setting name="xmax" type="real">1000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M068_cln3-del mbp1-del">
    <settings>
        <setting name="xmax" type="real">1000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M070_cln3-del swi4-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M070c_cln3-del swi4del sic1del">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M071_cln3-del swi4-del whi5-del">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M076_cln3-del GAL-WHI5">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
```

```
        <setting name="ymax" type="real">4</setting>
        <setting name="ymin" type="real">0</setting>
    </settings>
</run>
<run runid="M077_cln3-del GAL-WHI5-12A">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M080b_triple-cln cdc6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M081_triple-cln cdh1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
        <setting name="ymax" type="real">4</setting>
    </settings>
</run>
<run runid="M085_triple-cln GAL-CLB2">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M086_triple-cln apc-ts">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M087_mbp1-del swi4-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M092_swi4-del swi6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M095_swi4-del swi6-del whi5-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
```

```
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M100_cdh1-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">8</setting>
  </settings>
</run>
<run runid="M103_cdh1-del sic1-del cdc6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M105_cdh1-del swi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M108_GAL-CLB5 sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M109_CLB5-dbdel sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M110_CLB5-dbdel pds1-del">
  <settings>
    <setting name="xmax" type="real">2000</setting>
    <setting name="xmin" type="real">1000</setting>
  </settings>
</run>
<run runid="M111_CLB5-dbdel pds1-del cdc20-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M121_clb1,2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
```



```
</settings>
</run>
<run runid="M124_mc-GAL-CLB2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M125_CLB2-dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M126_CLB2-dbdel in GAL">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M127_GAL-CLB2dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M128_cdc20-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M131_GAL-CDC20">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M132_esp1-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M133_GAL-ESP1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
```

```
</settings>
</run>
<run runid="M135_GAL-PDS1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M136_PDS1-dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M137_GAL-PDS1dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M138_tem1-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M141_cdc15-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M145_GAL-NET1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M146_cdc14-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M147_GAL-CDC14">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
```

```
</settings>
</run>
<run runid="M152_WT in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M154_GAL-PPX">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M155_apc-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M162_CLB2-dbdel clb5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M163_CLB2-dbdel clb5-del in GAL">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M164_GAL-CLB2 cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M165_GAL-CLB2 sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M166_GAL-CLB2 swi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
```

```
</settings>
</run>
<run runid="M167_cdc20-del clb5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M168_cdc20-del pds1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M170_cdc20-ts mad2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M171_cdc20-ts bub2-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M172_cdc20-ts GAL-ESP1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="M173_esp1-ts GAL-PDS1dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M178_cdc15-del mc-TEM1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M182_cdc20-ts net1-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
</settings>
</run>
<run runid="M183_cdc14-ts GAL-SIC1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M185_clb56-del TAB6-1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M185d_TAB6 clb56 GAL-CLN2">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M188_mad2-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M190_mad2-del pds1-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M191_bub2-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M193_bub2-del pds1-del in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M194_pds1 in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
<run runid="M195_net1-ts in noc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M196_APC-A cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M197_APC-A cdh1-del in GAL">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M204_APC-A GAL-CLB2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M301_cln2-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M303_bck2-del cln3-del swi6-del GAL-CLN3">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M304_bck2-del cln3-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M306_swi4-del swi6-del GAL-BCK2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M307c_+ 2x-CDC14">
  <settings>
```

```
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M308_mbp1-del swi4-del GAL-BCK2">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M309_triple cln whi5-del">
    <settings>
        <setting name="xmax" type="real">1000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M312_SIC1-0P clb2del CLB1">
    <settings>
        <setting name="ymax" type="real">6</setting>
    </settings>
</run>
<run runid="M312_SIC1-0P clb5-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
        <setting name="ymax" type="real">4</setting>
        <setting name="ymin" type="real">0</setting>
    </settings>
</run>
<run runid="M312_SIC1-0P clb5del">
    <settings>
        <setting name="xmax" type="real">2000</setting>
    </settings>
</run>
<run runid="M312b_SIC10p clb5 GAL-CLN2">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M318 swi4-del swi6-del GAL-CLN3">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="M319b_swi4 mbp1 GAL-CLB5 2xSIC1">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
```

```
</settings>
</run>
<run runid="M320_swi4-del mbp1-del GAL-CLN3">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M321_swi4-del mbp1-del whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M321b_swi4del mbp1-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M321c_swi4del mbp1-del cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="M324_cln3-del GAL-WHI5 mbp1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S001_WT in Glc">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="S003_mdt=150 WT in GAL">
  <settings>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="S013_GAL-WHI5-12A SWI6-SA4">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
```



```
</settings>
</run>
<run runid="S029_GAL-CLB5dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S030_triple-cln">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S034_GAL-CLB5dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S035_triple-cln">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S038_GAL-SIC1dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S043_GAL-SIC1dbdel">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S045_CDH1 const active">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S048_bck2-del cln3-del">
  <settings>
    <setting name="xmax" type="real">3000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
<run runid="S050_CDH1 const active">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S051_bck2-del cln3-del whi5-del swi4-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S053_bck2-del cln3-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S054_bck2-del cln3-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S056_bck2-del cln3-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S056_bck2-del cln3-del whi5-del swi4-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S058_cln3-del bck2-del 2x-CLN2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S060_bck2-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S061_cln3-del bck2-del 2x-SWI4">
  <settings>
```

```
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S062_bck2-del cln3-del GAL-MBP1">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S063_bck2-del cln3-del GAL-SWI6">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S064_bck2-del cln3-del sic1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S064_bck2-del swi6-del cln3-del GAL-CLN3">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S066_bck2-del cln3-del swi6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S066_bck2-del swi6-del whi5-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S071_bck2-del swi6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S071_cln1,2-del clb5,6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
```

```
</settings>
</run>
<run runid="S075_bck2-del swi6-del cln3-del GAL-CLN3">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S077_bck2-del swi6-del whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S077_cln1,2-del GAL-SIC1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S078_cln1,2-del GAL-CLN2 GAL-SIC1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="S080_cln1,2-del GAL-SIC1 cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S081_cln1,2-del GAL-SIC1 GAL-CLB5">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S082_cln1,2-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S083_cln1,2-del clb5,6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
```

```

    </settings>
</run>
<run runid="S083d_cln1,2-del swi6-del GAL-SWI4">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
    <setting name="ymax" type="real">4</setting>
    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="S084c_cln1,2-del swi4-del">
  <settings>
    <setting name="xmax" type="real">2000</setting>
    <setting name="ymax" type="real">6</setting>
  </settings>
  <lines>
    <line color="Cyan" plotableid="BUD" showing="no"
thickness="5" title="BUD"/>
  </lines>
</run>
<run runid="S084d_cln1,2-del mbp1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S086_cln1,2-del cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S088_cln3-del mpb1-del GAL-WHI5">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S089_cln1,2-del GAL-SIC1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S090_cln1,2-del GAL-CLN2 GAL-SIC1">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>

```

```
<run runid="S090_cln3-del swi4-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S092_cln1,2-del GAL-SIC1 cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S093_cln1,2-del GAL-SIC1 GAL-CLB5">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S094_cln1,2-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S095_cln3-del swi4-del cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S095_cln1-del CLN2 swi6-del">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S096_CLN1_cln2-del swi6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S096_cln3-del swi4-del GAL-CLB2 ">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S097_cln1,2-del CLN3-1 swi6-del">
  <settings>
```

```
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S100_cln1,2-del GAL-WHI5">
    <settings>
        <setting name="xmax" type="real">1000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S101_cln1,2-del swi4-del">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S102_cln1-del CLN2 cln3-del swi4-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S102_cln3-del GAL-WHI5">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S103_CLN1 cln2-del cln3-del swi4-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S103_cln3-del GAL-WHI5-12A">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S104_cln1,2-del mbp1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S109_cln3-del swi4-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
```

```
</settings>
</run>
<run runid="S110_cln3-del swi4-del 2xCLN2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S112_cln3-del swi4-del sic1-del">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S112_triple-cln cdc6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S113_cln3-del swi4-del whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S113_triple-cln cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S114_cln3-del swi4-del 2x-BCK2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S115_cln3-del swi4-del cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S116_cln3-del swi4-del GAL-CLB2 ">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```



```
<run runid="S117_triple-cln GAL-CLB2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S118_triple-cln apc-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S119_triple-cln whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S121_mbp1-del swi4-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S123_cln3-del GAL-WHI5">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S124_cln3-del GAL-WHI5-12A">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S124_mbp1-del swi4-del GAL-CLN2 2x-CDC14">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S125_mbp1-del swi4-del GAL-BCK2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S127_mbp1-del swi4-del GAL-CLB5 2xSIC1">
  <settings>
```

```
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S128_mbp1-del swi4-del GAL-CLN3">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S129_mbp1-del swi4-del whi5-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S130_mbp1-del swi4-del sic1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S131_mbp1-del swi4-del cdh1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S132_triple-cln cdc6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S133_triple-cln cdh1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S136_swi4-del swi6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S137_triple-cln GAL-CLB2">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
```

```
</settings>
</run>
<run runid="S138_triple-cln apc-ts">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S139_triple-cln whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S140_swi4-del swi6-del GAL-BCK2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S141_mbp1-del swi4-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S142_swi4-del swi6-del whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S143_swi4-del swi6-del GAL-CLN3">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S144_mbp1-del swi4-del GAL-CLN2 2x-CDC14">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S145_mbp1-del swi4-del GAL-BCK2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
```

```
<run runid="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S148_mbp1-del swi4-del GAL-CLN3">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S149_mbp1-del swi4-del whi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S150_cdh1-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S150_mbp1-del swi4-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S151_mbp1-del swi4-del cdh1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S153_cdh1-del sic1-del cdc6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S155_cdh1-del swi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S157_swi4-del swi6-del">
  <settings>
```

```
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S158_GAL-CLB5 sic1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S159_CLB5-dbdel sic1-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S159_swi4-del swi6-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S160_swi4-del swi6-del GAL-CLN2 clb56-del ">
    <settings>
        <setting name="xmax" type="real">1000</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S161_CLB5-dbdel pds1-del cdc20-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S161_swi4-del swi6-del GAL-BCK2">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S163_swi4-del swi6-del whi5-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="S164 swi4-del swi6-del GAL-CLN3">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
```

```

    </settings>
</run>
<run runid="S164_SIC1-0P clb5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S165_SIC1-0P clb5-del GAL-CLN2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S165_swi4-del swi6-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S170_clb5,6-del TAB6-1">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S173_cdh1-del sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S173_clb5,6-del TAB6-1 GAL-CLN2">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S174_cdh1-del sic1-del GALL-CDC20">
  <lines>
    <line color="Purple" plotableid="MitCat" showing="no"
thickness="2" title="MitCat"/>
  </lines>
</run>
<run runid="S176_cdh1-del sic1-del cdc6-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>

```

```
<run runid="S178_cdh1-del swi5-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S181_GAL-CLB5 sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S182_CLB5-dbdel sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S183_GAL-CLB5 sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S184_CLB5-dbdel pds1-del cdc20-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S184_CLB5-dbdel sic1-del">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S185_SIC1-0P">
  <settings>
    <setting name="xmax" type="real">1000</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S186_GAL-SIC10P">
  <settings>
    <setting name="xmax" type="real">500</setting>
    <setting name="xmin" type="real">0</setting>
  </settings>
</run>
<run runid="S189_SIC1-0P clb5-del GAL-CLN2">
  <settings>
```

```
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
<run runid="bck2-del GAL-WHI5">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">1500</setting>
        <setting name="ymax" type="real">4</setting>
    </settings>
</run>
<run runid="bck2-del GAL-WHI5-12A">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">1500</setting>
        <setting name="ymax" type="real">4</setting>
        <setting name="ymin" type="real">0</setting>
    </settings>
</run>
<run runid="bck2-del cln3-del GAL-SWI4">
    <settings>
        <setting name="xmax" type="real">3000</setting>
    </settings>
</run>
<run runid="bck2-del cln3-del mc-SWI4">
    <settings>
        <setting name="xmax" type="real">3000</setting>
        <setting name="xmin" type="real">0</setting>
        <setting name="ymax" type="real">4</setting>
        <setting name="ymin" type="real">0</setting>
    </settings>
</run>
<run runid="cln2-del">
    <settings>
        <setting name="xmax" type="real">1000</setting>
        <setting name="ymax" type="real">4.5</setting>
    </settings>
</run>
<run runid="cln2-del bck2-del">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">1500</setting>
        <setting name="ymax" type="real">4</setting>
        <setting name="ymin" type="real">0</setting>
    </settings>
</run>
<run runid="cln3-del">
    <settings>
        <setting name="xmax" type="real">2000</setting>
        <setting name="xmin" type="real">1500</setting>
```



```

        <setting name="xtic_freq" type="real">0.25</setting>
        <setting name="xtic_start" type="real">0</setting>
        <setting name="ymax" type="real">4</setting>
        <setting name="ymin" type="real">0</setting>
        <setting name="ytic_freq" type="real">0.25</setting>
        <setting name="ytic_start" type="real">0</setting>
    </settings>
</run>
<run runid="cln3-del GAL-WHI5">
    <settings>
        <setting name="ymax" type="real">4</setting>
    </settings>
</run>
<run runid="cln3-del GAL-WHI5-12A">
    <settings>
        <setting name="ymax" type="real">4</setting>
    </settings>
</run>
<run runid="cln3-del bck2-del">
    <settings>
        <setting name="xmax" type="real">500</setting>
        <setting name="xmin" type="real">0</setting>
    </settings>
</run>
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        <setting name="xmin" type="real">1500</setting>
    </settings>
</run>
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</run>
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    <settings>
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</run>
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    <settings>
        <setting name="ymax" type="real">3</setting>
    </settings>
</run>
<run runid="mbp1-del bck2-del GAL-WHI5">
    <settings>
        <setting name="ymax" type="real">4.5</setting>
    </settings>
</run>

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  <settings>
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</run>
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  </settings>
</run>
<run runid="msn5-del swi4-del">
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  </settings>
</run>
<run runid="msn5-del swi6-del">
  <settings>
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  </settings>
</run>
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    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
<run runid="ppx-del">
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</run>
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  </settings>
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    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
```

```
</settings>
</run>
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    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
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  <settings>
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</run>
<run runid="swi4-del cln3-del whi5-del">
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  </settings>
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  </settings>
</run>
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  </settings>
</run>
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    <setting name="ymin" type="real">0</setting>
  </settings>
</run>
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</pet>
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<parameter id="MAXMASS_1">28.0</parameter>
<parameter id="DNATIMER_1">20.0</parameter>
<parameter id="kgalbck2_1">3.0</parameter>
<parameter id="kgalcln3_1">15.0</parameter>
<parameter id="kgalcln2_1">0.17</parameter>
<parameter id="kgalclb5_1">0.016</parameter>
<parameter id="kgalclb2_1">0.38</parameter>
<parameter id="whi5op_1">10.0</parameter>
<parameter id="kgalsic1_1">0.132</parameter>
<parameter id="kgalcdc6_1">0.4</parameter>
<parameter id="kmcck2_1">5.0</parameter>
<parameter id="kmccln2_1">4.0</parameter>
<parameter id="kmccln3_1">15.0</parameter>
<parameter id="kmccb5_1">4.0</parameter>
<parameter id="kmcsic1_1">4.0</parameter>
<parameter id="kmccdc6_1">5.0</parameter>
<parameter id="kmcwhi5_1">10.0</parameter>
</basals>

```

<?xml version="1.0"?>
<runFile model="" version="0" xmlns="http://jigcell.biol.vt.edu/runfile/version0"
xmlns:math="http://www.w3.org/1998/Math/MathML">
  <runs>
    <run checked="1" id="x4FF1FA444B4D11E0BAD8EF3358E6C801" name="S001_WT in glucose mdt=90">
      <description>Viable, size=1x.
Brewer et al., 1984;
Cross et al., 2002.</description>
    </run>
    <run checked="0" id="x54ED95624B4D11E0832AFD5658E6C801" name="S002-MDT=120">
      <parents>
        <parent id="x4FF1FA444B4D11E0BAD8EF3358E6C801"/>
      </parents>
      <changes>
        <parameter id="mdt_1">
          <math:math>
            <math:cn>120</math:cn>
          </math:math>
        </parameter>
      </changes>
    </run>
    <run checked="1" id="x57E60DD04B4D11E0832AFD5658E6C801" name="S003_WT in galactose
mdt=150">
      <description>viable, size=1xgal
Costanzo et al., 2004, Fig. 3;
Jorgensen et al., 2004, Fig. 3;
smaller than cells in glucose.
</description>
      <parents>
        <parent id="x4FF1FA444B4D11E0BAD8EF3358E6C801"/>
      </parents>
      <changes>
        <parameter id="mdt_1">
          <math:math>
            <math:cn>150</math:cn>
          </math:math>
        </parameter>
      </changes>
    </run>
    <run checked="0" id="x59F437284B4D11E0832AFD5658E6C801" name="S004_mdt=180">
      <parents>
        <parent id="x4FF1FA444B4D11E0BAD8EF3358E6C801"/>
      </parents>
      <changes>
        <parameter id="mdt_1">
          <math:math>
            <math:cn>180</math:cn>
          </math:math>
        </parameter>
      </changes>
    </run>
    <run checked="0" id="x5C9E97DE4B4D11E0832AFD5658E6C801" name="S005_mdt=210">
      <parents>
        <parent id="x4FF1FA444B4D11E0BAD8EF3358E6C801"/>
      </parents>
      <changes>
        <parameter id="mdt_1">
          <math:math>
            <math:cn>210</math:cn>
          </math:math>
        </parameter>
      </changes>
    </run>
    <run checked="0" id="x5FCF4AE84B4D11E0832AFD5658E6C801" name="S006_mdt=240">
      <parents>
        <parent id="x4FF1FA444B4D11E0BAD8EF3358E6C801"/>
      </parents>
      <changes>

```

```

        <parameter id="mdt_1">
            <math:math>
                <math:cn>240</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="x63716BFE4B4D11E0832AFD5658E6C801" name="S007_mdt=270">
    <parents>
        <parent id="x4FF1FA444B4D11E0BAD8EF3358E6C801"/>
    </parents>
    <changes>
        <parameter id="mdt_1">
            <math:math>
                <math:cn>270</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="x655D662A4B4D11E0832AFD5658E6C801" name="S008_mdt=300">
    <parents>
        <parent id="x4FF1FA444B4D11E0BAD8EF3358E6C801"/>
    </parents>
    <changes>
        <parameter id="mdt_1">
            <math:math>
                <math:cn>300</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="xA8DEA7A56F65101A8B45EEE0C42AC194" name="S009_WHI5-12A">
    <description>Viable, size =1x.
Wagner et al., 2009, Fig. 7C.</description>
    <changes>
        <parameter id="ef5p_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="x84FF2EF76F18101AACFFFCF2B1CE8C9B" name="S010_SWI6-SA4">
    <description>Viable, size =1x.
Sidorova et al., 1995, Fig. 6;
Wijnen et al., 2002, Fig.6;
Wagner et al., 2009, Fig.7C.</description>
    <changes>
        <parameter id="ef6q_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <parameter id="ef6p_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="x321FBD346F77101A9C80E014FA81338B" name="S011_SWI6-SA4 WHI5-12A">
    <description>Size=1.4x.
Wagner et al., 2009, Fig. 7C.
</description>
    <parents>
        <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
        <parent id="xA8DEA7A56F65101A8B45EEE0C42AC194"/>
    </parents>

```

```

</run>
<run checked="0" id="x692914D0D00311E0BE5B349C92ACCBC2" name="S012_GAL-WHI5-12A">
  <description>Viable large >>1xgal.
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3C.
Simulation with 10 copies of WHI5 in galactose media.</description>
  <parents>
    <parent id="xA8DEA7A56F65101A8B45EEE0C42AC194"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="xBAA5DC4ED00311E0BE5B349C92ACCBC2" name="S013_GAL-WHI5-12A SWI6-SA4">
  <description>G1 arrest.
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3D.
Simulation with 10 copies of Whi5 in galactose media.</description>
  <parents>
    <parent id="x692914D0D00311E0BE5B349C92ACCBC2"/>
    <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
  </parents>
</run>
<run checked="0" id="x132D1B120158101CA933AAFF6F0A8C79" name="S014_bck2-del">
  <description>Viable.
Epstein and Cross, 1994, text (1.3x);
Wijnen and Futcher, 1999, Table 4 (1.2x).
</description>
  <changes>
    <parameter id="BCK2T_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xE71B8A3AD12011E0ABC131AB92ACCBC2" name="S015_mc-BCK2">
  <description>Smaller than 1x
Di Como et al., 1995, Fig.3.
Simulation with 5 copies.</description>
  <changes>
    <parameter id="BCK2T_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmc_bck2_1</math:ci>
          <math:ci>BCK2T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x6CB1A216D00311E0BE5B349C92ACCBC2" name="S016_GAL-BCK2">
  <description>Viable, &lt;1xgal
Costanzo et al., 2004, Fig. 3.</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="BCK2T_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kgal_bck2_1</math:ci>
          <math:ci>BCK2T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>

```

