

Figure S1. Nucleotide sequence comparisons of the chromosomal translocation regions in the lager brewing yeast with the corresponding chromosomal regions of *S. cerevisiae* and *S. bayanus*

For sequence alignment analyses, the nucleotide sequences of *S. cerevisiae* and *S. bayanus* were referred to the *Saccharomyces* Genome Database (<http://www.yeastgenome.org/>). Identical bases are indicated by red letters with gray boxes, and similar bases are indicated by blue or black letters with gray boxes, respectively. Underlining indicates the predicted breakpoints. Details of each alignment are summarized below.

1-1) Scer-chr11: *S. cerevisiae*, chromosome XI, 10149-9160 bp; Sc11-Sc11: lager brewing yeast, ScXI-ScXI type chromosome; Sc15-Sc11: lager brewing yeast, ScXV-ScXI type chromosome; Scer-chr15: *S. cerevisiae*, chromosome XV, 1056621-1057610 bp.

1-2) Sbay-c532: *S. bayanus*, contig 532, 13376-17198 bp; Sb02-Sb04: lager brewing yeast, SbII-SbIV type chromosome; Sb04-Sb02: lager brewing yeast, SbIV-SbII type chromosome; Sbay-c611: *S. bayanus*, contig 611, 48907-52796 bp. In *S. bayanus*, the chromosomal region corresponding to *YDR012W* is recognized as ORF, but not annotated. The translocation breakpoint is not specifically indicated because the

location of the breakpoint could not be determined due to unusual homology between *YBR031W* and *YDR012W*.

1-3) To avoid confusion about the results, these two types of chromosomes, VIII-XV and XV-VIII, are separately aligned. Although chromosomes VIII and XV are thought to be crossed at intergenic regions, *YHR014W/YHR015W* and *YOR018W/YOR019W*, the location of the breakpoint could not be determined. a) Sbay-c668: *S. bayanus*, contig 668, 27312-32543 bp; Sb08-Sb15: lager brewing yeast, SbVIII-SbXV type chromosome. b) Sbay-c606: *S. bayanus*, contig 606, 22955-32725 bp; Sb15-Sb08: lager brewing yeast, SbXV-nonScVIII type chromosome.

1-4) The chromosomal translocation between ScIII and SbIII was found to occur at the MAT locus. a) Based on the result of blastn analysis, the MAT loci on the ScIII-ScIII type chromosome of lager brewing yeast were predicted to correspond to the Sb and alpha type mating cassette. Scer-chr03: *S. cerevisiae*, chromosome III, 199242-201154 bp; Sc03-Sc03: lager brewing yeast, ScIII-ScIII chromosome; Sbay-chr03: hypothetical nucleotide sequence obtained by connection of *S. bayanus* contig 675, 147973-148289 bp with contig 623, 38628-37011 bp. The former sequence corresponds to *YCR038C*, and the latter, to *YCL067C*, *YCL066W* (the silenced copy of alpha type mating factors), and dubious *YCL065W* (recognized as ORF, but not annotated in *S. bayanus*). b)

Based on the result of blastn analysis, the MAT loci on the SbIII-ScIII type chromosome of lager brewing yeast were predicted to correspond to the Sc and A type mating cassette. Scer-chr03: *S. cerevisiae*, chromosome III, 199222-201147 bp, but the nucleotide sequence corresponding to the alpha type mating cassette, 199542-200965 bp, is replaced with that of the A type mating cassette (accession no. V01313, 878-2196 bp); Sb03-Sc03; lager brewing yeast, SbIII-ScIII type chromosome; Sbay-chr03: hypothetical nucleotide sequence obtained by connection of *S. bayanus* contig 675, 147953-148174 bp, with contig 666, 22173-23783 bp. Although the genes encoding mating factors are not annotated in *S. bayanus*, blastn and blastx analyses indicate that the former sequence corresponds to *YCR038C* and the latter covers the region from MATa2 to the dubious *YCR041W*.

1-5) Scer-chr07: *S. cerevisiae*, chromosome VII, 178823-179748 bp; Sc07-Sc07: lager brewing yeast, ScVII-ScVII type chromosome; Sc07_Sb07: lager brewing yeast, ScVII_SbVII type chromosome; Sbay_c674: *S. bayanus*, contig 674, 83431-84356 bp.