```

    <run checked="0" id="x7BA67E9FE4C7101A934AD2F0555ED546" name="S017_cln1,2-del">
      <description>Viable, 1.7-3.2x.
      Tyers et al., 1992, Table 1 (2x)
      Epstein and Cross, 1994, text (1.7x);
      Dirick et al., 1995, text (2-3x).
    </description>
    <changes>
      <parameter id="ksn2_1">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <parameter id="ksn2_2">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <parameter id="ksn2_3">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <initialConcentration id="CLN2_1">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </initialConcentration>
    </changes>
  </run>
  <run checked="0" id="xF0D3A16A6C9B10149E4F801A2F3C6CE0" name="S018_cln1-del CLN2">
    <description>Viable.
    Nasmyth and Dirick, 1991, Table 1;
    Tyers et al., 1993, Table 1 (1.1x).
    Use Cross 2002 data, Cln1 protein amount =1/3 total (CLN1+CLN2),
    and Cln2 protein amount = 2/3 total (CLN1+CLN2).
  </description>
  <changes>
    <parameter id="ksn2_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.65</math:cn>
          <math:ci>ksn2_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksn2_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.65</math:cn>
          <math:ci>ksn2_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
  <run checked="0" id="x1967C9EA6C9C101487848D98B2B5EB1E" name="S019_CLN1 cln2-del">
    <description>Viable. 1.2x.
    Nasmyth and Dirick, 1991, Table1;
    Tyers et al., 1993, Table 1 (1.3x);
    Wijnen and Futcher, 1999, Table 4 (1.2x).
    Use Cross 2002 data, Cln1 protein amount =1/3 total (CLN1+CLN2),
    and Cln2 protein amount = 2/3 total (CLN1+CLN2).
  </description>
  <changes>
    <parameter id="ksn2_2">
      <math:math>

```

```

    <math:apply>
      <math:times/>
      <math:cn>0.35</math:cn>
      <math:ci>ksn2_2</math:ci>
    </math:apply>
  </math:math>
</parameter>
<parameter id="ksn2_3">
  <math:math>
    <math:apply>
      <math:times/>
      <math:cn>0.35</math:cn>
      <math:ci>ksn2_3</math:ci>
    </math:apply>
  </math:math>
</parameter>
</changes>
</run>
<run checked="0" id="x565AE8D4D11F11E0ABC131AB92ACCBC2" name="S020_GAL-CLN2 ">
  <description>Viable, 0.5xgal.
Hadwiger et al., 1989, Fig. 3;
Dirick et al., 1995, Fig. 6 (size=0.5xgal).
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ksn2_1">
      <math:math>
        <math:ci>kgalcln2_1</math:ci>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x45762984D12411E0ABC131AB92ACCBC2" name="S021_mc-CLN2">
  <description>Viable, &lt;1x.
Hadwiger et al., 1989 .
Simulation with 4 copies.</description>
  <changes>
    <parameter id="ksn2_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccln2_1</math:ci>
          <math:ci>ksn2_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksn2_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccln2_1</math:ci>
          <math:ci>ksn2_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xA7AEC0A5555A101BA763A2CB2EFEEB5C" name="S022_cln3-del">
  <description>Viable, 1.5-2.7x.
Cross, 1988, Fig. 7;
Nasmyth and Dirick, 1991, Table 1;
Tyers et al., 1993, Table 1 (1.5x)
Costanzo et al., 2004, Fig. 3 (2.7x).
</description>
  <changes>

```

```

    <parameter id="CLN3T_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xC1466AAD6E271014BCD6CA53052DC54B" name="S023_cln1-del CLN2 cln3-del">
  <description>Viable,
Nasmyth and Dirick, 1991, Table 1, strain K1982.
</description>
  <parents>
    <parent id="xF0D3A16A6C9B10149E4F801A2F3C6CE0"/>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
  </parents>
</run>
<run checked="0" id="xD93D04AB6E271014B1F8C7D0CEE0388B" name="S024_CLN1 cln2-del cln3-del">
  <description>Viable.
Nasmyth and Dirick, 1991, Table 1, strain K2124.
</description>
  <parents>
    <parent id="x1967C9EA6C9C101487848D98B2B5EB1E"/>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
  </parents>
</run>
<run checked="0" id="x632415CA7B27101C837BBB2556A15896" name="S025_CLN3-1">
  <description>Viable, 0.5-0.7x.
Nash et al., 1988, Fig. 1;
Costanzo et al., 2004, Fig. 3.</description>
  <changes>
    <parameter id="CLN3T_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccln3_1</math:ci>
          <math:ci>CLN3T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xB5A77DBAD12011E0ABC131AB92ACCBC2" name="S026_GAL-CLN3">
  <description>Viable, 0.44x.
Tyers et al., 1992, Table 1, protein 20X WT, size is 44% WT.
Simulation with 20 copies of CLN3, in galactose media.
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="CLN3T_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kgalcln3_1</math:ci>
          <math:ci>CLN3T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x09DD1CAEE14910148715BE3CA18345F3" name="S027_whi5-del">
  <description>Viable, 0.6-0.75x.
orgensen et al., 2002, Table 1;
Costanzo et al., 2004, Fig. 3;
de Bruin et al., 2004, Fig. 2A.

```



```

</description>
  <changes>
    <initialConcentration id="WHI5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="x66800180D00311E0BE5B349C92ACCBC2" name="S028_GAL-WHI5">
  <description>Viable large (smaller than cln3-del).
Costanzo et al., 2004, Fig. 2 (long G1);
de Bruin et al., 2004, Fig. 2 (2.2x);
Wagner et al., 2009, Fig. 3 (viable).
Simulation with 10 copies of WHI5 in galactose media.

</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <initialConcentration id="WHI5_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>whi5op_1</math:ci>
          <math:ci>WHI5_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="xDDB6FD947D2210169313831916AD2692" name="S029_clb5,6-del">
  <description>Viable, 1.5x.
Kuhne and Linder, 1993, Fig. 4;
Schwob and Nasmyth, 1993, Fig. 4, a 30 min
delay in DNA synthesis relative to budding.</description>
  <changes>
    <parameter id="ksb5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksb5_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksb5_3">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="CLB5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="xE9993E2E6E88101485D585EE42CD4A6C" name="S030_clb5-del CLB6">
  <description>Viable,>1x.
Kuhne and Linder, 1993, Fig. 4;
Schwob and Nasmyth, 1993, Fig. 4.
Use Cross 2002 data, Clb5 is a minor protein compared with Clb5.
Clb6 protein amount =1/10 total (Clb5+Clb6),

```

```

</description>
<changes>
  <parameter id="ksb5_1">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>0.1</math:cn>
        <math:ci>ksb5_1</math:ci>
      </math:apply>
    </math:math>
  </parameter>
  <parameter id="ksb5_2">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>0.1</math:cn>
        <math:ci>ksb5_2</math:ci>
      </math:apply>
    </math:math>
  </parameter>
  <parameter id="ksb5_3">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>0.1</math:cn>
        <math:ci>ksb5_3</math:ci>
      </math:apply>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="xA6EEF3FAD12211E0ABC131AB92ACCBC2" name="S031_mc-CLB5">
  <description>Viable, with CEN plasmid containing CLB5 gene.
Epstein and Cross, 1992.
Simulation with 4 copies.
</description>
<changes>
  <parameter id="ksb5_1">
    <math:math>
      <math:apply>
        <math:times/>
        <math:ci>kmcc1b5_1</math:ci>
        <math:ci>ksb5_1</math:ci>
      </math:apply>
    </math:math>
  </parameter>
  <parameter id="ksb5_2">
    <math:math>
      <math:apply>
        <math:times/>
        <math:ci>kmcc1b5_1</math:ci>
        <math:ci>ksb5_2</math:ci>
      </math:apply>
    </math:math>
  </parameter>
  <parameter id="ksb5_3">
    <math:math>
      <math:apply>
        <math:times/>
        <math:ci>kmcc1b5_1</math:ci>
        <math:ci>ksb5_3</math:ci>
      </math:apply>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="xCEF955B6D12211E0ABC131AB92ACCBC2" name="S032_GAL-CLB5">
  <description>Viable,

```

Schwob and Nasmyth, 1993, Fig. 6. Inducing GAL-CLB5 does not cause premature entry into S phase in early G1 cells.

```
</description>
<parents>
  <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
</parents>
<changes>
  <parameter id="ksb5_1">
    <math:math>
      <math:ci>kgalclb5_1</math:ci>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="x6D5ADA76D43011E0B54CFCD292ACBC2" name="S033_CLB5-dbdel">
  <description>Viable.
```

Wasch and Cross, 2002.

```
</description>
<changes>
  <parameter id="kdb5_2">
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="x81F801C0D43011E0B54CFCD292ACBC2" name="S034_GAL-CLB5dbdel">
  <description>Lethal.
```

Schwob et al., 1994, Fig. 7, DNA synthesis is not significantly advanced;

Jacobson et al., 2000, Table 1 and Fig. 8,

cells lose viability quickly upon galactose induction.

attributable to the ability of these cells to divide but they

do not efficiently replicate their DNA after division,

accounting for the accumulation of cells with 1C DNA.

```
</description>
<parents>
  <parent id="x6D5ADA76D43011E0B54CFCD292ACBC2"/>
  <parent id="xCEF955B6D12211E0ABC131AB92ACBC2"/>
</parents>
</run>
<run checked="0" id="x8DE2E676EB96101999CBDBFDE496CCF4" name="S035_triple-cln">
  <description>Inviable, G1 arrest.
```

Richardson et al., 1989, Fig. 1.</description>

```
<parents>
  <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
  <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
</parents>
</run>
<run checked="0" id="x4535D4C8ECEEE101A98F38D7315B4725B" name="S036_mbp1-del">
  <description>Viable, 1.2-1.3x.
```

Koch et al., 1993, Fig. 7 (viable),

Bean et al., 2005, Table 2 (1.2x);

Ferrezuelo et al., 2009 (1.3x).

```
</description>
<changes>
  <initialConcentration id="MBP1_1">
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </initialConcentration>
</changes>
</run>
<run checked="0" id="xB248AD28EC98101AA5C6F531B8FA19A2" name="S037_swi4-del">
  <description>Viable, 1.3-1.5x, >mbp1-del
```

Nasmyth and Dirick, 1991, Table 1 (viable);

Wijnen and Futcher, 1999, Table 4 (1.3x)

```
</description>
<changes>
```

```

    <initialConcentration id="SWI4_1">
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  </changes>
</run>
<run checked="0" id="xCA2402FDF1C8101A8DF5D44553776F6A" name="S038_swi6-del">
  <description>Viable, 2.4x
  Nasmyth and Dirick, 1991, Table 1 (viable);
  Wijnen et al., 2002, Fig. 1 (2.4x).</description>
  <changes>
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  </changes>
</run>
<run checked="0" id="xF9E971E46D121014A9AFD0E7E83BDF2B" name="S038b_swi6-del in gal">
  <description>Viable.
  Wijnen et al., 2002, Fig. 2.
</description>
  <parents>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
</run>
<run checked="0" id="x20AE70748954101CAC6C0AD212BBB88" name="S039_msn5-del">
  <description>Viable, 1.4x.
  Queralt and Igual, 2003, Fig. 1.</description>
  <changes>
    <parameter id="MSN5_1">
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        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xEF6ED98EECAA10198658DED00ABC83BE" name="S040_sic1-del">
  <description>Viable, &lt;1x.
  Schneider et al., 1996, Fig. 3;
  Tyers, 1996, Fig. 2;
  DNA synthesis is advanced relative to bud initiation.</description>
  <changes>
    <parameter id="ksc1_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksc1_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="SIC1_1">
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    <initialConcentration id="SIC1P_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
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    </initialConcentration>
  </changes>

```

```

    </math:math>
  </initialConcentration>
  <initialConcentration id="C2P_1">
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  <initialConcentration id="C5P_1">
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      <math:cn>0</math:cn>
    </math:math>
  </initialConcentration>
</changes>
</run>
<run checked="0" id="x48E29A94D12411E0ABC131AB92ACCBC2" name="S041_mc-SIC1">
  <description>Viable, >1x.
  Tyers, 1996, Fig. 3.
  Simulation with 4 copies.</description>
  <changes>
    <parameter id="ksc1_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmcsic1_1</math:ci>
          <math:ci>ksc1_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksc1_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmcsic1_1</math:ci>
          <math:ci>ksc1_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x14C5B5B4D42D11E0B54CFCD292ACCBC2" name="S042_GAL-SIC1">
  <description>Viable, >1xgal.
  Nugroho and Mendenhall, 1994 Fig. 3 (viable and large);
  Verma et al., 1997, Fig. 3B, viable
  Jaspersen et al., 1998, Table 4, viable.
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ksc1_1">
      <math:math>
        <math:ci>kgalsic1_1</math:ci>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x1D7B66FED42D11E0B54CFCD292ACCBC2" name="S043_GAL-SIC1dbde1">
  <description>Inviable, G1 arrest.
  Verma et al., 1997, Fig. 3.
</description>
  <parents>
    <parent id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"/>

```

```

</parents>
<changes>
  <parameter id="kd3c1_1">
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="x88ACABEE6C2A1014B4C0DAEFDC210EA2" name="S044_cdc6-del">
  <description>Viable, &lt;1x.
Calzada et al., 2001;
Nguyen et al., 2001.
The deletion of n-terminal 47 amino acids (#2-#49) eliminates
the CKI activity, but the role as DNA licensing factor is intact. </description>
  <changes>
    <parameter id="ksf6_1">
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        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksf6_2">
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        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ksf6_3">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="CDC6_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="CDC6P_1">
      <math:math>
        <math:cn>0</math:cn>
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    </initialConcentration>
    <initialConcentration id="F2_1">
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        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="F2P_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="F5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="F5P_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="xF627B2E4D43411E0B54CFCD292ACCB2" name="S045_mc-CDC6">
  <description>Viable.
Archambault et al., 2003, Fig. 7.
Simulation with 5 copies.</description>
  <changes>

```

```

    <parameter id="ksf6_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccdc6_1</math:ci>
          <math:ci>ksf6_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksf6_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccdc6_1</math:ci>
          <math:ci>ksf6_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksf6_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:ci>kmccdc6_1</math:ci>
          <math:ci>ksf6_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x802F3F3B6C2A10148E158F84654E9DDD" name="S047_cki-del">
  <description>Viable, &lt;1x.
Archambault et al., 2003, Fig. 4.</description>
  <parents>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
    <parent id="x88ACABEE6C2A1014B4C0DAEFDC210EA2"/>
  </parents>
</run>
<run checked="0" id="xFDFFA720D42E11E0B54CFCD292ACCBC2" name="S048_swi5-del">
  <description>Viable,
Gaever et al., 2002;
Toyn et al., 1997.</description>
  <changes>
    <parameter id="ksc1_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
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      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x93AF015BFF11101ABEC8EFC807D7659B" name="S049_cdh1-del">
  <description>Viable, &lt;1x.
Schwab et al., 1997;
Wasch and Cross, 2002 (viable);
Jorgensen et al., 2002, Fig. 2 (&lt;1x).</description>
  <changes>
    <parameter id="kscdh_1">
      <math:math>
        <math:cn>0</math:cn>
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    </parameter>
    <initialConcentration id="CDH1_1">
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        <math:cn>0</math:cn>

```

```

    </math:math>
  </initialConcentration>
  <initialConcentration id="CDH1i_1">
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    </math:math>
  </initialConcentration>
</changes>
</run>
<run checked="0" id="x3A600A92D12411E0ABC131AB92ACBC2" name="S050_CDH1 const active">
  <description>Inviabile, G2 arrest.
Zachariae et al., 1998a, Fig. 4, GALLp-HA3-Hct1-m11.
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
</changes>
  <parameter id="kicdh_2">
    <math:math>
      <math:cn>0</math:cn>
    </math:math>
  </parameter>
  <parameter id="kscdh_1">
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      <math:apply>
        <math:times/>
        <math:cn>3</math:cn>
        <math:ci>kscdh_1</math:ci>
      </math:apply>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="xC1F474347355101CADD9FD167EA14D84" name="S051_bck2-del cln1,2-del">
  <description>Viable, 2.55x.
Epstein and Cross, 1994, text.</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
  </parents>
</run>
<run checked="0" id="x972AF0C56D3310149392890749378603" name="S052_bck2-del clb56-del">
  <description>Predict viable.</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="0" id="xC9E0E905E4B1101A8498EC6D152D3D1A" name="S053_bck2-del cln3-del">
  <description>Inviabile, G1 arrest.
Epstein and Cross, 1994;
Wijnen and Futcher, 1999 Table 3.
</description>
  <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
  </parents>
</run>
<run checked="0" id="x89230208EC2510199682B95B4683BBA1" name="S054_bck2-del cln3-del whi5-
del">
  <description>Viable, 1.4x. whi5-del can rescue bck2-del cln3-del.
Costanzo et al., 2004, Fig 2E (viable);
de Bruin et al., 2004, Fig. 3 (viable);
Jorgensen et al., 2004, Fig. 3 (1.4x).
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>

```



```

    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="0" id="x1AFBC2606BF8101483BAC9E6AE6E5A3A" name="S055_bck2-del cln3-del whi5-
del mbp1-del">
  <description>Viable, size=S054 bck2-del cln3-del whi5-del=1.4x.
de Bruin et al., 2004, Fig. 3.
</description>
  <parents>
    <parent id="x89230208EC2510199682B95B4683BBA1"/>
    <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
  </parents>
</run>
<run checked="0" id="x288A3C4D6BF81014BD13896DB0C4B85A" name="S056_bck2-del cln3-del whi5-
del swi4-del">
  <description>Inviable.
de Bruin et al., 2004, Fig. 3 (inviable).
</description>
  <parents>
    <parent id="x89230208EC2510199682B95B4683BBA1"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="0" id="x4788D12AD12111E0ABC131AB92ACCB2" name="S057_bck2-del cln3-del GAL-
CLN2">
  <description>Rescued.
Di Como et al., 1995, Fig. 1 (viable with Sp-ADH promoter);
Wijnen and Futcher, 1999, Table 3 (rescued).
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x4A52EC426E6810148659B26557FF9280" name="S058_bck2-del cln3-del 2x-
CLN2">
  <description>Inviable, not able to rescue bck2-del cln3-del with 1 more copy of CLN2.
Di Como et al., 1995, Fig. 1.
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
  </parents>
  <changes>
    <parameter id="ksn2_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksn2_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksn2_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksn2_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x3370F6366C0810148969BD16C7A2B620" name="S059_bck2-del cln3-del GAL-
CLB5">
  <description>Predict: viable.

```

GAL-CLB5 is predicted to rescue bck2-del cln3-del.</description>
 <parents>
 <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
 <parent id="xCEF955B6D12211E0ABC131AB92ACBC2"/>
 </parents>
 </run>
 <run checked="0" id="x2BF56C586CD71014BB0BBD342272B0FC" name="S060_bck2-del cln3-del GAL-SWI4">
 <description>Rescued, GAL-SWI4 is able to rescue bck2-del cln3-del.
 Di Como et al., 1995, Fig. 1 (viable with Sp-ADH promoter);
 Wijnen and Futcher, 1999, Table 3 (viable with high-copy plasmid 2 mu).
 Simulation with 5 copies of SWI\$ in galactose media.
 </description>
 <parents>
 <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
 <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
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 <changes>
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 <math:cn>22</math:cn>
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 </initialConcentration>
 </changes>
 </run>
 <run checked="0" id="x76242F1B6D5F1014B5F2F17A0FADA53C" name="S061_bck2-del cln3-del 2x-SWI4">
 <description>Inviabile, not able to rescue bck2-del cln3-del with more cop of SWI4.
 Di Como et al., 1995, Fig. 1.
 </description>
 <parents>
 <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
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 </initialConcentration>
 </changes>
 </run>
 <run checked="0" id="x937F33086D171014891EA08D9554AE14" name="S062_bck2-del cln3-del GAL-MBP1">
 <description>Inviabile.
 Wijnen and Futcher, 1999, Table 3, not able to rescue bck2-del cln3-del
 with high copy plasmids 2 mu of MBP1.
 </description>
 <parents>
 <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
 <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
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 </initialConcentration>
 </changes>
 </run>
 <run checked="0" id="xE8E6FA146D171014A6BE95F584BF9819" name="S063_bck2-del cln3-del GAL-SWI6">
 <description>Inviabile
 Wijnen and Futcher, 1999, Table 3, not able to rescue bck2-del cln3del
 with high copy plasmids 2 mu of SWI6.
 </description>
 <parents>
 <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
 <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>

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    </parents>
  <changes>
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      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="x68351C26D12111E0ABC131AB92ACBC2" name="S064_bck2-del cln3-del sic1-del">
  <description>Inviabile. sic1-del is not able to rescue bck2-del cln3-del.
Wijnen and Futcher, 1999, Fig. 5, not able to rescue.
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
<run checked="0" id="x07F8706C6CD810149671DC0BE10A3B3C" name="S065_bck2-del cln3-del GAL-CLN3">
  <description>Rescued, GAL-CLN3 is able to rescue bck2-del cln3-del.
Wijnen and Futcher, 1999, Table 3.</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACBC2"/>
  </parents>
</run>
<run checked="0" id="x3320C7956CD81014BEB9E04706CC5FD6" name="S066_bck2-del cln3-del swi6-del">
  <description>Inviabile, swi6del cannot rescue bck2-del cln3-del.
Wijnen and Futcher, 1999, Table 3.
</description>
  <parents>
    <parent id="xC9E0E905E4B1101A8498EC6D152D3D1A"/>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
  </parents>
</run>
<run checked="0" id="x802755E86CD010148F159D60B03A1EDE" name="S067_bck2-del cln3-del swi6-del GAL-CLN2">
  <description>Rescued,
Wijnen and Futcher, 1999, Table 3 (viable).
Deletion of Swi6 does not affect the viability of bck2-del cln3-del GAL-CLN2.
</description>
  <parents>
    <parent id="x3320C7956CD81014BEB9E04706CC5FD6"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACBC2"/>
  </parents>
</run>
<run checked="0" id="x9116B56ED00411E0BE5B349C92ACBC2" name="S068_bck2-del mbp1-del">
  <description>predict viable</description>
  <parents>
    <parent id="x4535D4C8ECE101A98F38D7315B4725B"/>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
  </parents>
</run>
<run checked="0" id="xF0326AD8D00511E0BE5B349C92ACBC2" name="S069_bck2-del mbp1-del GAL-WHI5">
  <description>predict alive
</description>
  <parents>
    <parent id="x9116B56ED00411E0BE5B349C92ACBC2"/>
    <parent id="x66800180D00311E0BE5B349C92ACBC2"/>
  </parents>
</run>
<run checked="0" id="x00D72B347E72101CA07084D5F216CAB9" name="S070_bck2-del swi4-del">
  <description>Viable, 1.55x.

```

Wijnen and Futcher, 1999, Table 4.

```
</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="0" id="x8872E6D77D53101CB3EAF78A981B893A" name="S071_bck2-del swi6-del">
  <description>Inviabllle, G1 arrest.
Wijnen and Futcher, 1999, text.
</description>
  <parents>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
  </parents>
</run>
<run checked="0" id="x133517C76C371014A0FAED5BC8626286" name="S072_bck2-del swi6-del SWI6-
SA4">
  <description>Rescued,
Wijnen et al., 2002, text.
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
  </parents>
  <changes>
    <initialConcentration id="SWI6_1">
      <math:math>
        <math:cn>30</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="x127913A06F2D1014A9BBB65255B3112B" name="S073_bck2-del swi6-del mc-
BCK2">
  <description>predict viable
Simulation with 5 copies of BCK2.
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="xE71B8A3AD12011E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="xDA4470BA6D111014AE29886B938BCF1C" name="S074_bck2-del swi6-del GAL-
CLN2">
  <description>Rescued. GAL-CLN2 can rescue bck2-del swi6-del.
Wijnen and Futcher, 1999, Table 3 (rescued with MET-CLN2).
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x1D2885E16CD81014B3D1EC45650F48F1" name="S075_bck2-del swi6-del cln3-
del GAL-CLN3">
  <description>Inviabllle, GAL-CLN3 cannot rescue bck2-del swi6-del.
Wijnen and Futcher, 1999, Table 3;
Wijnen et al., 2002, text.
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x1C5C658A6DC610149CB6D3FA3E37BD3E" name="S076_bck2-del swi6-del GAL-
CLB5">
  <description>Predict rescued. bck2-del swi6-del GAL-CLB5 is predicted to be viable.
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</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x43EA243C7D76101C93F9EA3B5ACA55B5" name="S077_bck2-del swi6-del whi5-del">
  <description>Inviabile, whi5-del cannot rescue bck2-del swi6-del.
de Bruin et al., 2004, text.
</description>
  <parents>
    <parent id="x8872E6D77D53101CB3EAF78A981B893A"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="0" id="x4F76DBF06D8D1014B9DCE97934877101" name="S078_GAL-BCK2 swi6-del">
  <description>Viable, smaller than swi6-del,
Ferrezuelo et al., 2009, text (smaller than swi6Δ in gal=1.38 xgal).</description>
  <parents>
    <parent id="x6CB1A216D00311E0BE5B349C92ACCBC2"/>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
  </parents>
</run>
<run checked="0" id="x015F793ACF4411E0BC2C567592ACCBC2" name="S079_bck2-del whi5-del">
  <description>Viable, &lt;x.
Costanzo et al., 2004, Fig. 3, whi5-del&lt;S079&lt;wt&lt;bck2-del.
</description>
  <parents>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
  </parents>
</run>
<run checked="0" id="xFF0320FCD00511E0BE5B349C92ACCBC2" name="S080_bck2-del GAL-WHI5">
  <description>Viable, >GAL-WHI5.
Costanzo et al., 2004, text.
</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x0569665ED00611E0BE5B349C92ACCBC2" name="S081_bck2-del GAL-WHI5-12A">
  <description>Predict viable, larger than S080 bck2-del GAL-WHI5.</description>
  <parents>
    <parent id="x132D1B120158101CA933AAFF6F0A8C79"/>
    <parent id="x692914D0D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="xE66FB930D00311E0BE5B349C92ACCBC2" name="S082_GAL-BCK2 whi5-del">
  <description>Viable, smaller than whi5-del, smaller than GAL-BCK2.
Costanzo et al., 2004, Fig. 3.</description>
  <parents>
    <parent id="x6CB1A216D00311E0BE5B349C92ACCBC2"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="0" id="xFE571EA6EC6D10198F18CE1CB14B92C3" name="S083_cln1,2-del clb5,6-del">
  <description>Inviabile, G1 arrest.
Schwob and Nasmyth, 1993, Fig. 5.</description>
  <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>

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    </parents>
  </run>
  <run checked="0" id="x7F0B9EC0D42D11E0B54CFCD292ACCBC2" name="S091_cln1,2-del GAL-CLN2 GAL-
SIC1 cdh1-del">
    <description>Viable,
Cross et al., 2002, Fig. 3B, viable.
  </description>
    <parents>
      <parent id="x75A59282D42D11E0B54CFCD292ACCBC2"/>
      <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
  </run>
  <run checked="0" id="x9B6390E6D42D11E0B54CFCD292ACCBC2" name="S092_cln1,2-del GAL-SIC1
cdh1-del">
    <description>Inviabile
Cross et al., 2002, Fig. 3B.
  </description>
    <parents>
      <parent id="x6AF997B6D42D11E0B54CFCD292ACCBC2"/>
      <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
  </run>
  <run checked="0" id="x667F241C6D4B10148323F287EFBB28A5" name="S093_cln1,2-del GAL-SIC1 GAL-
CLB5">
    <description>Predict no rescue.
  </description>
    <parents>
      <parent id="x6AF997B6D42D11E0B54CFCD292ACCBC2"/>
      <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="xE35CB13B6CD71014ACB7864B38852503" name="S094_cln1,2-del swi6-del">
    <description>Inviabile.
Nasmyth & Dirik 1991, Table 1, Strain K2326.
  </description>
    <parents>
      <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
  </run>
  <run checked="0" id="x9177E1EE6CD110149508F402D0B62C15" name="S095_cln1-del CLN2 swi6-del">
    <description>Viable.
Nasmyth 1991. Table 1, strain K2026.
However, simulation shows the mutant dies after 3 cycles. It is a parameter
problem. swi6-del is already quite large ,its SBF is not very active. Further
deletion of CLN1 makes the cell G1 too long, and the cell too big, it has problem
in exiting mitosis after 3 cycles.</description>
    <parents>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      <parent id="xF0D3A16A6C9B10149E4F801A2F3C6CE0"/>
    </parents>
  </run>
  <run checked="0" id="x9819EA656CD11014AEF9E0285638ED50" name="S096_CLN1 cln2-del swi6-del">
    <description>Growth poor, inviable.
Nasmyth and Dirick, 1991, Table 1, strain K2028.</description>
    <parents>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      <parent id="x1967C9EA6C9C101487848D98B2B5EB1E"/>
    </parents>
  </run>
  <run checked="0" id="x8677FB706CD2101494089BE588747B20" name="S097_cln1,2-del CLN3-1 swi6-
del">
    <description>Inviabile.
Nasmyth and Dirick, 1991, Table 1 K2337.
Adding CLN3-1 will not help cln12-del swi6-del, since CLN3 cannot
activate the SBFa6 (the SBF responsible for swi6-del mutant).
  </description>

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    <parents>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
      <parent id="x632415CA7B27101C837BBB2556A15896"/>
    </parents>
  </run>
  <run checked="0" id="xF14F60696F2D10148B33F50B29289D74" name="S098_cln1,2-del swi6-del GAL-CLB5">
    <description>Predict viable</description>
    <parents>
      <parent id="xE35CB13B6CD71014ACB7864B38852503"/>
      <parent id="xCEF955B6D12211E0ABC131AB92ACBC2"/>
    </parents>
  </run>
  <run checked="0" id="x148B09166C7C1014B937B34943944BE3" name="S099_cln1,2-del whi5-del">
    <description>Viable,
    Skotheim et al., 2008, Suppl. Table 2.</description>
    <parents>
      <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
      <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    </parents>
  </run>
  <run checked="0" id="x6A45F0C26CBB10148037E9F40E11EF3F" name="S100_cln1,2-del GAL-WHI5">
    <description>Viable, retarded growth.
    Costanzo et al., 2004, Fig. 2D (poor growth).
  </description>
    <parents>
      <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
      <parent id="x66800180D00311E0BE5B349C92ACBC2"/>
    </parents>
  </run>
  <run checked="0" id="x2EC13C596C021014BAA9B79EE0A3F2CB" name="S101_cln1,2-del swi4-del">
    <description>Inviabile.
    Nasmyth 1991 Table 1. Strain K2324 and K2325
    (with either swi4-ts or swi4-del),
  </description>
    <parents>
      <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
      <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    </parents>
  </run>
  <run checked="0" id="xBE02A48A6D2110149349C49486C2EA0F" name="S102_cln1-del CLN2 cln3-del swi4-del">
    <description>Inviabile,
    Nasmyth and Dirick, 1991, Table 1. strain K2561.
    Since cln3-del swi4-del is inviable, adding cln1-del will not help it.</description>
    <parents>
      <parent id="xF0D3A16A6C9B10149E4F801A2F3C6CE0"/>
      <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
      <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    </parents>
  </run>
  <run checked="0" id="xDF1252B16D211014922CB9478269D062" name="S103_CLN1 cln2-del cln3-del swi4-del">
    <description>Inviabile,
    Nasmyth and Dirick, 1991, Table 1, strain K2559.
    Since cln3-del swi4-del is inviable, adding cln2-del will not help it.</description>
    <parents>
      <parent id="x1967C9EA6C9C101487848D98B2B5EB1E"/>
      <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
      <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    </parents>
  </run>
  <run checked="0" id="x3955714B6C021014976BF41A05E0C797" name="S104_cln1,2-del mbp1-del">
    <description>Predict to be inviable.
    Without the positive feedback of Cln1 and Cln2,
    SBF activation is sluggish. It does not make enough Clb5 and Clb6
    for the timely initiation of DNA synthesis. In simulation, the mutant
  </description>
  </run>

```


shows a G1 arrest.

```
</description>
  <parents>
    <parent id="x7BA67E9FE4C7101A934AD2F0555ED546"/>
    <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
  </parents>
</run>
<run checked="" id="x7EBE63166D531014AA5BEEDEA74D15A4" name="S200_cln1,2-del swi4-del
CLN3-1">
  <description>Predict to be viable. CLN3-1 can rescue the
inviability of cln1-del cln2-del swi4-del.</description>
  <parents>
    <parent id="x2EC13C596C021014BAA9B79EE0A3F2CB"/>
    <parent id="x632415CA7B27101C837BBB2556A15896"/>
  </parents>
</run>
<run checked="" id="x9C23B5A06D5310148B3D9B083712FF5C" name="S201_cln1,2-del mbp1-del
CLN3-1">
  <description>Predict to be inviable, CLN3-1 cannot rescue the inviable
mutant cln1-del cln2-del mbp1-del.</description>
  <parents>
    <parent id="x3955714B6C021014976BF41A05E0C797"/>
    <parent id="x632415CA7B27101C837BBB2556A15896"/>
  </parents>
</run>
<run checked="0" id="x6BA814A8D00411E0BE5B349C92ACCBC2" name="S105_cln3-del mbp1-del">
  <description>Viable and large.
Bean et al., 2006, Fig. 6, cells are large.
</description>
  <parents>
    <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
  </parents>
</run>
<run checked="0" id="x51B62648D00411E0BE5B349C92ACCBC2" name="S106_cln3-del mbp1-del swi6-
del">
  <description>Predict viable, size=swi6-del
</description>
  <parents>
    <parent id="x6BA814A8D00411E0BE5B349C92ACCBC2"/>
    <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
  </parents>
</run>
<run checked="0" id="x6E6EFC186C381014824BE67C946E5DE9" name="S107_cln3-del mbp1-del whi5-
del">
  <description>Predict viable.
</description>
  <parents>
    <parent id="x6BA814A8D00411E0BE5B349C92ACCBC2"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="0" id="xAE9067E16C381014AC1EEB14ADE178EB" name="S108_cln3-del mbp1-del GAL-
WHI5">
  <description>Predict inviable.

</description>
  <parents>
    <parent id="x6BA814A8D00411E0BE5B349C92ACCBC2"/>
    <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="xA58DADCD7E4E101C9AC3DCAF353D497D" name="S109_cln3-del swi4-del">
  <description>Inviable.
Nasmyth and Dirick, 1991, Table 1, strain K1944;
BioGRID;
Jorgensen et al., 2002, Fig. 2;
```

Ferrezuelo et al., 2009, text.

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</description>
  <parents>
    <parent id="x7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
  </parents>
</run>
<run checked="0" id="x0A2D68836D4310149F1BD44063C123DC" name="S110_cln3-del swi4-del
2xCLN2">
  <description>Predict to be reascued.</description>
  <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
  </parents>
  <changes>
    <parameter id="ksn2_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksn2_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksn2_3">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksn2_3</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x550C2A996E5D1014B2F6941693E590E7" name="S111_cln3-del swi4-del GAL-
CLN2">
  <description>Rescued.
Ferrezuelo et al., 2009, text.
</description>
  <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x7810601AD00411E0BE5B349C92ACCBC2" name="S113_cln3-del swi4-del whi5-
del">
  <description>Predict to be rescued, but large.</description>
  <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="0" id="x45B614D76BFC1014899B81B0907E1AD9" name="S114_cln3-del swi4-del 2x-
BCK2">
  <description>Predict to be rescued.</description>
  <parents>
    <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
  </parents>
  <changes>
    <parameter id="BCK2T_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>BCK2T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>

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    </changes>
  </run>
  <run checked="0" id="x56C6B40C6BFC10148AD5FDF1ED8F97F9" name="S115_cln3-del swi4-del cdh1-del">
    <description>Predict no rescue.
  </description>
    <parents>
      <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
      <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    </parents>
  </run>
  <run checked="0" id="xCDDAE846BFC101480E0FD0A9FE06866" name="S116_cln3-del swi4-del GAL-CLB2 ">
    <description>Predict no rescue.

  </description>
    <parents>
      <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
      <parent id="xD942EB44D12311E0ABC131AB92ACBC2"/>
    </parents>
  </run>
  <run checked="0" id="x1DF5347D6D4C10149739B685348E306A" name="S117_cln3-del swi4-del 3xCLB5">
    <description>Predict rescued.
  </description>
    <parents>
      <parent id="xA58DADCD7E4E101C9AC3DCAF353D497D"/>
    </parents>
    <changes>
      <parameter id="ksb5_1">
        <math:math>
          <math:apply>
            <math:times/>
            <math:cn>3</math:cn>
            <math:ci>ksb5_1</math:ci>
          </math:apply>
        </math:math>
      </parameter>
      <parameter id="ksb5_2">
        <math:math>
          <math:apply>
            <math:times/>
            <math:cn>3</math:cn>
            <math:ci>ksb5_2</math:ci>
          </math:apply>
        </math:math>
      </parameter>
      <parameter id="ksb5_3">
        <math:math>
          <math:apply>
            <math:times/>
            <math:cn>3</math:cn>
            <math:ci>ksb5_3</math:ci>
          </math:apply>
        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="0" id="x139F63737BC1101C89378E15336AB324" name="S118_cln3-del swi6-del">
    <description>Viable, size=swi6-del,
    Nasmyth and Dirick, 1991, Table 1, strain K2090 (viable);
    Wijnen et al., 2002, Fig. 1 (size=swi6Δ).
  </description>
    <parents>
      <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
  </run>

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    <run checked="0" id="x999C075E6E1F101480D0CD67641E9B81" name="S119_cln3-del SWI6-SA4">
      <description>Viable, size = cln3-del.
Wijnen et al., 2002, text size=(cln3Δ).
    </description>
    <parents>
      <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
      <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
    </parents>
  </run>
  <run checked="0" id="x98242C6B7C75101C8F49EB1155BA7B8C" name="S120_CLN3-1 swi6-del">
    <description>Viable, size =swi6-del.
Wijnen et al., 2002, Fig. 1 (size=swi6Δ).</description>
    <parents>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      <parent id="x632415CA7B27101C837BBB2556A15896"/>
    </parents>
  </run>
  <run checked="0" id="x36518076EB7410198A3B95E62AF07A7C" name="S121_cln3-del whi5-del">
    <description>Vable, 0.7-1.0x.
Costanzo et al., 2004, Fig. 3 (size close to WT);
de Bruin et al., 2004, Fig. 2 (size in btw whi5Δ and wt),
Fig. 3 (size of bud initiation close to whi5Δ).</description>
    <parents>
      <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
      <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
    </parents>
  </run>
  <run checked="0" id="xF3E4939CD00311E0BE5B349C92ACCBC2" name="S122_CLN3-1 whi5-del">
    <description>Viable, size small.
Costanzo et al., 2004, Fig. 3, size small.
  </description>
    <parents>
      <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
      <parent id="x632415CA7B27101C837BBB2556A15896"/>
    </parents>
  </run>
  <run checked="0" id="x7E7DE760D00411E0BE5B349C92ACCBC2" name="S123_cln3-del GAL-WHI5">
    <description>Inviabile, G1 arrest.
Costanzo et al., 2004, Fig. 2D;
Wagner et al., 2009, Fig. 3C.
  </description>
    <parents>
      <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
      <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x84CE24A4D00411E0BE5B349C92ACCBC2" name="S124_cln3-del GAL-WHI5-12A">
    <description>Inviabile, G1 arrest.
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3C.
  </description>
    <parents>
      <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
      <parent id="x692914D0D00311E0BE5B349C92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x988FAFC56D121014A476AFDCF07F7DC8" name="S125_cln3-del GAL-WHI5 swi6-del">
    <description>Predict viable, size=swi6del in galactose.
  </description>
    <parents>
      <parent id="x7E7DE760D00411E0BE5B349C92ACCBC2"/>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
  </run>
  <run checked="0" id="xBFD02E056D1210148B0AE0FB3DFB6483" name="S126_cln3-del GAL-WHI5 mbp1-del swi6-del">
    <description>Predict it still can be rescued by swi6-del.</description>

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    <parents>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      <parent id="xAE9067E16C381014AC1EEB14ADE178EB"/>
    </parents>
  </run>
  <run checked="0" id="x071A4F576D041014B76F904EAA7716EA" name="S127_cln3-del clb5,6-del">
    <description>Predict viable.
  </description>
  <parents>
    <parent id="xA7AEC0A5555A101BA763A2CB2EFEEB5C"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="0" id="xCC03EFA2D12111E0ABC131AB92ACCBC2" name="S128_triple-cln GAL-CLN2">
  <description>Rescued.
Cross and Tinkelenberg, 1991, Fig. 4, viable.</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x1F4837FB6CFA1014ABE5FDBE0488174C" name="S129_triple-dln GAL-CLN2
clb5,6-del">
  <description>Predict viable.</description>
  <parents>
    <parent id="xCC03EFA2D12111E0ABC131AB92ACCBC2"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="0" id="xCF8EE3F2D12111E0ABC131AB92ACCBC2" name="S130_triple-cln GAL-CLN3">
  <description>Viable.
Cross and Tinkelenberg, 1991 (viable);
Schwob and Nasmyth, 1993, Fig. 2 (SBF activated soon
after galactose induction).
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x8C541325ECE71019B5FDDF420B74B6FA" name="S131_triple-cln sic1-del">
  <description>Viable and large.
Schneider et al., 1996, Fig. 3 viable;
Tyers, 1996, Fig. 2, viable with short G1 and large cells.
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
<run checked="0" id="xC3581BDB6CF91014A6F2B45928362DA7" name="S132_triple-cln cdc6-del">
  <description>Predict to be inviable.</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x88ACABEE6C2A1014B4C0DAEFD210EA2"/>
  </parents>
</run>
<run checked="0" id="xD602B3EED12111E0ABC131AB92ACCBC2" name="S133_triple-cln cdh1-del">
  <description>Inviable, Telophase arrest.
Schwab et al., 1997, Fig. 3. these cells do not arrest uniformly in G1,
a fraction of the cell population proceeds through S phase
and arrests with 2C DNA content.
</description>
  <parents>
    <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>

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    <run checked="0" id="xDD977D56D12111E0ABC131AB92ACCBC2" name="S134_triple-cln mc-CLB5">
      <description>Viable.
Epstein and Cross, 1992, text and Fig. 1,
a low copy number (CEN) plasmid carrying the CLB5 gene
can suppress the lethality of triple-cln deletion.
Simulation with 4 copies of CLB5.</description>
      <parents>
        <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
        <parent id="xA6EEF3FAD12211E0ABC131AB92ACCBC2"/>
      </parents>
    </run>
    <run checked="0" id="xE7EB938CD12111E0ABC131AB92ACCBC2" name="S135_triple-cln GAL-CLB5">
      <description>Viable.
Schwob and Nasmyth, 1993, Fig. 6.
</description>
      <parents>
        <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
        <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
      </parents>
    </run>
    <run checked="0" id="xEF6BC78AD12111E0ABC131AB92ACCBC2" name="S136_triple-cln mc-BCK2">
      <description>Viable.
Epstein and Cross, 1994. low copy number (CEN) plasmid carrying the BCK2 gene can suppress the
ethality of triple-cln deletion.
Simulation with 5 copies of Bck2.</description>
      <parents>
        <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
        <parent id="xE71B8A3AD12011E0ABC131AB92ACCBC2"/>
      </parents>
    </run>
    <run checked="0" id="xF400DBC8D12111E0ABC131AB92ACCBC2" name="S137_triple-cln GAL-CLB2">
      <description>G1 arrest.
Amon et al., 1994, Fig. 8. G1 arrest.
A problem for the model. Simulation show a telophase arrest
rather than a G1 arrest. Parameter problem.
</description>
      <parents>
        <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
        <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
      </parents>
    </run>
    <run checked="0" id="xFAC1686AD12111E0ABC131AB92ACCBC2" name="S138_triple-cln apc-ts">
      <description>Inviable, metaphase arrest.
Irniger and Nasmyth, 1997, Fig. 2, metaphase arrest.</description>
      <parents>
        <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
        <parent id="x6E2C2348D12311E0ABC131AB92ACCBC2"/>
      </parents>
    </run>
    <run checked="0" id="x82DD2E4C6CD810149349FEFA4F2F1B6D" name="S139_triple-cln whi5-del">
      <description>Inviable, G1 arrest.
de Bruin et al., 2004, text, still G1 arrested.
</description>
      <parents>
        <parent id="x8DE2E676EB96101999CBDBFDE496CCF4"/>
        <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
      </parents>
    </run>
    <run checked="0" id="x17B9265C6CFC1014805C8CBD233B4F83" name="S140_triple-cln whi5-del 2x-
BCK2">
      <description>Predict viable.
</description>
      <parents>
        <parent id="x82DD2E4C6CD810149349FEFA4F2F1B6D"/>
      </parents>
      <changes>
        <parameter id="BCK2T_1">