1-6) Scer-chr10: *S. cerevisiae*, chromosome X, 453366-454521 bp; Sc10-Sc10: lager brewing yeast, ScX-ScX type chromosome; Sc10-Sb10: lager brewing yeast, ScX-SbX type chromosome; Sb10-Sc10: lager brewing yeast, SbX-ScX type chromosome; Sb10-Sb10: lager brewing yeast, SbX-SbX type chromosome; Sbay-c646: *S. bayanus*,

contig 646, 71599-72758 bp.

1-7) Scer-chr11: *S. cerevisiae*, chromosome XI, 353594-354433 bp; Sc11-Sc11: lager brewing yeast, ScXI-ScXI type chromosome; Sc11-Sb11: lager brewing yeast, ScXI-SbXI type chromosome; Sb11-Sb11: lager brewing yeast, SbXI-SbXI type chromosome; Sbay-c652: *S. bayanus*, contig 652, 59787-58948 bp.

1-8) Scer-chr13: *S. cerevisiae*, chromosome XIII, 870225-871229 bp; Sc13-Sc13: lager brewing yeast, ScXIII-ScXIII type chromosome; Sb13-Sc13: lager brewing yeast, SbXIII-ScXIII type chromosome; Sbay-c671: *S. bayanus*, contig 671, 7526-6516 bp.

1-9) Scer-chr16: *S. cerevisiae*, chromosome XVI, 96309-99947 bp; Sc16-Sc16: lager brewing yeast, ScXVI-ScXVI type chromosome; Sc16-Sb16: lager brewing yeast, ScXVI-SbXVI type chromosome; Sbay-c637: *S. bayanus*, contig 637, 7836-4211 bp.

Since YPL240C is not annotated in *S. bayanus*, the location of the gene is not demonstrated in the figure.

1-10) Scer-chr16: *S. cerevisiae*, chromosome XVI, 862374-863580 bp; Sc16-Sb16: lager brewing yeast, ScXVI-SbXVI type chromosome; Sb16-Sb16: lager brewing yeast, SbXVI-SbXVI type chromosome; Sbay-c654: *S. bayanus*, contig 654, 16023-17229 bp.

1-11) Scer-chr16: *S. cerevisiae*, chromosome XVI, 917583-922418 bp; Sb16-Sc16: lager brewing yeast, SbXVI-ScXVI type chromosome; Sbay-c654: *S. bayanus*, contig

654, 69146-73739 bp. Since YPR192W is not annotated in *S. bayanus*, the location of the gene is not demonstrated in the figure.

Supplementary Figure S2. Comparison between the 36 predicted chromosomal sequences and the optical mapping

Alignments between the optical maps and DNA sequenced-based maps from the 36 predicted chromosome sequences were created with the MapViewer software (OpGen, Inc., Madison, WI) with default parameters except for ScXII. ScXII was separated into two parts at the rDNA position and aligned to the corresponding opmap using the parameters (OM stderr of 1.0). The names of Sc and Sb show the restriction patterns of 36 provisional chromosome sequences of lager brewing yeast of restriction patterns using the enzyme *XhoI*. The names of Opmap show the restriction patterns using the enzyme *XhoI* obtained from optical mapping. The lines connect the regions of significantly similar restriction patterns.

(A), (B), (C), and (D) are the results of a comparison of chromosomes without translocations, chromosomes with translocations between Sc-type chromosomes, chromosomes with translocations between Sb-type chromosomes, and chromosomes with translocations between Sc- and Sb-type chromosomes, respectively. Green and

white indicate regions displaying similarity and lack of similarity between the provisional chromosome and the optical mapping.

Supplementary Figure S3. Unrooted phylogenetic tree of ITS sequences among *Saccharomyces* species

Sequences of ITS1-5.8S-ITS2 of the Sc- and Sb-types of lager brewing yeast, *S. cerevisiae* S288C, *S. bayanus* CBS 380 (Genbank accession no. Z95945.1), *S. uvarum* CBS 395 (Genbank accession no. Z95946), *S. pastorianus* CBS 1538 (Genbank accession no. Z95949), and *S. carlsbergensis* CBS 1513 (Genbank accession no. Z95950) constructed from Kimura 2 distances and the neighbor-joining algorithm. The scale bar indicates the genetic distance.