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      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>BCK2T_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x89957943ED2A101AB03EEDAB0BDE046F" name="S141_mbp1-del swi4-del">
  <description>Inviable, G1 arrest.
  Koch et al., 1993, Fig. 7.</description>
  <parents>
    <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
  </parents>
</run>
<run checked="0" id="x62898AA26CD81014BE6CCBDFBE363F05" name="S142_mbp1-del swi4-del GAL-
CLN2">
  <description>Rescued.
  Koch et al., 1993, text (rescued with ADH-CLN2);
  Wijnen and Futcher, 1999, Table 3 (rescued with Met-CLN2).
</description>
  <parents>
    <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="xE36148C6CDC1014A6F5E92AD4F74D0E" name="S143_mbp1-del swi4-del GAL-
CLN2 clb5,6-del">
  <description>Predict viable.
</description>
  <parents>
    <parent id="x62898AA26CD81014BE6CCBDFBE363F05"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="0" id="x6C52A4A16CF3101497BD9F20ECBA3ECD" name="S144_mbp1-del swi4-del GAL-
CLN2 2x-CDC14">
  <description>Predict inviable.
</description>
  <parents>
    <parent id="x62898AA26CD81014BE6CCBDFBE363F05"/>
  </parents>
  <changes>
    <parameter id="ks14_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ks14_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x72E18FBB6CD81014AA739CEE0C987722" name="S145_mbp1-del swi4-del GAL-
BCK2">
  <description>Not rescued,
  Wijnen and Futcher, 1999, Table 3.</description>
  <parents>
    <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
    <parent id="x6CB1A216D00311E0BE5B349C92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x240A241B6CDC10148B0BCCD51DFF7241" name="S146_mbp1-del swi4-del GAL-
CLB5">

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    <description>Predict viable.
</description>
    <parents>
      <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
      <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
    </parents>
  </run>
<run checked="0" id="xFCDC80CA6C7F10149990EC1D973196F9" name="S147_mbp1-del swi4-del GAL-CLB5 2xSIC1">
  <description>Predict inviable.</description>
  <parents>
    <parent id="x240A241B6CDC10148B0BCCD51DFF7241"/>
  </parents>
  <changes>
    <parameter id="ksc1_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksc1_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ksc1_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>2</math:cn>
          <math:ci>ksc1_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x42EF348A6CDC1014BA9AF4B869796809" name="S148_mbp1-del swi4-del GAL-CLN3">
  <description>Predict G1 arrest.</description>
  <parents>
    <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x51203F036CDC101490E3E4A33F4283AC" name="S149_mbp1-del swi4-del whi5-del">
  <description>Predict inviable
</description>
  <parents>
    <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="0" id="x3687F2FE6CF31014A0DDF4210306B02A" name="S150_mbp1-del swi4-del sic1-del">
  <description>Predict inviable.
</description>
  <parents>
    <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
<run checked="0" id="x56B35AC16CF31014A5D9979668E36CF3" name="S151_mbp1-del swi4-del cdh1-del">
  <description>Predict inviable.</description>
  <parents>
    <parent id="x89957943ED2A101AB03EEDAB0BDE046F"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>

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    <run checked="0" id="x3E5A244B7EDD101C93F2DFDDE5F995BF" name="S152_mbp1-del whi5-del">
      <description>Viable, &lt;x.
de Bruin et al., 2004, text.</description>
      <parents>
        <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
        <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
      </parents>
    </run>
    <run checked="0" id="x0BCDCF86D00511E0BE5B349C92ACCBC2" name="S153_mbp1-del GAL-WHI5">
      <description>Predict viable.
</description>
      <parents>
        <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
        <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
      </parents>
    </run>
    <run checked="0" id="x0F10B582D00511E0BE5B349C92ACCBC2" name="S154_mbp1-del GAL-WHI5-12A">
      <description>Predict viable.</description>
      <parents>
        <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
        <parent id="x692914D0D00311E0BE5B349C92ACCBC2"/>
      </parents>
    </run>
    <run checked="0" id="x134EF8107CCF101C85F7AD31985E2E36" name="S155_mbp1-del swi6-del">
      <description>Viable, size=swi6-del.
Koch et al., 1993, text ( size close to swi6Δ).
Ferrezuelo et al., 2009.
</description>
      <parents>
        <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
        <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      </parents>
    </run>
    <run checked="0" id="xACBC61F46E1F1014B8B38CF67AAFE958" name="S156_mbp1-del SWI6-SA4">
      <description>Viable, sizesimilar to mbp1-del.
Wijnen et al., 2002, text.
</description>
      <parents>
        <parent id="x4535D4C8ECEE101A98F38D7315B4725B"/>
        <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
      </parents>
    </run>
    <run checked="0" id="x5CBD63F4F217101A8F66CC835414F125" name="S157_swi4-del swi6-del">
      <description>Inviable, G1 arrest.
Nasmyth and Dirick, 1991, Table 1, strain K2003, inviable.
Koch et al., 1993, text, inviable.
</description>
      <parents>
        <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
        <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      </parents>
    </run>
    <run checked="0" id="xBFE3EDBC6C361014902697BD2323458A" name="S158_swi4-del swi6-del SWI6-
SA4">
      <description>Rescued.
Wijnen et al., 2002, text.</description>
      <parents>
        <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
        <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
      </parents>
      <changes>
        <initialConcentration id="SWI6_1">
          <math:math>
            <math:cn>30</math:cn>
          </math:math>
        </initialConcentration>
      </changes>

```

```

</run>
<run checked="0" id="x46F71C846CD810149CD5D7BAD0F0108F" name="S159_swi4-del swi6-del GAL-
CLN2">
  <description>Rescued,
Nasmyth and Dirick, 1991, Table 1 strain K2390 (rescued with ADH-CLN2);
Wijnen and Futcher, 1999, Table 3;
Bean et al., 2005.
</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x8C6EE4FD6CCB10149190B5EBDC41D9F8" name="S160_swi4-del swi6-del GAL-
CLN2 clb5,6-del ">
  <description>Predict rescued.</description>
  <parents>
    <parent id="x46F71C846CD810149CD5D7BAD0F0108F"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="0" id="x5491851F6CD810148E35F7011C395303" name="S161_swi4-del swi6-del GAL-
BCK2">
  <description>Not rescued.
Wijnen and Futcher, 1999, Table 3 (no rescue).
</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="x6CB1A216D00311E0BE5B349C92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="xE5F5D55F6C391014977D8554C8D66CFA" name="S162_swi4-del swi6-del GAL-
CLB5">
  <description>Predict rescued.</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="xF930B252D00511E0BE5B349C92ACCBC2" name="S163_swi4-del swi6-del whi5-
del">
  <description>Predict inviable.</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
  </parents>
</run>
<run checked="0" id="xA03674FA6C081014BE34B8E16A961750" name="S164 swi4-del swi6-del GAL-
CLN3">
  <description>Inviable.
Wijnen and Futcher, 1999, Table 3 (no rescue).
</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="xB5A77DBAD12011E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="xD15D24C96CE31014B4F8BA3A8E4B3F51" name="S165_swi4-del swi6-del sic1-
del">
  <description>Inviable.
Wijnen and Futcher, 1999, text (no rescue).
</description>
  <parents>
    <parent id="x5CBD63F4F217101A8F66CC835414F125"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
<run checked="0" id="x5AABF1147EB3101C91F3D8479A22A47F" name="S166_swi4-del whi5-del">

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```

    <description>Viable, size similar to swi4-del.
de Bruin et al., 2004, Fig. 2; Jorgensen et al., 2002, Fig. 3.
</description>
    <parents>
      <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
      <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    </parents>
  </run>
  <run checked="0" id="x2EE0BFB6D00411E0BE5B349C92ACCBC2" name="S167_swi4-del GAL-WHI5">
    <description>Viable, size similar to swi4-del.
de Bruin et al., 2004, text (size close to swi4-del);
Costanzo Fig 2D (viable).
</description>
    <parents>
      <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
      <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x4EE76A247CF5101C9B30A1133C66AE23" name="S168_swi6-del whi5-del">
    <description>Viable,
Costanzo et al., 2004, Fig. 3 size=swi6-del.
</description>
    <parents>
      <parent id="x09DD1CAEE14910148715BE3CA18345F3"/>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
  </run>
  <run checked="0" id="x08F95036D00611E0BE5B349C92ACCBC2" name="S169_swi6-del GAL-WHI5">
    <description>Inviable,
Costanzo et al., 2004, Fig. 2D (inviable)
But model predict to be viable.
</description>
    <parents>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
      <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x37FC62576CBE1014973BB7068F65B41C" name="S170_SWI6-SA4 GAL-WHI5">
    <description>Viable,
Costanzo et al., 2004, Fig. 6;
Wagner et al., 2009, Fig. 3D.
</description>
    <parents>
      <parent id="x84FF2EF76F18101AACFFFCF2B1CE8C9B"/>
      <parent id="x66800180D00311E0BE5B349C92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x0F115B9ED00611E0BE5B349C92ACCBC2" name="S171_msn5-del swi4-del">
    <description>Inviable.
Queralt and Igual, 2003, Fig. 2A (inviable)
But the model predicts it to be viable, with size close to swi4-del.</description>
    <parents>
      <parent id="x20AE70748954101CACCC6C0AD212BBB88"/>
      <parent id="xB248AD28EC98101AA5C6F531B8FA19A2"/>
    </parents>
  </run>
  <run checked="0" id="x12433012D00611E0BE5B349C92ACCBC2" name="S172_msn5-del swi6-del">
    <description>Inviable.
Queralt and Igual, 2003, Fig. 2B (inviable).
But the model predicts it to be viable, with size=swi6-del.</description>
    <parents>
      <parent id="x20AE70748954101CACCC6C0AD212BBB88"/>
      <parent id="xCA2402FDF1C8101A8DF5D44553776F6A"/>
    </parents>
  </run>
  <run checked="0" id="x0A4FB50BFF3C101A8280C4792D13C4E8" name="S173_cdh1-del sic1-del">
    <description>Inviable.

```

Schwab et al., 1997;
Archambault et al., 2003.
Model predicts it to be telophase arrested.

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</description>
  <parents>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
  </parents>
</run>
<run checked="0" id="xF7DBD7E8D42D11E0B54CFCD292ACBC2" name="S174_cdh1-del sic1-del GALL-
CDC20">
  <description>Viable.
Cross, 2003, Suppl. Fig. 4, viable.
</description>
  <parents>
    <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    <parent id="x256EAE90D12411E0ABC131AB92ACBC2"/>
  </parents>
</run>
<run checked="0" id="x0075EBBED42E11E0B54CFCD292ACBC2" name="S175_cdh1-del cdc6-del">
  <description>Viable.
Calzada et al., 2001, Fig3B, the mutants are viable.</description>
  <parents>
    <parent id="x88ACABEE6C2A1014B4C0DAEFD210EA2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="0" id="x15208920D42E11E0B54CFCD292ACBC2" name="S176_cdh1-del sic1-del cdc6-
del">
  <description>Inviabile.
Archambault et al., 2003, Fig. 5, inviable.
Simulation, telophase arrested.
</description>
  <parents>
    <parent id="x802F3F3B6C2A10148E158F84654E9DDD"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="0" id="x60970BED6E141014BC22EE0D4B2A69F1" name="S176b_cdh1-del sic1-del cdc6-
del GAL-SIC1">
  <description>Viable.
Archambault et al., 2003, Fig. 5, rescued.</description>
  <parents>
    <parent id="x15208920D42E11E0B54CFCD292ACBC2"/>
    <parent id="x14C5B5B4D42D11E0B54CFCD292ACBC2"/>
  </parents>
</run>
<run checked="0" id="x02BC3086D42E11E0B54CFCD292ACBC2" name="S177_cdh1-del sic1-del cdc6-
del GALL-CDC20">
  <description>Viable.
Cross, 2003, Supplementary information, rescued.
</description>
  <parents>
    <parent id="x15208920D42E11E0B54CFCD292ACBC2"/>
    <parent id="x256EAE90D12411E0ABC131AB92ACBC2"/>
  </parents>
</run>
<run checked="0" id="x08C2CF34D42F11E0B54CFCD292ACBC2" name="S178_cdh1-del swi5-del">
  <description>Inviabile.
Archambault et al., 2003, Fig. 5, inviable.
Simulation shows telophase arrest.
</description>
  <parents>
    <parent id="xFDFFA720D42E11E0B54CFCD292ACBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>

```

<run checked="0" id="x127AAC0ED42F11E0B54CFCD292ACBC2" name="S179_cdh1-del swi5-del GAL-SIC1">

<description>Rescued.
Archambault et al., 2003, Fig. 8, viable.

</description>

<parents>

<parent id="x08C2CF34D42F11E0B54CFCD292ACBC2"/>

<parent id="x14C5B5B4D42D11E0B54CFCD292ACBC2"/>

</parents>

</run>

<run checked="0" id="x638956EED43011E0B54CFCD292ACBC2" name="S180_GAL-CLB5 cdh1-del">

<description>Inviabile.

Comments: This is unpublished results from Dr. Cross's lab.
The mutant is inviable for other unknown causes.

Personal communication from Dr. Cross:

"Although the mutant is ultimately inviable on galactose, this is not associated with any obvious problems in a short-term experiment. These cells clearly go through several doublings, probably without much difficulty, on galactose medium, and they remain reasonably viable when returned to glucose, like GAL-CLB5 cells. The DNA profile looks like that of GAL-CLB5 ontrols, mostly 2C DNA. So I think at the level of a computational model, it is not reasonable to expect the model to predict inviability of GAL-CLB5 cdh1Δ mutants. They should probably look pretty viable".</description>

<parents>

<parent id="xCEF955B6D12211E0ABC131AB92ACBC2"/>

<parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>

</parents>

</run>

<run checked="0" id="x60B3230AD43011E0B54CFCD292ACBC2" name="S181_GAL-CLB5 sic1-del">

<description>Lethal.

Jacobson, et al., 2000. Origin relicensing problem.

</description>

<parents>

<parent id="xCEF955B6D12211E0ABC131AB92ACBC2"/>

<parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>

</parents>

</run>

<run checked="0" id="x71FFC7D0D43011E0B54CFCD292ACBC2" name="S182_CLB5-dbdel sic1-del">

<description>Inviabile.

Jacobson et al., 2000; Wasch and Cross, 2002, Fig. 2.

Origin licensing problem.

</description>

<parents>

<parent id="x6D5ADA76D43011E0B54CFCD292ACBC2"/>

<parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>

</parents>

</run>

<run checked="0" id="x75F28896D43011E0B54CFCD292ACBC2" name="S183_CLB5-dbdel pds1-del">

<description>Viable.

Wasch and Cross, 2002, Fig. 1.

</description>

<parents>

<parent id="x6D5ADA76D43011E0B54CFCD292ACBC2"/>

<parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>

</parents>

</run>

<run checked="0" id="x7CD7AF1AD43011E0B54CFCD292ACBC2" name="S184_CLB5-dbdel pds1-del cdc20-del">

<description>Inviabile, telophase arrest.

Wasch and Cross, 2002, Fig. 1.

</description>

<parents>

<parent id="x75F28896D43011E0B54CFCD292ACBC2"/>

<parent id="xABEC1F166BF41014AE7CF70EDF046860"/>

</parents>

```

</run>
<run checked="0" id="xBA4895016C3C1014B9CFA0B4E99293AA" name="S185_SIC1-0P">
  <description>Viable.
  Cross et al., 2007 Fig. 2 (long G1), Table 2 (short unbudded period).
</description>
  <changes>
    <parameter id="ec1n3_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ec1b2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ec1b5_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ec1n2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ec1k2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xD326FD5C6CCA1014944FCA76EDE8DB57" name="S186_GAL-SIC1-0P">
  <description>Inviabile.
  Costanzo et al., 2004, Fig. 5 (G1 arrest, but Whi5 is not nuclear).
</description>
  <parents>
    <parent id="x14C5B5B4D42D11E0B54CFCD292ACCB2"/>
    <parent id="xBA4895016C3C1014B9CFA0B4E99293AA"/>
  </parents>
</run>
<run checked="0" id="x6169DE0D6C3D1014A73BC0065302CE2C" name="S187_SIC1-0P cdh1-del">
  <description>Viable.
  Cross et al., 2007, Fig. 2.</description>
  <parents>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
    <parent id="xBA4895016C3C1014B9CFA0B4E99293AA"/>
  </parents>
</run>
<run checked="0" id="x3B9F1B796C41101496968DAFCAFE93D3" name="S188_SIC1-0P clb5-del">
  <description>Inviabile, G1 arrest.
  Cross et al., 2007, Fig. 8.</description>
  <parents>
    <parent id="xBA4895016C3C1014B9CFA0B4E99293AA"/>
    <parent id="xE9993E2E6E88101485D585EE42CD4A6C"/>
  </parents>
</run>
<run checked="0" id="xFAB65F716D471014B8B8AF6570B8C7D0" name="S189_SIC1-0P clb5-del GAL-CLN2">
  <description>Predict G1 arrest.</description>
  <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="x565AE8D4D11F11E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x7976930B6D4A10149440D8F99026E73B" name="S190_SIC1-0P clb5-del GAL-

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CLB5">
  <description>Predict viable.</description>
  <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x10E169106C0C10148F22A5FDAE26D930" name="S191_SIC1-0P clb5-del GAL-
CLB2">
  <description>Predict viable.</description>
  <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="xD942EB44D12311E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="xCC2AD87A6C471014B3F6C615106A9667" name="S192 SIC1-0P clb5-del swi5-
del">
  <description>Viable.
Cross et al., 2007, Fig. 8.</description>
  <parents>
    <parent id="x3B9F1B796C41101496968DAFCAFE93D3"/>
    <parent id="xFDFFA720D42E11E0B54CFCD292ACCB2"/>
  </parents>
</run>
<run checked="0" id="x9BDE8EDCD43111E0B54CFCD292ACCB2" name="S193_TAB6-1">
  <description>Viable.
Shou et al., 2001, Fig. 7E.
Tab6-1 is a dominant mutation of Cdc14, it is not inhibited by NET1.
Simulation assumes that the mutated Cdc14 does not bind well with Net1. </description>
  <changes>
    <parameter id="kasrent_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.04</math:cn>
          <math:ci>kasrent_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xB7F36426D43111E0B54CFCD292ACCB2" name="S194_clb5,6-del TAB6-1">
  <description>Inviabile, G1 arrest.
Shou et al., 2001, Fig. 7E.</description>
  <parents>
    <parent id="x9BDE8EDCD43111E0B54CFCD292ACCB2"/>
    <parent id="xDBB6FD947D2210169313831916AD2692"/>
  </parents>
</run>
<run checked="0" id="xBB8131806D4E1014B401A51BAD46C14E" name="S195_clb5,6-del TAB6-1 GAL-
CLB2">
  <description>Predict rescued</description>
  <parents>
    <parent id="xB7F36426D43111E0B54CFCD292ACCB2"/>
    <parent id="xD942EB44D12311E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x12F9B0BC6D4F101498C5DDCD9EB81CAD" name="S196_clb5,6-del TAB6-1 GAL-
CLB5">
  <description>Predict rescued
</description>
  <parents>
    <parent id="xB7F36426D43111E0B54CFCD292ACCB2"/>
    <parent id="xCEF955B6D12211E0ABC131AB92ACCB2"/>
  </parents>
</run>
<run checked="0" id="x41FDC0A06D4F1014B040A33B7B2A2063" name="S197_clb5,6-del TAB6-1 GAL-
CLN2">

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    <description>Predict no rescue.</description>
    <parents>
      <parent id="xB7F36426D43111E0B54CFCD292ACBC2"/>
      <parent id="x565AE8D4D11F11E0ABC131AB92ACBC2"/>
    </parents>
  </run>
  <run checked="0" id="x25C1EA676C181014915BA057F581F101" name="S198_cln3-del bck2-del whi5-
del clb5-del clb6-del">
    <parents>
      <parent id="x89230208EC2510199682B95B4683BBA1"/>
      <parent id="xDBB6FD947D2210169313831916AD2692"/>
    </parents>
  </run>
  <run checked="0" id="x3F1AC2606C18101480A8DECCDDAD4528" name="S199_cln1-del cln2-del clb5-
del clb6-del GAL-CLB2">
    <parents>
      <parent id="xFE571EA6EC6D10198F18CE1CB14B92C3"/>
      <parent id="xD942EB44D12311E0ABC131AB92ACBC2"/>
    </parents>
  </run>
  <run checked="0" id="xB83398E0D42F11E0B54CFCD292ACBC2" name="F001_clb1,2-del">
    <description>G2 arrest.
Surana et al., 1991, Table 1.</description>
    <changes>
      <parameter id="ksb2_1">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
      <parameter id="ksb2_2">
        <math:math>
          <math:cn>0</math:cn>
        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="0" id="xBDDC9A62D42F11E0B54CFCD292ACBC2" name="F002_CLB1 clb2-del">
    <description>Viable.
Richardson et al., 1992 (viable);
Cross et al., 2002, Table 1, Clb1=1/3*(Clb1+Clb2).
</description>
    <changes>
      <parameter id="ksb2_1">
        <math:math>
          <math:apply>
            <math:times/>
            <math:cn>0.33</math:cn>
            <math:ci>ksb2_1</math:ci>
          </math:apply>
        </math:math>
      </parameter>
      <parameter id="ksb2_2">
        <math:math>
          <math:apply>
            <math:times/>
            <math:cn>0.33</math:cn>
            <math:ci>ksb2_2</math:ci>
          </math:apply>
        </math:math>
      </parameter>
    </changes>
  </run>
  <run checked="0" id="xD942EB44D12311E0ABC131AB92ACBC2" name="F003_GAL-CLB2">
    <description>Viable.
Surana et al., 1993, Fig. 3.</description>
    <parents>
      <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    </parents>