Supplementary Figure S4. MtDNA of lager brewing yeast and comparison of *S. cerevisiae* and *S. bayanus*

Detailed gene maps of MtDNA of lager brewing yeast and *S. cerevisiae* are shown. Genes on one strand and the opposing one are indicated by red and blue thick lines, respectively. Introns are indicated by thin black lines. Staggered lines represent genes with overlaps. (C) A gene map of *S. bayanus* determined by the mapping with restriction enzymes¹ is shown.

Supplementary Table S1. Cosmids covering the Sb-type chromosomes and showing chromosomal rearrangements between Sc- and Sb-type sub-genomes

The 11,794 sequences from both ends of the 5,897 cosmids were aligned against the 16 chromosomes of *S. cerevisiae* using NCBI-BLAST BlastN, and the longest alignments were considered to be significant. The Sb-type cosmids in which both end sequences (forward and reverse sequences) have relatively lower similarity (<90) to *S. cerevisiae* were selected. Then, the Sb-type cosmids covering all 16 *S. cerevisiae* chromosomes (from the left to the right telomeric regions) were selected and are shown in (A). Eight cosmids with one end sequence identified as the Sc-type and the other as the Sb-type, which were considered as candidate cosmids for chromosomal rearrangement between Sc- and Sb-type chromosomes, were also selected and are shown in (B).

Chr No; the chromosome number of *S. cerevisiae* match

Start Position and End Position; start and end position in alignment of *S. cerevisiae* chromosome with each cosmid end sequence.

Alignment Length; length in alignment of each cosmid end sequence with the *S. cerevisiae* chromosome (bp).

Identity; the percent nucleotide sequence identity.

Estimated Cosmid Length (kb); cosmid length (kb) estimated by the alignment of the both cosmid end sequences against *S. cerevisiae* chromosome.

Supplementary Table S2.

This file describes the matches of lager brewing yeast predicted ORFs (pORFs) against *S. cerevisiae* S288C and *S. bayanus* CBS7001. In these files, all the matches are reported for every lager brewing yeast ORF.

1. ORF ID; unique identifier of the predicted Open Reading Frame (pORF)
2. chr No; chromosomal number of lager brewing yeast
3. p_len (aa); predicted protein length in amino acids (if single exon protein)
4. category;

s (single match); pORF in a cluster including only one *S. cerevisiae* ORF was assigned its functional role according to the description of the *S. cerevisiae* ORF

m (multiple match); pORF in a cluster including more than two types of *S. cerevisiae* ORFs was not a conserved gene synteny.

p (paralog); a single match pORF in a cluster including one *S. cerevisiae* ORF was not a conserved gene synteny.

b (match with only *S. bayanus*); pORFs in a cluster including not *S. cerevisiae* ORFs

but *S. bayanus* pORFs.

LS (lager brewing yeast specific pORF)

n (no match with *S. cerevisiae*, *S. bayanus*, or nr)

5. contig ID; supercontig to which the pORF belongs. contigID, supercontig to which the pORF belongs _ ORF _ pORF strand in the contig _ start position in the contig _ pORF end position in the contig _ orf
6. sys.gene; the ORF name of the *S. cerevisiae* match
7. fun.gene; the gene name of the *S. cerevisiae* match
8. Feature Type; feature type field from the SGD
9. AA length (Scer); protein length of *S. cerevisiae* ORF
10. identity (Scer); the percent amino acid identity in the match of lager brewing yeast ORF with *S. cerevisiae* ORF
11. s_sta (Scer); start position in alignment of *S. cerevisiae* ORF with lager brewing yeast pORFs
12. s_end (Scer); end position of alignment of *S. cerevisiae* ORF with lager brewing yeast pORFs
13. q_sta (LBYG); start position in alignment of lager brewing yeast pORF with *S. cerevisiae* ORF