```



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<changes>
  <parameter id="ksb2_1">
    <math:math>
      <math:ci>kgalclb2_1</math:ci>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="xCCE58AD2D42F11E0B54CFCD292ACCBC2" name="F004_mc-GAL-CLB2">
  <description>Telophase arrest.
Surana et al., 1993, Fig. 4 (8 copies, T arrest with no bud);
Cross et al., 2005, Fig. 3 (diploid cells with 2 copies showed T arrest with no bud).
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ksb2_1">
      <math:math>
        <math:cn>0.72</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xF0B51E64D42F11E0B54CFCD292ACCBC2" name="F005_CLB2-dbdel">
  <description>Telophase arrest.
Pfleger and Kirschner, 2000;
Wasch and Cross, 2002, Fig. 2 (telophase arrest)
</description>
  <changes>
    <parameter id="kdb2_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.32</math:cn>
          <math:ci>kdb2_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="kdb2_3">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xF6F6B684D42F11E0B54CFCD292ACCBC2" name="F006_CLB2-dbdel in GAL">
  <description>Telophase arrest.
Wasch and Cross, 2002, Supplem. info (still T arrest)
</description>
  <parents>
    <parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
</run>
<run checked="0" id="x3010DF62D43011E0B54CFCD292ACCBC2" name="F007_GAL-CLB2dbdel">
  <description>Telophase arrest.
Amon et al., 1994, T arrest.</description>
  <parents>
    <parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
    <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="xABEC1F166BF41014AE7CF70EDF046860" name="F008_cdc20-del">
  <description>Metphase arrest.
Lim et al., 1998;
Shirayama et al., 1998, Fig. 6A (metaphase arrest)</description>
<changes>

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    <parameter id="ks20_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="ks20_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x4DD21638D12411E0ABC131AB92ACCBC2" name="F009_mc-CDC20">
  <description>Viable, no mitotic catastrophe.
Pan and Chen, 2004, Fig. 3, cells with cdc20-del 5xCDC20-myc is
viable in the absense of Benomyl,
but inviable in the presence of 7.5ug/ml Benomyl.</description>
  <changes>
    <parameter id="ks20_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>5</math:cn>
          <math:ci>ks20_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="ks20_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>5</math:cn>
          <math:ci>ks20_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x256EAE90D12411E0ABC131AB92ACCBC2" name="F010_GALL-CDC20">
  <description>Viable, no mitotic catastrophe.
GALL promoter is a reduced strength GAL-promoter.
Shirayama et al., 1999, viable.</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ks20_1">
      <math:math>
        <math:cn>0.6</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x0E35CA6AD12411E0ABC131AB92ACCBC2" name="F011_GAL-CDC20">
  <description>Inviable, mitotic catastrophe.
Hwang et al., 1998 (defect in spindle assembly checkpoint);
Shirayama et al., 1998, Fig. 7 (inviable, mitotic catastrophe).
</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="ks20_1">
      <math:math>
        <math:cn>6</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>

```

```

</run>
<run checked="0" id="xA95287FED43011E0B54CFCD292ACBC2" name="F012_esp1-ts">
  <description>Inviabile, sister chromatids not separated, Clb2 is degraded with a 20 min
delay.
Cohen-Fix and Koshland, 1999, Fig. 6A (inviabile, sisters are not
separated, but Clb2 is degraded with a 20 min lag);
Tinker-Kulberg and Morgan, 1999, Fig. 3 (inviabile).
</description>
  <changes>
    <parameter id="ki_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.04</math:cn>
          <math:ci>ki_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
    <parameter id="eesp1_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.04</math:cn>
          <math:ci>eesp1_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x28E88AF0D12411E0ABC131AB92ACBC2" name="F013_GAL-ESP1">
  <description>Inviabile. mitotic catastrophe.
Ciosk et al., 1998., Fig. 7.</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <initialConcentration id="ESP1_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>4</math:cn>
          <math:ci>ESP1_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
    <initialConcentration id="PE_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>4</math:cn>
          <math:ci>PE_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="xE9C4D07B6BF5101481069FB89CDB0DE3" name="F014_pds1-del">
  <description>Viable.
Yamamoto et al., 1996, Fig. 3 (viable, with high Esp1 throughout the cycle,
which may not be fully active in the absence of Pds1);
Hornig et al., 2002 (Pds1 promotes nuclear accumulation of
Esp1 and helps Esp 1 to become fully activated).</description>
  <changes>
    <parameter id="kspds_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>

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    <initialConcentration id="PDS1_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="PE_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
    <initialConcentration id="ESP1_1">
      <math:math>
        <math:cn>1</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="x2BC0190AD12411E0ABC131AB92ACCBC2" name="F015_GAL-PDS1">
  <description>Inviabile, sister not separated.
Cohen-Fix et al., 1996, text (both Gal-Pds1 and GAL-Pds1-dbΔ are lethal).</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
  <changes>
    <parameter id="kspds_1">
      <math:math>
        <math:cn>0.2</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xACBDCBA6D43011E0B54CFCD292ACCBC2" name="F016_PDS1-dbdel">
  <description> Inviabile, sister not separated.
Cohen-Fix et al., 1996, text </description>
  <changes>
    <parameter id="kdpds_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="kdpds_3">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xB0823A92D43011E0B54CFCD292ACCBC2" name="F017_GAL-PDS1-dbdel">
  <description>Lethal.
Cohen-Fix et al., 1996, lethal.
</description>
  <parents>
    <parent id="x2BC0190AD12411E0ABC131AB92ACCBC2"/>
    <parent id="xACBDCBA6D43011E0B54CFCD292ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x291CCC14D43C11E0B54CFCD292ACCBC2" name="F018_tem1-ts">
  <description>Telophase arrest.
Jaspersen et al., 1998; Shirayama et al., 1994b.
</description>
  <changes>
    <parameter id="ka15_2">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>0.003</math:cn>
          <math:ci>ka15_2</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>

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```

    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="x553C42C2D12411E0ABC131AB92ACCBC2" name="F019_mc-TEM1">
  <description>Viable.
  Jaspersen et al., 1998, Table 2.</description>
  <changes>
    <initialConcentration id="TEM1GDP_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>20</math:cn>
          <math:ci>TEM1GDP_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
    <initialConcentration id="TEM1GTP_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>20</math:cn>
          <math:ci>TEM1GTP_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="x37540844D12411E0ABC131AB92ACCBC2" name="F020_GAL-TEM1">
  <description>Viable.
  Shirayama et al., 1994b.</description>
  <parents>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    <parent id="x553C42C2D12411E0ABC131AB92ACCBC2"/>
  </parents>
</run>
<run checked="0" id="x2A789C60D43111E0B54CFCD292ACCBC2" name="F021_cdc15-del">
  <description>Telophase arrest.
  Jaspersen et al., 1998; Shirayama et al., 1996.</description>
  <changes>
    <parameter id="kpnet_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="x5C70CD38D12411E0ABC131AB92ACCBC2" name="F022_mc-CDC15">
  <description>Viable.
  Jaspersen et al., 1998, Table 2, Table 4, viable.
</description>
  <changes>
    <initialConcentration id="CDC15i_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>20</math:cn>
          <math:ci>CDC15i_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
    <initialConcentration id="CDC15_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>20</math:cn>
          <math:ci>CDC15_1</math:ci>
        </math:apply>
      </math:math>
    </initialConcentration>
  </changes>

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        </math:math>
    </initialConcentration>
</changes>
</run>
<run checked="0" id="x30A3516CD12411E0ABC131AB92ACCBC2" name="F023_GAL-CDC15">
    <description>Viable.
Jaspersen et al., 1998, Table 4, viable.</description>
    <parents>
        <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
        <parent id="x5C70CD38D12411E0ABC131AB92ACCBC2"/>
    </parents>
</run>
<run checked="0" id="xF3A8F1938085101CB572C21C78057C0B" name="F024_net1-ts">
    <description>Viable, long G1.
The defect is less severe than GAL-CDC14 (G1 arrest).
Visintin et al., 1999, Fig. 4 (viable, but growth is retarded);
Shou et al., 1999.</description>
    <changes>
        <parameter id="kasrent_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>0.02</math:cn>
                    <math:ci>kasrent_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="x3322FD3ED12411E0ABC131AB92ACCBC2" name="F025_GAL-NET1">
    <description>Telophase arrest.
Visintin et al., 1999, Fig. 5 (telophase arrest).
</description>
    <parents>
        <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    </parents>
    <changes>
        <parameter id="ksnet_1">
            <math:math>
                <math:apply>
                    <math:times/>
                    <math:cn>4</math:cn>
                    <math:ci>ksnet_1</math:ci>
                </math:apply>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="xB791914D88AB101CAA4180490F1201CF" name="F026_cdc14-del">
    <description>Telophase arrest.
Fitzpatrick et al., 1998; Visintin et al., 1999.</description>
    <changes>
        <parameter id="ks14_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <initialConcentration id="CDC14_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
    </changes>
</run>
<run checked="0" id="x34E1BE12D12411E0ABC131AB92ACCBC2" name="F027_GAL-CDC14">
    <description>G1 arrest.
Visintin et al., 1999 (defects similar to net1-ts but more severe. G1 arrest).
</description>

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<parents>
  <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
</parents>
<changes>
  <parameter id="ks14_1">
    <math:math>
      <math:apply>
        <math:times/>
        <math:cn>4</math:cn>
        <math:ci>ks14_1</math:ci>
      </math:apply>
    </math:math>
  </parameter>
</changes>
</run>
<run checked="0" id="x510A0F7CD12411E0ABC131AB92ACCBC2" name="F028_mc-CDC14">
  <description>Viable.
  Jaspersen et al., 1998, Table 2 (viable).
  Simulation with 3 copies.</description>
  <changes>
    <parameter id="ks14_1">
      <math:math>
        <math:apply>
          <math:times/>
          <math:cn>3</math:cn>
          <math:ci>ks14_1</math:ci>
        </math:apply>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xC68D31BAD43111E0B54CFCD292ACCBC2" name="F029_mad2-del">
  <description>Viable,
  Alexandru et al., 1999 (viable,
  no mitotic catastrophe in the absence of nocodazole).
</description>
  <changes>
    <parameter id="mad2h_1">
      <math:math>
        <math:cn>0.01</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="MAD2_1">
      <math:math>
        <math:cn>0.01</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>
<run checked="0" id="xC8499B24D43111E0B54CFCD292ACCBC2" name="F030_bub2-del">
  <description>Viable,
  Alexandru et al., 1999 (viable,
  no mitotic catastrophe in the absence of nocodazole).
</description>
  <changes>
    <parameter id="bub2h_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <parameter id="bub2l_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
    <initialConcentration id="BUB2_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </initialConcentration>
  </changes>
</run>

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        </math:math>
    </initialConcentration>
</changes>
</run>
<run checked="0" id="xCCC3C2B0D43111E0B54CFCD292ACCBC2" name="F031_mad2-del bub2-del">
    <description>Viable,
Alexandru et al., 1999 (viable,
no mitotic catastrophe in the absence of nocodazole).
</description>
    <parents>
        <parent id="xC68D31BAD43111E0B54CFCD292ACCBC2"/>
        <parent id="xC8499B24D43111E0B54CFCD292ACCBC2"/>
    </parents>
</run>
<run checked="0" id="xF12C202F88D7101CB908C504D55ACE3E" name="F032_cdc55-del">
    <description>Viable.
Queralt et al., 2006 (PPX is identified as Cdc55);
Healy et al., 1991 (cdc55Δ is viable, cold sensitive).</description>
    <changes>
        <parameter id="PP2AT_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="x2E56E73ED12411E0ABC131AB92ACCBC2" name="F033_GAL-CDC55">
    <description>Viable.
Queralt et al., 2006 (PPX is identified as Cdc55);
Chiroli et al., 2007, Fig. 10 (GAL-CDC55 causes delay in nuclear division).</description>
    <parents>
        <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
    </parents>
    <changes>
        <parameter id="PP2AT_1">
            <math:math>
                <math:cn>5</math:cn>
            </math:math>
        </parameter>
    </changes>
</run>
<run checked="0" id="x6E2C2348D12311E0ABC131AB92ACCBC2" name="F034_apc-ts">
    <description>Metaphase arrest.
Visintin et al., 1997; Zachariae et al., 1998b.</description>
    <changes>
        <parameter id="ks20_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <parameter id="ks20_2">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <parameter id="kscdh_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </parameter>
        <initialConcentration id="CDH1_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
        <initialConcentration id="CDH1i_1">
            <math:math>
                <math:cn>0</math:cn>
            </math:math>
        </initialConcentration>
    </changes>

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    </math:math>
  </initialConcentration>
</changes>
</run>
<run checked="0" id="x0D96429AD43211E0B54CFCD292ACBC2" name="F035_APC-A">
  <description>Viable.
Rudner and Murray, 2000b. Sister separation is delayed by 20 min,
Clb2 degradation is delayed by more than 40 min.
Cross, 2003, viable.
</description>
  <changes>
    <parameter id="ka20_2">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xDBC6A336D43111E0B54CFCD292ACBC2" name="F036_WT in noc">
  <description>Metaphase arrest.
Hoyt et al., 1991; Alexandru et al., 1999. Fig. 1, Fig. 5B, Fig. 9.</description>
  <changes>
    <parameter id="ksspn_1">
      <math:math>
        <math:cn>0</math:cn>
      </math:math>
    </parameter>
  </changes>
</run>
<run checked="0" id="xC10DB6ECD43111E0B54CFCD292ACBC2" name="F037_CLB1 clb2-del TAB6-1">
  <description>Viable.
Shou et al., 2001, Fig. 7E.</description>
  <parents>
    <parent id="x9BDE8EDCD43111E0B54CFCD292ACBC2"/>
    <parent id="xBDDC9A62D42F11E0B54CFCD292ACBC2"/>
  </parents>
</run>
<run checked="0" id="xDA5936BED42F11E0B54CFCD292ACBC2" name="F038_CLB1 clb2-del cdh1-del">
  <description>Inviable.
Cross, 2003 Suppl. Fig. 1, Table 6, double mutant grows well in
galactose medium, but exhibited poor viability when transferred to glucose medium.
In simulation, the mutant is viable. Problem for the model.
In simulation, the mutant would be viable.
</description>
  <parents>
    <parent id="xBDDC9A62D42F11E0B54CFCD292ACBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
<run checked="0" id="xDE645D4CD42F11E0B54CFCD292ACBC2" name="F039_CLB1 clb2-del pds1-del">
  <description>Inviable.
Shirayama et al., 1999, text, inviable.
However in simulation, the mutant is viable. Problem for the model.
</description>
  <parents>
    <parent id="xBDDC9A62D42F11E0B54CFCD292ACBC2"/>
    <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
  </parents>
</run>
<run checked="0" id="x07E0A3BAD43011E0B54CFCD292ACBC2" name="F040_CLB2-dbdel mc-SIC1">
  <description>Partial rescue.
Cross, 2003. Suppl. Fig. 5. Low copy number (CEN) plasmids containing SIC1 gene
result in partial rescue of the inviability,
whereas high copy number (2 micron) plasmids show strong rescue.
In simulation, the mutant shows Telophase, not rescued by 4 copies of Sic1.</description>
  <parents>
    <parent id="xF0B51E64D42F11E0B54CFCD292ACBC2"/>
    <parent id="x48E29A94D12411E0ABC131AB92ACBC2"/>
  </parents>

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```
</parents>
</run>
<run checked="0" id="x0C721792D43011E0B54CFCD292ACCBC2" name="F041_CLB2-dbdel GAL-SIC1">
  <description>Rescued.
Cross, 2003, suppl Fig. 5, rescued.
```

```
</description>
  <parents>
    <parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
    <parent id="x14C5B5B4D42D11E0B54CFCD292ACCBC2"/>
  </parents>
</run>
  <run checked="0" id="x1CDA9302D43011E0B54CFCD292ACCBC2" name="F042_CLB2-dbdel mc-CDC6">
  <description>Partial rescue.
Cross, 2003, suppl Fig. 5 low copy number plasmid show partial rescue,
high copy number show strong rescue.
In simulation, no rescue with 5 copies.
```

```
</description>
  <parents>
    <parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
    <parent id="xF627B2E4D43411E0B54CFCD292ACCBC2"/>
  </parents>
</run>
  <run checked="0" id="x2237EB60D43011E0B54CFCD292ACCBC2" name="F043_CLB2-dbdel clb5-del">
  <description>T arrest.
Cross, 2003, suppl information.
```

```
</description>
  <parents>
    <parent id="xF0B51E64D42F11E0B54CFCD292ACCBC2"/>
    <parent id="xE9993E2E6E88101485D585EE42CD4A6C"/>
  </parents>
</run>
  <run checked="0" id="x2CAA8300D43011E0B54CFCD292ACCBC2" name="F044_CLB2-dbdel clb5-del in
GAL">
  <description>Rescued.
Cross, 2003, suppl. information, rescued.
```

```
</description>
  <parents>
    <parent id="x2237EB60D43011E0B54CFCD292ACCBC2"/>
    <parent id="x57E60DD04B4D11E0832AFD5658E6C801"/>
  </parents>
</run>
  <run checked="0" id="xEC0529CCD42F11E0B54CFCD292ACCBC2" name="F045_GAL-CLB2 cdh1-del">
  <description>T arrest.
Cross, 2003, text (inviable, data not shown).
```

```
</description>
  <parents>
    <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
  </parents>
</run>
  <run checked="0" id="xE51C4E60D42F11E0B54CFCD292ACCBC2" name="F046_GAL-CLB2 sic1-del">
  <description>Telophase arrest.
Toyn et al., 1997.
```

In the simulation, [BUD] never reaches 1 ([Bud]max=0.3), because high Clb2 kinase turns off SBF-dependent synthesis of Cln2. This failure should elicit inhibition of Clb2-kinase activity by the morphogenetic checkpoint (Lew, 2000; Ciliberto et al, 2003). A delay in the onset of mitosis may allow Clb2 to accumulate to such high levels that cells arrest in telophase.</description>

```
<parents>
  <parent id="xD942EB44D12311E0ABC131AB92ACCBC2"/>
  <parent id="xEF6ED98EECAA10198658DED00ABC83BE"/>
</parents>
```

```

</run>
<run checked="0" id="x05406A60D42F11E0B54CFCD292ACBC2" name="F047_GAL-CLB2 swi5-del">
  <description>Inviable.
  Toyn et al., 1997.</description>
  <parents>
    <parent id="xFDFFA720D42E11E0B54CFCD292ACBC2"/>
    <parent id="xD942EB44D12311E0ABC131AB92ACBC2"/>
  </parents>
</run>
<run checked="0" id="xD60A74E36BF51014B743F1B23D569374" name="F048_cdc20-del clb5-del">
  <description>Metaphase arrest.
  Shirayama et al., 1999, Fig. 1.</description>
  <parents>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    <parent id="xE9993E2E6E88101485D585EE42CD4A6C"/>
  </parents>
</run>
<run checked="0" id="x10E9F8306BF610149C3D95C1ACEF1F71" name="F049_cdc20-del pds1-del">
  <description>Telophase arrest. Cdc14 is released.
  Shirayama et al., 1999, Fig. 1.</description>
  <parents>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
  </parents>
</run>
<run checked="0" id="x0457C3E26BF61014AD99CD9A9D7DFF9E" name="F050_cdc20-del clb5-del pds1-
del">
  <description>Viable. Size>1x.
  Shirayama et al., 1999, Fig. 1.
</description>
  <parents>
    <parent id="xD60A74E36BF51014B743F1B23D569374"/>
    <parent id="xE9C4D07B6BF5101481069FB89CDB0DE3"/>
  </parents>
</run>
<run checked="0" id="x8F1EB40CD43011E0B54CFCD292ACBC2" name="F051_cdc20-ts mad2-del">
  <description>Metaphase arrest, as cdc20-ts.
  Shirayama et al., 1998, Fig. 8.
</description>
  <parents>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    <parent id="xC68D31BAD43111E0B54CFCD292ACBC2"/>
  </parents>
</run>
<run checked="0" id="x9A1A069AD43011E0B54CFCD292ACBC2" name="F052_cdc20-ts bub2-del">
  <description>Metaphase arrest, as cdc20-ts.
  Shirayama et al., 1998, Fig. 8.
</description>
  <parents>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    <parent id="xC8499B24D43111E0B54CFCD292ACBC2"/>
  </parents>
</run>
<run checked="0" id="xFD8EA6F4D43011E0B54CFCD292ACBC2" name="F053_cdc20-ts GAL-ESP1">
  <description>Telophase arrest. Cdc14 is released from nucleolus.
  Ciosk et al., 1998 (sister chromatids separate, Clb2 not be degraded);
  Sullivan and Uhlmann, 2003, Fig. 1
  (Cdc14 is released, but Cdh1 not activated).
</description>
  <parents>
    <parent id="x28E88AF0D12411E0ABC131AB92ACBC2"/>
    <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
  </parents>
</run>
<run checked="0" id="x6832D08ED43111E0B54CFCD292ACBC2" name="F054_cdc20-ts net1-ts">
  <description>Inviable.
  Visintin et al., 1999, Table 1,
  M phase arrest, Cdc14 is released from nucleolus.</description>

```

```

    <parents>
      <parent id="xF3A8F1938085101CB572C21C78057C0B"/>
      <parent id="xABEC1F166BF41014AE7CF70EDF046860"/>
    </parents>
  </run>
  <run checked="0" id="xB8F2FA22D43011E0B54CFCD292ACCBC2" name="F055_esp1-ts GAL-PDS1-dbdel">
    <description>Sister chromatids not separate, Clb2 degrade delayed by 6hrs.
    Cohen-Fix and Koshland, 1999; Tinker-Kulberg and Morgan, 1999
    (Clb2 degradation is much delayed compared to esp1Δ).</description>
    <parents>
      <parent id="xB0823A92D43011E0B54CFCD292ACCBC2"/>
      <parent id="xA95287FED43011E0B54CFCD292ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x0C5CE7CCD43111E0B54CFCD292ACCBC2" name="F056_tem1-ts mc-CDC15 ">
    <description>Viable.
    Jaspersen et al., 1998, Table 2.</description>
    <parents>
      <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
      <parent id="x5C70CD38D12411E0ABC131AB92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x12EB7568D43111E0B54CFCD292ACCBC2" name="F057_ tem1-ts GAL-CDC15">
    <description>Viable.
    Jaspersen et al., 1998, Table 4.
  </description>
    <parents>
      <parent id="x30A3516CD12411E0ABC131AB92ACCBC2"/>
      <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x1DF433AAD43111E0B54CFCD292ACCBC2" name="F058_tem1-ts net1-ts ">
    <description>Viable.
    Visintin et al., 1999, Table 1.
  </description>
    <parents>
      <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
      <parent id="xF3A8F1938085101CB572C21C78057C0B"/>
    </parents>
  </run>
  <run checked="0" id="x24AFD0FAD43111E0B54CFCD292ACCBC2" name="F059_ tem1-ts mc-CDC14">
    <description>Rescued.
    Jaspersen et al., 1998, Table 2.</description>
    <parents>
      <parent id="x510A0F7CD12411E0ABC131AB92ACCBC2"/>
      <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="xDE68B76F6E141014B626A5B5B83E0712" name="F059b_tem1-ts TAB6-1">
    <description>Rescued.
    Shou et al., 2001, Fig. 6.</description>
    <parents>
      <parent id="x291CCC14D43C11E0B54CFCD292ACCBC2"/>
      <parent id="x9BDE8EDCD43111E0B54CFCD292ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x4575CF6AD43111E0B54CFCD292ACCBC2" name="F060_cdc15-del mc-TEM1">
    <description>Not rescued.
    Jaspersen et al., 1998, Table 2.
  </description>
    <parents>
      <parent id="x2A789C60D43111E0B54CFCD292ACCBC2"/>
      <parent id="x553C42C2D12411E0ABC131AB92ACCBC2"/>
    </parents>
  </run>
  <run checked="0" id="x4B39B0B0D43111E0B54CFCD292ACCBC2" name="F061_cdc15-del net1-ts">
    <description>Rescued.

```

Visintin et al., 1999, Table 1.

```
</description>
  <parents>
    <parent id="x2A789C60D43111E0B54CFCD292ACCBC2"/>
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  <description>Rescued.
```

Jaspersen et al., 1998, Table 2.

```
</description>
  <parents>
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<run checked="0" id="xAE50413CD43111E0B54CFCD292ACCBC2" name="F063_cdc15-ts TAB6-1">
  <description>Rescued.
```

Shou et al., 2001, Fig. 6.

```
</description>
  <parents>
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<run checked="0" id="x6D433D02D43111E0B54CFCD292ACCBC2" name="F064_cdc14-ts GAL-SIC1">
  <description>Weak rescue.
```

Jaspersen et al., 1998, Table 4 (weak rescue);

Yuste-Rojas and Cross, 2000, Fig. 3D (weak rescue).</description>

```
  <parents>
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  <description>Rescued.
```

Visintin et al., 1999, text.

```
</description>
  <parents>
    <parent id="x34E1BE12D12411E0ABC131AB92ACCBC2"/>
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<run checked="0" id="xDEE6369ED43111E0B54CFCD292ACCBC2" name="F066_mad2-del in noc">
  <description>Exit mitosis at t>300 min.
```

Alexandru et al., 1999, Fig. 1B, 2B, 5D and 9B. exit mitosis t>300 min.</description>

```
  <parents>
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  <description>Exit mitosis earlier than mad2 in nocodazole.
```

Alexandru et al., 1999. Fig. 9B,

Clb2 degradation occurs earlier than for mad2del in nocodazole.</description>

```
  <parents>
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<run checked="0" id="xEA2E767ED43111E0B54CFCD292ACCBC2" name="F069_bub2-del in noc">
  <description>Exit mitosis later than mad2-del in noc.
```

Hoyt et al., 1991, bub2-del cells lose viability after many hours in nocodazole.

Alexandru et al., 1999, Fig. 7, exit mitosis later than mad2-del in noc.

```

</description>
  <parents>
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  <description>cannot be arrested in nocodazole.
Alexandru et al., 1999. Figs. 6C and 9A,
spindle-assembly checkpoint is defective.
</description>
  <parents>
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  <description>Exit mitosis earlier than bub2-del in nocodazole.
Alexandru et al., 1999, Fig. 6B
(able to exit from mitosis earlier than bub2-del).</description>
  <parents>
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<run checked="0" id="xF98BA22CD43111E0B54CFCD292ACCBC2" name="F072_pds1 in noc">
  <description>Arrested in nocodazole.
Alexandru et al., 1999, Fig. 2 (arrested).
</description>
  <parents>
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<run checked="0" id="x073EAAAED43211E0B54CFCD292ACCBC2" name="F073_net1-ts in noc">
  <description>Cannot be arrested in nocodazole, Clb2 is degraded.
Shou et al., 2001, text (net1-1 cells do not arrest well in nocodazole);
Visintin et al., 1999, text. (not arrested in nocodazole).
This is a problem for the model. Since we want net1-ts cdc20-del to show metaphase arrest,
we would get net1-ts arrested in nocodazole automatically.</description>
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  <description>T arrest.
Cross, 2003, Table 1.
</description>
  <parents>
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    <parent id="x93AF015BFF11101ABEC8EFC807D7659B"/>
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<run checked="0" id="x1927BB98D43211E0B54CFCD292ACCBC2" name="F075_APC-A cdh1-del in galactose">
  <description>Partially viable.
Cross, 2003, Table 1. 8% viable spores.
With the deterministic model, for mdt=150 min for galactose,
this mutant shows T arrest. However, if mdt=155 min, then
the mutant becomes viable.
</description>
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```

```

    <parent id="x1451F1D8D43211E0B54CFCD292ACCBC2"/>
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  <description>Rescued.
Cross, 2003, Table 1.
Simulation with 4 copies of SIC1, it shows rescue.</description>
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  <description>Rescued.
Cross, 2003, Table 1.
</description>
  <parents>
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  <description>Rescued.
Cross, 2003, Fig. 4.
Simulation with 5 copies of Cdc6.
</description>
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  <description>Rescued.
Cross, 2003, Suppl. Fig. 3.
Simulation with 5 copies of CDC20.</description>
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<run checked="0" id="x51CF2C2ED43211E0B54CFCD292ACCBC2" name="F081_APC-A sic1-del">
  <description>Viable,
Cross, 2003, text, APC-A sic1-del is viable.</description>
  <parents>
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  </parents>
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  <description>Inviable.
Cross, 2003, Fig. 2. APC-A GAL-CLB2 telophase arrest.
</description>
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  </parents>
</run>
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  <description>Telophase arrest.
Cross, 2003, text, APCA cdh1-del clb5-del inviable.</description>
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  </parents>

```

```
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Cross, 2003, text, APCA cdh1-del pds1-del inviable.
</description>
  <parents>
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</runFile>
```



```

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```

```

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```

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```

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<species compartment="cell_1" id="F_1" name="F"/>
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<species compartment="cell_1" id="CDC6T_1" name="CDC6T"/>
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<species compartment="cell_1" id="MCM1_1" name="MCM1"/>
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<species compartment="cell_1" id="SSA1_1" name="SSA1"/>
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<species compartment="cell_1" id="CLN3_1" initialConcentration="0.004" name="CLN3">
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  </notes>
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<species compartment="cell_1" id="Vppf6_1" name="Vppf6"/>
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<species compartment="cell_1" id="Vd2f6_1" name="Vd2f6"/>
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<species compartment="cell_1" id="Vpclnw_1" name="Vpclnw"/>
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<species compartment="cell_1" id="Vppase_1" name="Vppase"/>
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<species compartment="nucleus_1" id="SWI6_1" initialConcentration="30.0" name="SWI6"/>
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<species compartment="nucleus_1" id="MBP1_1" initialConcentration="5.5" name="MBP1">
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  </notes>
</species>
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  </notes>
</species>
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  </notes>
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<species compartment="cytoplasm_1" id="SWI4C_1" initialConcentration="0.0" name="SWI4C"/>
name="SWI4PC">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">dep sp</p>
  </notes>
</species>

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name="SBFF6PQ"/>
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name="SWI6QC"/>
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  </notes>
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  <notes>
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  </notes>
</species>
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  </notes>
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<species compartment="cell_1" id="SBFa4_1" name="SBFa4"/>
<species compartment="cell_1" id="SBFa5_1" name="SBFa5"/>
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name="TCYCLE"/>
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<species compartment="cell_1" id="WHI5nucf_1" name="WHI5nucf"/>
<species compartment="cell_1" id="SWI6nucf_1" name="SWI6nucf"/>
<species compartment="cell_1" id="WHI5cycf_1" name="WHI5cycf"/>
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name="MASSBIRTH"/>
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<parameter id="ksf6_1" name="ksf6" value="0.02"/>
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  </notes>
</parameter>
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  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">SWI4-SWI6 formation</p>
  </notes>
</parameter>
<parameter id="kdi46_1" name="kdi46" value="0.5"/>
<parameter id="kasws_1" name="kasws" value="30.0">
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  </notes>
</parameter>
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  </notes>
</parameter>
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  </notes>
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  <notes>
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  </notes>
</parameter>
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        </assignmentRule>
        <assignmentRule variable="T6_2">

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math:ci>

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```


\times
 1.0
 WSB56P_1
 \times
 1.0
 WSB5P_1
 \times
 1.0
 WSB6PQ_1
 \times
 1.0
 WSB6P_1
 \times
 1.0
 WSB_1
 \times
 1.0
 WSF45P_1
 \times
 1.0
 WSF46PQ_1
 \times
 1.0
 WSF46P_1
 \times
 1.0
 WSF4P_1
 \times
 1.0
 WSF56P_1
 \times
 1.0
 WSF5P_1
 \times
 1.0

WHI5C_1

$\times 4.0$

WHI5PC_1

$\times 1.0$

WHI5PN_1

$\times 1.0$

WHI5_1

$\times 1.0$

WMB_1

$\times 1.0$

WSB56P_1

$\times 1.0$

WSB5P_1

$\times 1.0$

WSB6PQ_1

$\times 1.0$

WSB6P_1

$\times 1.0$

WSB_1

$\times 1.0$

WSF45P_1

$\times 1.0$

WSF46PQ_1

```

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                  <math:times/>
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    </assignmentRule>
  </math:math>

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```

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```

WSB6PQ_1

$\times 1.0$

WSB6P_1

$\times 1.0$

WSB_1

$\times 1.0$

WSF45P_1

$\times 1.0$

WSF46PQ_1

$\times 1.0$

WSF46P_1

$\times 1.0$

WSF4P_1

$\times 1.0$

WSF56P_1

$\times 1.0$

WSF5P_1

$\times 1.0$

WSF6PQ_1

$\times 1.0$

WSF6P_1

$\times 1.0$

WSF_1

```

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  </math:math>
</assignmentRule>
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      <math:ci>MASS_1</math:ci>
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</assignmentRule>

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                        <math:ci>MASS_1</math:ci>
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                        <math:ci>Vacln3_1</math:ci>
                        <math:ci>SSA1_1</math:ci>
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                    <math:times/>
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                    <math:times/>
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                    <math:ci>CLN3T_1</math:ci>
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                <math:apply>
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                    <math:ci>CDH1_1</math:ci>
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                <math:times/>
                <math:ci>kdb2_3</math:ci>
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                <math:times/>
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                <math:ci>CLN3_1</math:ci>
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              <math:times/>
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        <math:times/>
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        <math:ci>CLN2_1</math:ci>
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              <math:times/>
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              <math:ci>CLB2_1</math:ci>
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      <math:times/>
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      <math:times/>
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      <math:ci>CLB5_1</math:ci>
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      <math:ci>CDC14_1</math:ci>
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    <math:apply>
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      <math:apply>
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        <math:ci>CDH1_1</math:ci>
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    <math:plus/>
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    <math:apply>
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      <math:ci>CLN2_1</math:ci>
    </math:apply>
  </math:apply>
  <math:apply>
    <math:times/>
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    <math:ci>CLB5_1</math:ci>
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  <math:times/>
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  <math:ci>BCK2_1</math:ci>
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efficiencies</p>
</notes>
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              <math:plus/>
              <math:ci>SIC1_1</math:ci>
              <math:ci>C2_1</math:ci>
            </math:apply>
            <math:ci>C5_1</math:ci>
          </math:apply>
          <math:ci>SIC1P_1</math:ci>
        </math:apply>
        <math:ci>C2P_1</math:ci>
      </math:apply>
    </math:math>
  </assignmentRule>

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    <math:ci>C5P_1</math:ci>
  </math:apply>
</math:math>
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        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
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              <math:plus/>
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              <math:ci>F2_1</math:ci>
            </math:apply>
            <math:ci>F5_1</math:ci>
          </math:apply>
          <math:ci>CDC6P_1</math:ci>
        </math:apply>
        <math:ci>F2P_1</math:ci>
      </math:apply>
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    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="CKIT_1">
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      <math:ci>CDC6T_1</math:ci>
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</assignmentRule>
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        <math:plus/>
        <math:apply>
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          <math:apply>
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            <math:apply>
              <math:times/>
              <math:ci>kasbf1_1</math:ci>
              <math:ci>SBFB_1</math:ci>
            </math:apply>
            <math:apply>
              <math:times/>
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              <math:apply>
                <math:plus/>
                <math:ci>SBFB6P_1</math:ci>
                <math:ci>SBFB6PQ_1</math:ci>
              </math:apply>
            </math:apply>
          </math:apply>
          <math:times/>
          <math:ci>kasbf4_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </math:math>
  <math:times/>
  <math:ci>kasbf4_1</math:ci>
  <math:apply>
    <math:plus/>
  </math:math>
</assignmentRule>

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        <math:ci>WSB6P_1</math:ci>
        <math:ci>WSB6PQ_1</math:ci>
    </math:apply>
</math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:ci>kasbf5_1</math:ci>
    <math:ci>WSB5P_1</math:ci>
</math:apply>
</math:apply>
<math:apply>
    <math:times/>
    <math:ci>kasbf6_1</math:ci>
    <math:ci>SWI4B_1</math:ci>
</math:apply>
</math:apply>
</math:math>
</assignmentRule>
<assignmentRule variable="MBFa1_1">
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        <math:ci>MBFa_1</math:ci>
    </math:math>
</assignmentRule>
<assignmentRule variable="SWI6CTOT_1">
    <math:math>
        <math:apply>
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            <math:apply>
                <math:plus/>
                <math:ci>SWI6C_1</math:ci>
                <math:ci>SWI6QC_1</math:ci>
            </math:apply>
            <math:ci>SWI6PQC_1</math:ci>
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    </math:math>
</assignmentRule>
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            <math:ci>SBFB_1</math:ci>
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            <math:apply>
                <math:plus/>
                <math:ci>SBFB6P_1</math:ci>
                <math:ci>SBFB6PQ_1</math:ci>
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        </math:apply>
    </math:math>
</assignmentRule>
<assignmentRule variable="SBFa4_1">
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        <math:apply>
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            <math:apply>
                <math:plus/>
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                <math:ci>WSB6PQ_1</math:ci>
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        </math:apply>
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</assignmentRule>

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    </math:apply>
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</math:math>
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  </math:math>
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    <math:apply>
      <math:times/>
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      <math:ci>SWI4B_1</math:ci>
    </math:apply>
  </math:math>
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      <math:piece>
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        <math:apply>
          <math:lt/>
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          <math:cn>1.0E-8</math:cn>
        </math:apply>
      </math:piece>
      <math:otherwise>
        <math:apply>
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            <math:minus/>
            <math:ci>T4_2</math:ci>
            <math:apply>
              <math:times/>
              <math:cn>4.0</math:cn>
              <math:apply>
                <math:plus/>
                <math:ci>SWI4C_1</math:ci>
                <math:ci>SWI4PC_1</math:ci>
              </math:apply>
            </math:apply>
          </math:apply>
          <math:ci>T4_2</math:ci>
        </math:apply>
      </math:otherwise>
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  </math:math>
</assignmentRule>
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    <math:piecewise>
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        <math:apply>
          <math:lt/>
          <math:ci>T3_2</math:ci>
          <math:cn>1.0E-8</math:cn>
        </math:apply>
      </math:piece>
      <math:otherwise>
        <math:apply>

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    <math:divide/>
    <math:apply>
      <math:minus/>
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      <math:apply>
        <math:times/>
        <math:cn>4.0</math:cn>
        <math:apply>
          <math:plus/>
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          <math:ci>WHI5PC_1</math:ci>
        </math:apply>
      </math:apply>
    </math:apply>
    <math:ci>T3_2</math:ci>
  </math:apply>
</math:otherwise>
</math:piecewise>
</math:math>
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        <math:apply>
          <math:lt/>
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          <math:cn>1.0E-8</math:cn>
        </math:apply>
      </math:piece>
      <math:otherwise>
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            <math:ci>T0_2</math:ci>
            <math:apply>
              <math:times/>
              <math:cn>4.0</math:cn>
              <math:apply>
                <math:plus/>
                <math:apply>
                  <math:plus/>
                  <math:ci>SWI6C_1</math:ci>
                  <math:ci>SWI6QC_1</math:ci>
                </math:apply>
              <math:ci>SWI6PQC_1</math:ci>
            </math:apply>
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        </math:apply>
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    </math:piecewise>
  </math:math>
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    <math:apply>
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      <math:ci>WHI5nucf_1</math:ci>
    </math:apply>
  </math:math>
</assignmentRule>
<assignmentRule variable="CLN310x_1">
  <math:math>

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    <math:apply>
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      <math:cn>10.0</math:cn>
      <math:ci>CLN3_1</math:ci>
    </math:apply>
  </math:math>
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  <reaction fast="false" id="reaction_0" name="Growth">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="MASS_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:apply>
            <math:times/>
            <math:apply>
              <math:times/>
              <math:ci>mu_1</math:ci>
              <math:ci>MASS_1</math:ci>
            </math:apply>
            <math:apply>
              <math:minus/>
              <math:cn>1.0</math:cn>
              <math:apply>
                <math:divide/>
                <math:ci>MASS_1</math:ci>
                <math:ci>MAXMASS_1</math:ci>
              </math:apply>
            </math:apply>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_10" name="Other Cyclin regulation">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
      </annotation>
    </reaction>
    <reaction fast="false" id="reaction_1" name="reaction_1">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
      </annotation>
      <listOfProducts>
        <speciesReference species="CLN2_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="SBFact_1"/>
        <modifierSpeciesReference species="MBFact_1"/>
      </listOfModifiers>
      <kineticLaw>

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    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:ci>ksn2_1</math:ci>
            <math:apply>
              <math:times/>
              <math:ci>ksn2_2</math:ci>
              <math:ci>SBFact_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
        <math:apply>
          <math:times/>
          <math:ci>ksn2_3</math:ci>
          <math:ci>MBFact_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_2" name="reaction_2">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="CLN2_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdn2_1</math:ci>
        <math:ci>CLN2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_3" name="reaction_3">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="CLB5_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="SBFact_1"/>
    <modifierSpeciesReference species="MBFact_1"/>
    <modifierSpeciesReference species="MASS_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:times/>
          <math:apply>

```

```

        <math:plus/>
        <math:apply>
          <math:plus/>
          <math:ci>ksb5_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ksb5_2</math:ci>
            <math:ci>SBFact_1</math:ci>
          </math:apply>
        </math:apply>
        <math:apply>
          <math:times/>
          <math:ci>ksb5_3</math:ci>
          <math:ci>MBFact_1</math:ci>
        </math:apply>
      </math:apply>
      <math:ci>MASS_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_4" name="reaction_4">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="CLB5_1"/>
  </listOfReactants>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb5_2"/>
  </listOfModifiers>
  <kineticLaw>
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        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdb5_2</math:ci>
        <math:ci>CLB5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_5" name="reaction_5">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="CLB2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="MCM1_1"/>
    <modifierSpeciesReference species="MASS_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:times/>
          <math:apply>

```

```

        <math:plus/>
        <math:ci>ksb2_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ksb2_2</math:ci>
          <math:ci>MCM1_1</math:ci>
        </math:apply>
      </math:apply>
      <math:ci>MASS_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_6" name="reaction_6">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
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jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
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    <speciesReference species="CLB2_1"/>
  </listOfReactants>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb2_1"/>
  </listOfModifiers>
  <kineticLaw>
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        <math:ci>Mass_Action_1_1</math:ci>
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        <math:ci>CLB2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_8" name="SIC1 REGLN OF CLBS">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_9" name="reaction_9">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="SIC1_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="SWI5_1"/>
  </listOfModifiers>
  <kineticLaw>
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      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:ci>ksc1_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

```

```

                <math:times/>
                <math:ci>ksc1_2</math:ci>
                <math:ci>SWI5_1</math:ci>
            </math:apply>
        </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_10" name="reaction_10">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="SIC1_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdc1_1</math:ci>
                <math:ci>SIC1_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_11" name="reaction_11">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SIC1_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SIC1P_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="Vkpc1_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
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                <math:ci>Vkpc1_1</math:ci>
                <math:ci>SIC1_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
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    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SIC1P_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SIC1_1"/>
    </listOfProducts>

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<listOfModifiers>
  <modifierSpeciesReference species="Vppc1_1"/>
</listOfModifiers>
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    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vppc1_1</math:ci>
      <math:ci>SIC1P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
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jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SIC1P_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
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        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kd3c1_1</math:ci>
        <math:ci>SIC1P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_14" name="reaction_14">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="CLB2_1"/>
    <speciesReference species="SIC1_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="C2_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasb2_1</math:ci>
        <math:ci>CLB2_1</math:ci>
        <math:ci>SIC1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_15" name="reaction_15">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="C2_1"/>
  </listOfReactants>

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    <listOfProducts>
      <speciesReference species="CLB2_1"/>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdib2_1</math:ci>
          <math:ci>C2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_16" name="reaction_16">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="CLB5_1"/>
      <speciesReference species="SIC1_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="C5_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_2_1</math:ci>
          <math:ci>kasb5_1</math:ci>
          <math:ci>CLB5_1</math:ci>
          <math:ci>SIC1_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_17" name="reaction_17">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CLB5_1"/>
      <speciesReference species="SIC1_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdib5_1</math:ci>
          <math:ci>C5_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_18" name="reaction_18">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2_1"/>
    </listOfReactants>
    <listOfProducts>

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    <speciesReference species="C2P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkpc1_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkpc1_1</math:ci>
        <math:ci>C2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_19" name="reaction_19">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="C2P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="C2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppc1_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppc1_1</math:ci>
        <math:ci>C2P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_20" name="reaction_20">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="C5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="C5P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkpc1_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkpc1_1</math:ci>
        <math:ci>C5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_21" name="reaction_21">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>

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<listOfReactants>
  <speciesReference species="C5P_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="C5_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vppc1_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vppc1_1</math:ci>
      <math:ci>C5P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_22" name="reaction_22">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="C2_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SIC1_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdb2_1</math:ci>
        <math:ci>C2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_23" name="reaction_23">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="C5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SIC1_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb5_2"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdb5_2</math:ci>
        <math:ci>C5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_24" name="reaction_24">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CLB2_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kd3c1_1</math:ci>
          <math:ci>C2P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_25" name="reaction_25">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C5P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CLB5_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kd3c1_1</math:ci>
          <math:ci>C5P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_26" name="reaction_26">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="C2P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SIC1P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vdb2_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>Vdb2_1</math:ci>
          <math:ci>C2P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

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<reaction fast="false" id="reaction_27" name="reaction_27">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="C5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SIC1P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb5_2"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdb5_2</math:ci>
        <math:ci>C5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_28" name="CDC6 REGLN OF CLBS">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_29" name="reaction_29">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="CDC6_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="SWI5_1"/>
    <modifierSpeciesReference species="SBFact_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:ci>ksf6_1</math:ci>
            <math:apply>
              <math:times/>
              <math:ci>ksf6_2</math:ci>
              <math:ci>SWI5_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
        <math:apply>
          <math:times/>
          <math:ci>ksf6_3</math:ci>
          <math:ci>SBFact_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>

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</reaction>
<reaction fast="false" id="reaction_30" name="reaction_30">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC6_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdf6_1</math:ci>
        <math:ci>CDC6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_31" name="reaction_31">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkp6_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkp6_1</math:ci>
        <math:ci>CDC6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_32" name="reaction_32">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC6_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp6_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp6_1</math:ci>
        <math:ci>CDC6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_33" name="reaction_33">

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    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="CDC6P_1"/>
    </listOfReactants>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kd3f6_1</math:ci>
          <math:ci>CDC6P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_34" name="reaction_34">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="CLB2_1"/>
      <speciesReference species="CDC6_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="F2_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_2_1</math:ci>
          <math:ci>kasf2_1</math:ci>
          <math:ci>CLB2_1</math:ci>
          <math:ci>CDC6_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_35" name="reaction_35">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
      <speciesReference species="F2_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="CLB2_1"/>
      <speciesReference species="CDC6_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kdif2_1</math:ci>
          <math:ci>F2_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_36" name="reaction_36">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>

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    <speciesReference species="CLB5_1"/>
    <speciesReference species="CDC6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="F5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasf5_1</math:ci>
        <math:ci>CLB5_1</math:ci>
        <math:ci>CDC6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_37" name="reaction_37">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CLB5_1"/>
    <speciesReference species="CDC6_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdif5_1</math:ci>
        <math:ci>F5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_38" name="reaction_38">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F2_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="F2P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkp6_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkp6_1</math:ci>
        <math:ci>F2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_39" name="reaction_39">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>

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<listOfReactants>
  <speciesReference species="F2P_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="F2_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vppf6_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vppf6_1</math:ci>
      <math:ci>F2P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_40" name="reaction_40">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="F5P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkp6_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkp6_1</math:ci>
        <math:ci>F5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_41" name="reaction_41">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="F5_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppf6_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppf6_1</math:ci>
        <math:ci>F5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_42" name="reaction_42">

```

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      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="F2_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="CDC6_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="Vdb2_1"/>
      </listOfModifiers>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>Vdb2_1</math:ci>
            <math:ci>F2_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_43" name="reaction_43">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
      </annotation>
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
      </annotation>
      <listOfReactants>
        <speciesReference species="F5_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="CDC6_1"/>
      </listOfProducts>
      <listOfModifiers>
        <modifierSpeciesReference species="Vdb5_2"/>
      </listOfModifiers>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>Vdb5_2</math:ci>
            <math:ci>F5_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
    <reaction fast="false" id="reaction_44" name="reaction_44">
      <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
      </annotation>
      <listOfReactants>
        <speciesReference species="F2P_1"/>
      </listOfReactants>
      <listOfProducts>
        <speciesReference species="CLB2_1"/>
      </listOfProducts>
      <kineticLaw>
        <math:math>
          <math:apply>
            <math:ci>Mass_Action_1_1</math:ci>
            <math:ci>kd3f6_1</math:ci>
            <math:ci>F2P_1</math:ci>
          </math:apply>
        </math:math>
      </kineticLaw>
    </reaction>
  </listOfReactions>

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    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_45" name="reaction_45">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CLB5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kd3f6_1</math:ci>
        <math:ci>F5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_46" name="reaction_46">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="F2P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdb2_1</math:ci>
        <math:ci>F2P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_47" name="reaction_47">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="F5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdb5_2"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>

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        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdb5_2</math:ci>
        <math:ci>F5P_1</math:ci>
    </math:apply>
</math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_48" name="SWI5 REGULATION">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_49" name="reaction_49">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfProducts>
        <speciesReference species="SWI5_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="MCM1_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:apply>
                    <math:plus/>
                    <math:ci>ksswi_1</math:ci>
                    <math:apply>
                        <math:times/>
                        <math:ci>ksswi_2</math:ci>
                        <math:ci>MCM1_1</math:ci>
                    </math:apply>
                </math:apply>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_50" name="reaction_50">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI5_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdswi_1</math:ci>
                <math:ci>SWI5_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_51" name="reaction_51">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI5_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SWI5P_1"/>
    </listOfProducts>

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</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="CLB2_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>kiswi_1</math:ci>
        <math:ci>CLB2_1</math:ci>
      </math:apply>
      <math:ci>SWI5_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_52" name="reaction_52">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI5_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="CDC14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kaswi_1</math:ci>
          <math:ci>CDC14_1</math:ci>
        </math:apply>
        <math:ci>SWI5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_53" name="reaction_53">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI5P_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdswi_1</math:ci>
        <math:ci>SWI5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_54" name="IEP REGULATION">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>

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</reaction>
<reaction fast="false" id="reaction_55" name="reaction_55">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Michaelis_Menten" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="IE_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="IEP_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vaiep_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Michaelis_Menten_1</math:ci>
        <math:cn>1.0</math:cn>
        <math:ci>Jaiep_1</math:ci>
        <math:ci>Vaiep_1</math:ci>
        <math:ci>IE_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_56" name="reaction_56">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Michaelis_Menten" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="IEP_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="IE_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Michaelis_Menten_1</math:ci>
        <math:cn>1.0</math:cn>
        <math:ci>Jiiep_1</math:ci>
        <math:ci>kiiep_1</math:ci>
        <math:ci>IEP_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_57" name="CDC20 REGULATION">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_58" name="reaction_58">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="CDC20i_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="MCM1_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>

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    <math:apply>
      <math:ci>Mass_Action_0_1</math:ci>
      <math:apply>
        <math:plus/>
        <math:ci>ks20_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ks20_2</math:ci>
          <math:ci>MCM1_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_59" name="reaction_59">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC20i_1"/>
  </listOfReactants>
  <listOfModifiers>
    <modifierSpeciesReference species="Vd20_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vd20_1</math:ci>
        <math:ci>CDC20i_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_60" name="reaction_60">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC20i_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC20_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="IEP_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:ci>ka20_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ka20_2</math:ci>
            <math:ci>IEP_1</math:ci>
          </math:apply>
        </math:apply>
        <math:ci>CDC20i_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_61" name="reaction_61">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="CDC20_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="CDC20i_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="MAD2_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>MAD2_1</math:ci>
                <math:ci>CDC20_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_62" name="reaction_62">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="CDC20_1"/>
    </listOfReactants>
    <listOfModifiers>
        <modifierSpeciesReference species="Vd20_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vd20_1</math:ci>
                <math:ci>CDC20_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_63" name="CDH1 REGULATION">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_64" name="reaction_64">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfProducts>
        <speciesReference species="CDH1_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>

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        <math:ci>kscdh_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_65" name="reaction_65">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDH1_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdcdh_1</math:ci>
        <math:ci>CDH1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_66" name="reaction_66">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Michaelis_Menten" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDH1_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDH1i_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vicdh_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Michaelis_Menten_1</math:ci>
        <math:cn>1.0</math:cn>
        <math:ci>Jicdh_1</math:ci>
        <math:ci>Vicdh_1</math:ci>
        <math:ci>CDH1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_67" name="reaction_67">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Michaelis_Menten" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDH1i_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDH1_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vacdh_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Michaelis_Menten_1</math:ci>
        <math:cn>1.0</math:cn>

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        <math:ci>Jacdh_1</math:ci>
        <math:ci>Vacdh_1</math:ci>
        <math:ci>CDH1i_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_68" name="reaction_68">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDH1i_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdcdh_1</math:ci>
        <math:ci>CDH1i_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_69" name="CDC14-NET1">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_70" name="reaction_70">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="CDC14_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:ci>ks14_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_71" name="reaction_71">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC14_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kd14_1</math:ci>
        <math:ci>CDC14_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_72" name="reaction_72">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></

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jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="NET1_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:ci>ksnet_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_73" name="reaction_73">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="NET1_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdnet_1</math:ci>
        <math:ci>NET1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_74" name="reaction_74">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="NET1_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="NET1P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkpnet_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vkpnet_1</math:ci>
        <math:ci>NET1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_75" name="reaction_75">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="NET1P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="NET1_1"/>
  </listOfProducts>
  <listOfModifiers>

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        <modifierSpeciesReference species="Vppnet_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>Vppnet_1</math:ci>
                <math:ci>NET1P_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_76" name="reaction_76">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="NET1P_1"/>
    </listOfReactants>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdnet_1</math:ci>
                <math:ci>NET1P_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_72" name="reaction_72">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_2" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="CDC14_1"/>
        <speciesReference species="NET1_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="RENT_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_2_1</math:ci>
                <math:ci>kasrent_1</math:ci>
                <math:ci>CDC14_1</math:ci>
                <math:ci>NET1_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_73" name="reaction_73">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="RENT_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="CDC14_1"/>
        <speciesReference species="NET1_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>

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        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdirent_1</math:ci>
        <math:ci>RENT_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_79" name="reaction_79">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC14_1"/>
    <speciesReference species="NET1P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="REntp_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasrentp_1</math:ci>
        <math:ci>CDC14_1</math:ci>
        <math:ci>NET1P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_80" name="reaction_80">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="REntp_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC14_1"/>
    <speciesReference species="NET1P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdirentp_1</math:ci>
        <math:ci>REntp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_81" name="reaction_81">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="RENT_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="REntp_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vkpnet_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>

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    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vkpnet_1</math:ci>
      <math:ci>RENT_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_82" name="reaction_82">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="RENTP_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="RENT_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppnet_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppnet_1</math:ci>
        <math:ci>RENTP_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_83" name="reaction_83">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="RENT_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC14_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdnet_1</math:ci>
        <math:ci>RENT_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_84" name="reaction_84">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="RENTP_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC14_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>

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        <math:ci>kdnet_1</math:ci>
        <math:ci>REntp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_85" name="reaction_85">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="REnt_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="NET1_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kd14_1</math:ci>
        <math:ci>REnt_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_86" name="reaction_86">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="REntP_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="NET1P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kd14_1</math:ci>
        <math:ci>REntP_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_87" name="TEM1 REGULATION">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_88" name="reaction_88">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Michaelis_Menten" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="TEM1GDP_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="TEM1GTP_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="LTE1_1"/>
  </listOfModifiers>
  <kineticLaw>

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    <math:math>
      <math:apply>
        <math:ci>Michaelis_Menten_1</math:ci>
        <math:cn>1.0</math:cn>
        <math:ci>Jatem_1</math:ci>
        <math:ci>LTE1_1</math:ci>
        <math:ci>TEM1GDP_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_89" name="reaction_89">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Michaelis_Menten" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="TEM1GTP_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="TEM1GDP_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="BUB2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Michaelis_Menten_1</math:ci>
        <math:cn>1.0</math:cn>
        <math:ci>Jitem_1</math:ci>
        <math:ci>BUB2_1</math:ci>
        <math:ci>TEM1GTP_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_90" name="CDC15 REGULATION">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_91" name="reaction_91">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="CDC15i_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="CDC15_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="TEM1GDP_1"/>
    <modifierSpeciesReference species="TEM1GTP_1"/>
    <modifierSpeciesReference species="CDC14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:times/>

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        <math:ci>ka15_1</math:ci>
        <math:ci>TEM1GDP_1</math:ci>
    </math:apply>
    <math:apply>
        <math:times/>
        <math:ci>ka15_2</math:ci>
        <math:ci>TEM1GTP_1</math:ci>
    </math:apply>
    </math:apply>
    <math:apply>
        <math:times/>
        <math:ci>ka15_3</math:ci>
        <math:ci>CDC14_1</math:ci>
    </math:apply>
    </math:apply>
    <math:ci>CDC15i_1</math:ci>
    </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_92" name="reaction_92">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfReactants>
        <speciesReference species="CDC15_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="CDC15i_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>ki15_1</math:ci>
                <math:ci>CDC15_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_96" name="PDS1-ESP1">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_97" name="reaction_97">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
        <speciesReference species="PDS1_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_0_1</math:ci>
                <math:ci>kspds_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_98" name="reaction_98">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="PDS1_1"/>
  </listOfReactants>
  <listOfModifiers>
    <modifierSpeciesReference species="Vdpds_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vdpds_1</math:ci>
        <math:ci>PDS1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_99" name="reaction_99">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="PDS1_1"/>
    <speciesReference species="ESP1_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="PE_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasesp_1</math:ci>
        <math:ci>PDS1_1</math:ci>
        <math:ci>ESP1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_100" name="reaction_100">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="PE_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="PDS1_1"/>
    <speciesReference species="ESP1_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiesp_1</math:ci>
        <math:ci>PE_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_101" name="reaction_101">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>

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</annotation>
<listOfReactants>
  <speciesReference species="PE_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="ESP1_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vdpds_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vdpds_1</math:ci>
      <math:ci>PE_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_102" name="MARKERS - ORI, BUD, SPN">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_103" name="reaction_103">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
<listOfProducts>
  <speciesReference species="ORI_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="CLB5_1"/>
  <modifierSpeciesReference species="CLB2_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_0_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ksori_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:times/>
            <math:ci>eorib5_1</math:ci>
            <math:ci>CLB5_1</math:ci>
          </math:apply>
          <math:apply>
            <math:times/>
            <math:ci>eorib2_1</math:ci>
            <math:ci>CLB2_1</math:ci>
          </math:apply>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_104" name="reaction_104">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
<listOfReactants>

```

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    <speciesReference species="ORI_1"/>
  </listOfReactants>
</kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdori_1</math:ci>
      <math:ci>ORI_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_105" name="reaction_105">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="BUD_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="CLN2_1"/>
    <modifierSpeciesReference species="CLN3_1"/>
    <modifierSpeciesReference species="CLB5_1"/>
  </listOfModifiers>
</kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_0_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ksbud_1</math:ci>
        <math:apply>
          <math:plus/>
          <math:apply>
            <math:plus/>
            <math:apply>
              <math:times/>
              <math:ci>ebudn2_1</math:ci>
              <math:ci>CLN2_1</math:ci>
            </math:apply>
            <math:apply>
              <math:times/>
              <math:ci>ebudn3_1</math:ci>
              <math:ci>CLN3_1</math:ci>
            </math:apply>
          </math:apply>
        </math:apply>
      </math:apply>
      <math:times/>
      <math:ci>ebudb5_1</math:ci>
      <math:ci>CLB5_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_106" name="reaction_106">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="BUD_1"/>
  </listOfReactants>
</kineticLaw>
  <math:math>

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    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdbud_1</math:ci>
      <math:ci>BUD_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_107" name="reaction_107">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfProducts>
    <speciesReference species="SPN_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="CLB2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:divide/>
          <math:apply>
            <math:times/>
            <math:ci>kssp_1</math:ci>
            <math:ci>CLB2_1</math:ci>
          </math:apply>
          <math:apply>
            <math:plus/>
            <math:ci>Jspn_1</math:ci>
            <math:ci>CLB2_1</math:ci>
          </math:apply>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
<reaction fast="false" id="reaction_108" name="reaction_108">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <listOfReactants>
    <speciesReference species="SPN_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdspn_1</math:ci>
        <math:ci>SPN_1</math:ci>
      </math:math>
    </kineticLaw>
  </reaction>
<reaction fast="false" id="reaction_109" name="CHKPT PROTEINS - MAD2, LTE1, BUB2">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_110" name="reaction_110">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>

```

```

    <listOfProducts>
      <speciesReference species="MAD2_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_111" name="reaction_111">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfProducts>
      <speciesReference species="LTE1_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_112" name="reaction_112">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <listOfProducts>
      <speciesReference species="BUB2_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_113" name="SBF complexes=====">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_114" name="free forms" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_114" name="01f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SWI4_1"/>

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    <speciesReference species="SWI6_1"/>
  </listOfReactants>
</listOfProducts>
  <speciesReference species="SBFF_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_2_1</math:ci>
      <math:ci>kas46_1</math:ci>
      <math:ci>SWI4_1</math:ci>
      <math:ci>SWI6_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_115" name="01r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</listOfReactants>
  <speciesReference species="SBFF_1"/>
</listOfReactants>
</listOfProducts>
  <speciesReference species="SWI4_1"/>
  <speciesReference species="SWI6_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdi46_1</math:ci>
      <math:ci>SBFF_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_116" name="02f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</listOfReactants>
  <speciesReference species="WHI5_1"/>
  <speciesReference species="SBFF_1"/>
</listOfReactants>
</listOfProducts>
  <speciesReference species="WSF_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_2_1</math:ci>
      <math:ci>kasws_1</math:ci>
      <math:ci>WHI5_1</math:ci>
      <math:ci>SBFF_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_117" name="02r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>

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</annotation>
<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="WSF_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WHI5_1"/>
  <speciesReference species="SBFF_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdiws_1</math:ci>
      <math:ci>WSF_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_119" name="Prom bound forms" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_118" name="03f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
<listOfReactants>
  <speciesReference species="SBFF_1"/>
  <speciesReference species="PROM2_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFB_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_2_1</math:ci>
      <math:ci>kasprom_1</math:ci>
      <math:ci>SBFF_1</math:ci>
      <math:ci>PROM2_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_119" name="03r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
<listOfReactants>
  <speciesReference species="SBFB_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFF_1"/>
  <speciesReference species="PROM2_1"/>
</listOfProducts>

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<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdiprom_1</math:ci>
      <math:ci>SBFB_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_120" name="04f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasprom_1</math:ci>
        <math:ci>WSF_1</math:ci>
        <math:ci>PROM2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_121" name="04r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiprom_1</math:ci>
        <math:ci>WSB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_122" name="05f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5_1"/>
  </listOfReactants>

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    <speciesReference species="SBFB_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WSB_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_2_1</math:ci>
      <math:ci>kasws_1</math:ci>
      <math:ci>WHI5_1</math:ci>
      <math:ci>SBFB_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_123" name="05r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFB_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiws_1</math:ci>
        <math:ci>WSB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_131" name="SWI4B FORM">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_132" name="09f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4F_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="BCK2_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ksbs4_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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        <math:ci>BCK2_1</math:ci>
        </math:apply>
        <math:ci>SWI4_1</math:ci>
        </math:apply>
    </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_133" name="09r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI4F_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SWI4_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdbs4_1</math:ci>
                <math:ci>SWI4F_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_134" name="10f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI4F_1"/>
        <speciesReference species="PROM2_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SWI4B_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_2_1</math:ci>
                <math:ci>kasprom_1</math:ci>
                <math:ci>SWI4F_1</math:ci>
                <math:ci>PROM2_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_133" name="10r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI4B_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SWI4F_1"/>
        <speciesReference species="PROM2_1"/>
    </listOfProducts>

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</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdiprom_1</math:ci>
      <math:ci>SWI4B_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_136" name="57f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4B_1"/>
    <speciesReference species="WHI5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="W4B_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasw4_1</math:ci>
        <math:ci>SWI4B_1</math:ci>
        <math:ci>WHI5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_137" name="57r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="W4B_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4B_1"/>
    <speciesReference species="WHI5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiw4_1</math:ci>
        <math:ci>W4B_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_138" name="58" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>

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    <speciesReference species="W4B_1"/>
  </listOfReactants>
</listOfProducts>
  <speciesReference species="SWI4B_1"/>
  <speciesReference species="WHI5PN_1"/>
</listOfProducts>
</listOfModifiers>
  <modifierSpeciesReference species="Vpclnw_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef5p_1</math:ci>
        <math:ci>Vpclnw_1</math:ci>
      </math:apply>
      <math:ci>W4B_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_140" name="CLN3 P'lation Free forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_141" name="11f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5PN_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
          <math:ci>Vpclnw_1</math:ci>
        </math:apply>
        <math:ci>WHI5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_142" name="11r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>

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<listOfReactants>
  <speciesReference species="WHI5PN_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WHI5_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vppcln_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vppcln_1</math:ci>
      <math:ci>WHI5PN_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_136" name="12f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>SWI6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_137" name="12r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI6_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>

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        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>SWI6P_1</math:ci>
    </math:apply>
</math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_136" name="13f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>SBFF_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_137" name="13r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>SBFF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_143" name="14f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="WSF_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WSF5P_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclnw_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef5p_1</math:ci>
        <math:ci>Vpclnw_1</math:ci>
      </math:apply>
      <math:ci>WSF_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_144" name="14r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSF5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_149" name="15">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">complex unstable</p>
  </notes>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF_1"/>
    <speciesReference species="WHI5PN_1"/>
  </listOfProducts>

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<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdiwp_1</math:ci>
      <math:ci>WSF5P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_138" name="16f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>WSF_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_139" name="16r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_143" name="17">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF56P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
          <math:ci>Vpclnw_1</math:ci>
        </math:apply>
        <math:ci>WSF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_146" name="18">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">complex unstable</p>
  </notes>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF56P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6P_1"/>
    <speciesReference species="WHI5PN_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiwp_1</math:ci>
        <math:ci>WSF56P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_155" name="CLN3 P'lation bound forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_145" name="19f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>SBFB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_146" name="19r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFB_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>SBFB6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_147" name="20f">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">no dissociation to SBFB+WHI5PN, for Wagner
2009.</p>
  </notes>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB5P_1"/>
  </listOfProducts>

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<listOfModifiers>
  <modifierSpeciesReference species="Vpclnw_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef5p_1</math:ci>
        <math:ci>Vpclnw_1</math:ci>
      </math:apply>
      <math:ci>WSB_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_148" name="20r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSB5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_149" name="21f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
      </math:math>
    </math:math>
  </kineticLaw>
</reaction>

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        <math:ci>WSB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_150" name="21r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSB6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_151" name="22f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB56P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6p_1</math:ci>
          <math:ci>Vpcln_1</math:ci>
        </math:apply>
        <math:ci>WSB5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_152" name="22r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>

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<listOfReactants>
  <speciesReference species="WSB56P_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WSB5P_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vppcln_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vppcln_1</math:ci>
      <math:ci>WSB56P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_151" name="23f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB56P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
          <math:ci>Vpclnw_1</math:ci>
        </math:apply>
        <math:ci>WSB6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_152" name="23r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB56P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>

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        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSB56P_1</math:ci>
    </math:apply>
</math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_156" name="24">
    <notes>
        <p xmlns="http://www.w3.org/1999/xhtml">complex unstable</p>
    </notes>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="WSB56P_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SBFB6P_1"/>
        <speciesReference species="WHI5PN_1"/>
    </listOfProducts>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:ci>kdiwp_1</math:ci>
                <math:ci>WSB56P_1</math:ci>
            </math:apply>
        </math:math>
    </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_167" name="CLB26 P'lation free forms"
reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
</reaction>
<reaction fast="false" id="reaction_153" name="25f">
    <notes>
        <p xmlns="http://www.w3.org/1999/xhtml">Swi6PQ for msn5 export</p>
    </notes>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
        <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
        <speciesReference species="SWI6P_1"/>
    </listOfReactants>
    <listOfProducts>
        <speciesReference species="SWI6PQ_1"/>
    </listOfProducts>
    <listOfModifiers>
        <modifierSpeciesReference species="Vpclb26_1"/>
    </listOfModifiers>
    <kineticLaw>
        <math:math>
            <math:apply>
                <math:ci>Mass_Action_1_1</math:ci>
                <math:apply>
                    <math:times/>

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        <math:ci>ef6q_1</math:ci>
        <math:ci>Vpclb26_1</math:ci>
      </math:apply>
      <math:ci>SWI6P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_154" name="25r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SWI6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_160" name="26f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6q_1</math:ci>
          <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>SBFF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_161" name="26r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>

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<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="SBFF6PQ_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFF6P_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpp14_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vpp14_1</math:ci>
      <math:ci>SBFF6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_166" name="27f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6q_1</math:ci>
          <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>WSF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_167" name="27r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>

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<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vpp14_1</math:ci>
      <math:ci>WSF6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_172" name="CLB26 P'lation bound form"
reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_172" name="28f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFB6PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6q_1</math:ci>
          <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>SBFB6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_197" name="28r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>

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        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SBFB6PQ_1</math:ci>
    </math:apply>
</math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_173" name="29f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB6PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef6q_1</math:ci>
          <math:ci>Vpclb26_1</math:ci>
        </math:apply>
        <math:ci>WSB6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_201" name="29r">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">n rev rxn - modfd 14</p>
  </notes>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSB6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>WSB6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_179" name="0other complex form" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_210" name="30f" reversible="false">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">Assoc Swi4&amp;SWI6P</p>
  </notes>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4_1"/>
    <speciesReference species="SWI6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kas46_1</math:ci>
        <math:ci>SWI4_1</math:ci>
        <math:ci>SWI6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_211" name="30r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4_1"/>
    <speciesReference species="SWI6P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdi46_1</math:ci>
        <math:ci>SBFF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_212" name="31f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4_1"/>
    <speciesReference species="SWI6PQ_1"/>
  </listOfReactants>

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</listOfReactants>
</listOfProducts>
  <speciesReference species="SBFF6PQ_1"/>
</listOfProducts>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_2_1</math:ci>
      <math:ci>kas46_1</math:ci>
      <math:ci>SWI4_1</math:ci>
      <math:ci>SWI6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_213" name="31r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4_1"/>
    <speciesReference species="SWI6PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdi46_1</math:ci>
        <math:ci>SBFF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_184" name="52f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasws_1</math:ci>
        <math:ci>WHI5_1</math:ci>
        <math:ci>SBFF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_185" name="52r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>

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<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="WSF6P_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WHI5_1"/>
  <speciesReference species="SBFF6P_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdiws_1</math:ci>
      <math:ci>WSF6P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_186" name="53f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasws_1</math:ci>
        <math:ci>WHI5_1</math:ci>
        <math:ci>SBFF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_187" name="53r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5_1"/>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiws_1</math:ci>
        <math:ci>WSF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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</reaction>
<reaction fast="false" id="reaction_214" name="54f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="SWI6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF4P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kas46_1</math:ci>
        <math:ci>SWI4P_1</math:ci>
        <math:ci>SWI6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_215" name="54r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF4P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="SWI6_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdi46_1</math:ci>
        <math:ci>SBFF4P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_216" name="55f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="SWI6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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        <math:ci>kas46_1</math:ci>
        <math:ci>SWI4P_1</math:ci>
        <math:ci>SWI6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_217" name="55r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="SWI6P_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdi46_1</math:ci>
        <math:ci>SBFF46P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_218" name="56f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="SWI6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kas46_1</math:ci>
        <math:ci>SWI4P_1</math:ci>
        <math:ci>SWI6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_219" name="56r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
  </listOfProducts>

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    <speciesReference species="SWI6PQ_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdi46_1</math:ci>
        <math:ci>SBFF46PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_159" name="CLB2 P'lation Swi4 free forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_157" name="32f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>SWI4_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_158" name="32r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>

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    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vpp14_1</math:ci>
      <math:ci>SWI4P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_167" name="33f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF4P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>SBFF_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_167" name="33r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF4P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SBFF4P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_176" name="34f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>

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<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="SBFF6P_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFF46P_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclb_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef4p_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
      </math:apply>
      <math:ci>SBFF6P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_177" name="34r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SBFF46P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_178" name="35">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF4P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>

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<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vppcln_1</math:ci>
      <math:ci>SBFF46P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_169" name="36f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>SBFF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_170" name="36r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SBFF46PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_180" name="37f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
</annotation>
<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="SBFF46P_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="SBFF46PQ_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclb26_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef6q_1</math:ci>
        <math:ci>Vpclb26_1</math:ci>
      </math:apply>
      <math:ci>SBFF46P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_181" name="37r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SBFF46PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_178" name="CLB2 P'lation free WSF">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_171" name="38f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>

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</annotation>
<listOfReactants>
  <speciesReference species="WSF_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WSF4P_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclb_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef4p_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
      </math:apply>
      <math:ci>WSF_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_179" name="38r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF4P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>WSF4P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_187" name="39f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF46P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>

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      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>WSF6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_188" name="39r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>WSF46P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_187" name="40">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF4P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>WSF46P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_189" name="41f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>

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<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="WSF6PQ_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WSF46PQ_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclb_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef4p_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
      </math:apply>
      <math:ci>WSF6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_190" name="41r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF6PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>WSF46PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_191" name="42f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF46P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF46PQ_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb26_1"/>
  </listOfModifiers>

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<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef6q_1</math:ci>
        <math:ci>Vpclb26_1</math:ci>
      </math:apply>
      <math:ci>WSF46P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_192" name="42r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF46P_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>WSF46PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_184" name="CLB2 P'lation bound forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_196" name="43">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF4P_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>

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        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>SBFB_1</math:ci>
      </math:math>
    </kineticLaw>
  </reaction>
</reaction fast="false" id="reaction_198" name="44">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB6P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46P_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>SBFB6P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
</reaction fast="false" id="reaction_186" name="45">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFB6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SBFF46PQ_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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        <math:ci>SBFB6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_180" name="46">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF4P_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>WSB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_172" name="47">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB5P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF45P_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>WSB5P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_203" name="48">

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<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
</annotation>
<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="WSB6P_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WSF46P_1"/>
  <speciesReference species="PROM2_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpclb_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>ef4p_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
      </math:apply>
      <math:ci>WSB6P_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_188" name="49">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSB6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WSF46PQ_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef4p_1</math:ci>
          <math:ci>Vpclb_1</math:ci>
        </math:apply>
        <math:ci>WSB6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_197" name="CLB2 P'lation Bck2 forms">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>

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</reaction>
<reaction fast="false" id="reaction_179" name="50">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4B_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4P_1"/>
    <speciesReference species="PROM2_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclb_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpclb_1</math:ci>
        <math:ci>SWI4B_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_181" name="EXPORT/ DISSO">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_182" name="61">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5PN_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5PC_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>MSN5_1</math:ci>
        <math:ci>WHI5PN_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_189" name="62">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF6PQ_1"/>
  </listOfReactants>

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</listOfReactants>
<listOfProducts>
  <speciesReference species="SWI4C_1"/>
  <speciesReference species="SWI6PQC_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>MSN5_1</math:ci>
      <math:ci>SBFF6PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_204" name="63">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SBFF46PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4PC_1"/>
    <speciesReference species="SWI6PQC_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>MSN5_1</math:ci>
        <math:ci>SBFF46PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_207" name="64">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF6PQ_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5C_1"/>
    <speciesReference species="SWI4C_1"/>
    <speciesReference species="SWI6PQC_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>MSN5_1</math:ci>
        <math:ci>WSF6PQ_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_205" name="64">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>

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<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="WSF46PQ_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WHI5C_1"/>
  <speciesReference species="SWI4PC_1"/>
  <speciesReference species="SWI6PQC_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>MSN5_1</math:ci>
      <math:ci>WSF46PQ_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_189" name="66">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WSF45P_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5PC_1"/>
    <speciesReference species="SWI4PC_1"/>
    <speciesReference species="SWI6C_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>MSN5_1</math:ci>
        <math:ci>WSF45P_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_185" name="DePlation in cyto">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_208" name="67">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4PC_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4C_1"/>
  </listOfProducts>
  <listOfModifiers>

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    <modifierSpeciesReference species="Vppase_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppase_1</math:ci>
        <math:ci>SWI4PC_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_186" name="68">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI6PQC_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI6QC_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppase_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppase_1</math:ci>
        <math:ci>SWI6PQC_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_181" name="69">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI6QC_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI6C_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpp14_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpp14_1</math:ci>
        <math:ci>SWI6QC_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_187" name="70">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>

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<annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
  <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="WHI5PC_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="WHI5C_1"/>
</listOfProducts>
<listOfModifiers>
  <modifierSpeciesReference species="Vpp14_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>Vpp14_1</math:ci>
      <math:ci>WHI5PC_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_188" name="QUICK REIMPORT-----">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_189" name="71">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI4C_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI4_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kimp_1</math:ci>
        <math:ci>SWI4C_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_190" name="72">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="SWI6C_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="SWI6_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kimp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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        <math:ci>SWI6C_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_191" name="73">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WHI5C_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kimp_1</math:ci>
        <math:ci>WHI5C_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_221" name="reaction_221">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="" jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_193" name="MBF COMPLEXES===== ">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_196" name="76f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBP1_1"/>
    <speciesReference species="SWI6_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFF_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasmbf_1</math:ci>
        <math:ci>MBP1_1</math:ci>
        <math:ci>SWI6_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_197" name="76r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
</annotation>
<listOfReactants>
  <speciesReference species="MBFF_1"/>
</listOfReactants>
<listOfProducts>
  <speciesReference species="MBP1_1"/>
  <speciesReference species="SWI6_1"/>
</listOfProducts>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kdimbf_1</math:ci>
      <math:ci>MBFF_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_198" name="77f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFF_1"/>
    <speciesReference species="PROM5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFi_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kasprom_1</math:ci>
        <math:ci>MBFF_1</math:ci>
        <math:ci>PROM5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_199" name="77r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFi_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFF_1"/>
    <speciesReference species="PROM5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiprom_1</math:ci>
        <math:ci>MBFi_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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<reaction fast="false" id="reaction_200" name="78f">
  <notes>
    <p xmlns="http://www.w3.org/1999/xhtml">Make Vpcln for MBF differ from SBF</p>
  </notes>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFi_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFa_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnm_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vpclnm_1</math:ci>
        <math:ci>MBFi_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_201" name="78r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFa_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFi_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vppcln_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>Vppcln_1</math:ci>
        <math:ci>MBFa_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_202" name="79f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFa_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFp_1"/>
  </listOfProducts>

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<listOfModifiers>
  <modifierSpeciesReference species="CLB2_1"/>
</listOfModifiers>
<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:apply>
        <math:times/>
        <math:ci>kimbf01_1</math:ci>
        <math:ci>CLB2_1</math:ci>
      </math:apply>
      <math:ci>MBFa_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_203" name="79r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFp_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFa_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kmbf10_1</math:ci>
        <math:ci>MBFp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_204" name="80f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFa_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFo_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="NRM1_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kimbf02_1</math:ci>
          <math:ci>NRM1_1</math:ci>
        </math:apply>
        <math:ci>MBFa_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>

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    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_205" name="80r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="MBFo_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="MBFa_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:ci>kmbf20_1</math:ci>
          <math:ci>MBFo_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_207" name="82f">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="MBFo_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="MBFpo_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="CLB2_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>kimbf01_1</math:ci>
            <math:ci>CLB2_1</math:ci>
          </math:apply>
          <math:ci>MBFo_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_209" name="82r">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="MBFpo_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="MBFo_1"/>
    </listOfProducts>
  </reaction>

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<kineticLaw>
  <math:math>
    <math:apply>
      <math:ci>Mass_Action_1_1</math:ci>
      <math:ci>kmbf10_1</math:ci>
      <math:ci>MBFpo_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_206" name="81f">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFp_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFpo_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="NRM1_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>kimbf02_1</math:ci>
          <math:ci>NRM1_1</math:ci>
        </math:apply>
        <math:ci>MBFp_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_208" name="81r">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFpo_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFp_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kmbf20_1</math:ci>
        <math:ci>MBFpo_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_234" name="83f" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_2"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="MBFa_1"/>
    <speciesReference species="WHI5_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WMB_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_2_1</math:ci>
        <math:ci>kaswm_1</math:ci>
        <math:ci>MBFa_1</math:ci>
        <math:ci>WHI5_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_236" name="83r" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WMB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="MBFa_1"/>
    <speciesReference species="WHI5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdiwm_1</math:ci>
        <math:ci>WMB_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_236" name="84" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="WMB_1"/>
  </listOfReactants>
  <listOfProducts>
    <speciesReference species="WHI5PN_1"/>
    <speciesReference species="MBFa_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="Vpclnw_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ef5p_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>

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        <math:ci>Vpclnw_1</math:ci>
      </math:apply>
      <math:ci>WMB_1</math:ci>
    </math:apply>
  </math:math>
</kineticLaw>
</reaction>
<reaction fast="false" id="reaction_210" name="NRM1 REGULATION">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name=""></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_211" name="85">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="NRM1_1"/>
  </listOfProducts>
  <listOfModifiers>
    <modifierSpeciesReference species="MBFact_1"/>
  </listOfModifiers>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:apply>
          <math:times/>
          <math:ci>ksnrm1_2</math:ci>
          <math:ci>MBFact_1</math:ci>
        </math:apply>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_212" name="86">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
  </annotation>
  <listOfReactants>
    <speciesReference species="NRM1_1"/>
  </listOfReactants>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_1_1</math:ci>
        <math:ci>kdnrm1_1</math:ci>
        <math:ci>NRM1_1</math:ci>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="" jigcell:nameset="false"></jigcell:ratelaw>
  </annotation>
</reaction>
<reaction fast="false" id="reaction_248" name="Cycle Timer" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0"></jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="TCYCLE_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>1.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_275" name="reaction_275" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="Twhi5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_277" name="reaction_277" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="Mwhi5_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_274" name="reaction_274" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="TBUD_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>

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        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_276" name="reaction_276" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="MBUD_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_249" name="reaction_249" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="ORIFLAG_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_250" name="reaction_250" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="TORI_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_251" name="reaction_251" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">

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    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="UDNA_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_252" name="reaction_252" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="REPDNA_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_253" name="reaction_253" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="TSPN_1"/>
  </listOfProducts>
  <kineticLaw>
    <math:math>
      <math:apply>
        <math:ci>Mass_Action_0_1</math:ci>
        <math:cn>0.0</math:cn>
      </math:apply>
    </math:math>
  </kineticLaw>
</reaction>
<reaction fast="false" id="reaction_254" name="reaction_254" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
  </annotation>
  <listOfProducts>
    <speciesReference species="SPNALIGN_1"/>

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    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_255" name="reaction_255" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="SACOFF_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_276" name="reaction_276" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="MASSBIRTH_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_279" name="reaction_279" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_0" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfProducts>
      <speciesReference species="MitCat_1"/>
    </listOfProducts>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_0_1</math:ci>
          <math:cn>0.0</math:cn>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

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    </kineticLaw>
  </reaction>
  <reaction fast="false" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="" jigcell:nameset="false"></jigcell:ratelaw>
    </annotation>
  </reaction>
  <reaction fast="false" id="reaction_275" name="Dec2222012new" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1"></jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="0"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="SBFF4P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="SBFF46P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpcln_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef6p_1</math:ci>
            <math:ci>Vpcln_1</math:ci>
          </math:apply>
          <math:ci>SBFF4P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>
  <reaction fast="false" id="reaction_277" name="reaction_277" reversible="false">
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
    </annotation>
    <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
      <jigcell:rateparams jigcell:nameset="false" jigcell:state="5"></jigcell:rateparams>
    </annotation>
    <listOfReactants>
      <speciesReference species="WSF4P_1"/>
    </listOfReactants>
    <listOfProducts>
      <speciesReference species="WSF46P_1"/>
    </listOfProducts>
    <listOfModifiers>
      <modifierSpeciesReference species="Vpcln_1"/>
    </listOfModifiers>
    <kineticLaw>
      <math:math>
        <math:apply>
          <math:ci>Mass_Action_1_1</math:ci>
          <math:apply>
            <math:times/>
            <math:ci>ef6p_1</math:ci>
            <math:ci>Vpcln_1</math:ci>
          </math:apply>
          <math:ci>WSF4P_1</math:ci>
        </math:apply>
      </math:math>
    </kineticLaw>
  </reaction>

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<reaction fast="false" id="reaction_278" name="reaction_278" reversible="false">
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
    <jigcell:ratelaw jigcell:name="Mass_Action_1" jigcell:nameset="false"></
jigcell:ratelaw>
  </annotation>
  <annotation xmlns:jigcell="http://www.sbml.org/2001/ns/jigcell">
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```

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