14. q_end (LBYG); end position in alignment of lager brewing yeast pORF with *S. cerevisiae* ORF
15. S.bayORF; *S. bayanus* pORF ID
16. identity (Sbay); the percent amino acid identity in the match of lager brewing yeast ORF with *S. bayanus* pORF
17. s_sta (Sbay); start position in alignment of *S. bayanus* pORF with lager brewing yeast pORFs
18. s_end (Sbay); start position in alignment of *S. bayanus* pORF with lager brewing yeast pORFs
19. q_sta (LBYG); start position in alignment of lager brewing yeast pORFs with *S. bayanus* pORF
20. q_end (LBYG); end position in alignment of lager brewing yeast pORFs with *S. bayanus* pORF
21. orf type; assignment of type depending on whether the pORF was matched higher with either *S. cerevisiae* (Sc) or *S. bayanus* (Sb) pORF

Supplementary Table S3. Other chromosomal features except for large chromosomal translocations (Table 2)

Supplementary Table S4. Nucleotide sequence comparison of genes on lager brewing yeast mtDNA with *S. cerevisiae* and *S. bayanus*

Genes that showed similarities with e-values below e^{-50} in BLASTN similarity search against mitochondrial genes of S288C and Genbank nonredundant database are listed with the results of analyses. Although some genes had a high level of similarity to more than one sequence, only the subjects that give the longest alignment between queries are shown.

Supplementary Table S5. List of truncated ORFs

ORFs with length less than 75% of that of the corresponding *S. cerevisiae* ORF are shown. 5' ORFs were shown when the genes were split into two ORFs. "Hq" and "confirmed" indicate high-quality ORFs (more than 40 phred sequence values throughout the sequences when each ORF was aligned against the corresponding *S. cerevisiae* ORF) and the ORFs confirmed by PCR amplification and sequencing. GO Annotations (biological process, molecular function, and cellular component) and Systematic deletion fields were retrieved from the SGD. These ORFs were confirmed

to have no sequence polymorphisms by PCR amplification and by sequencing or manual checks because lager brewing yeast is allopolyploid; therefore, two or more alleles are expected to exist. Note that confirmed sequences are listed in SI sequence.

1 Cardazzo, B., Minuzzo, S., Sartori, G., Grapputo, A., and Carignani, G. 1998, Evolution of mitochondrial DNA in yeast: Gene order and structural organization of the mitochondrial genome of *Saccharomyces uvarum*. *Curr Genet.*, **33**, 52-59.

1-1) ScXI/ScXV

← Scer_YKL220C
← Spas_ScYKL220C

Scer_chr11TTTGTTAGCTGGCACAATGGTTTTCTTTTCCTTTGCAGTATTCA
Sc11_Sc11TTTGTTAGCTGGCACAATGGTTTTCTTTTCCTTTGCAGTATTCA
Sc15_Sc11TTTGTATAGTTGGTGTATGGTGTTTTTCTTTGCAGTATTCA
Scer_chr15TTTGTATAGTTGGTGTATGGTGTTTTTCTTTGCAGTATTCA
Spas_ScYOR381W/YKL220C →
Scer_YOR381W →

Scer_chr11 GGAAGTATTTTATGAAGCCTTCTTTTTCTTCATATCGTCTTGGTGCA
Sc11_Sc11 GGAAGTATTTTATGAAGCCTTCTTTTTCTTCATATCGTCTTGGTGCA
Sc15_Sc11 GAAAGTTTATCTATGAAGCCTTCTTATTTCTCCATATTGTGCTTGGCGCA
Scer_chr15 GAAAGTTTTCTATGAAGCCTTCTTATTTCTCCATATTGTGCTTGGCGCA

Scer_chr11 ATGTTCTTTTATGCAATGTTGGGAGCATGTTGTAGTTAAGTGGCATTGA
Sc11_Sc11 ATGTTCTTTTATGCAATGTTGGGAGCATGTTGTAGTTAAGTGGCATTGA
Sc15_Sc11 TTGTTCTTTTATACGTTGTTGGGAGCACGTCTAGAATTGAGTGGGATTGA
Scer_chr15 TTGTTCTTTTATACGTTGTTGGGAGCACGTCTAGAATTGAGTGGGATTGA

Scer_chr11 GTGGATATACACTGCTATTGCGATTGGATCGTTGACCGGATTATTAGAA
Sc11_Sc11 GTGGATATACACTGCTATTGCGATTGGATCGTTGACCGGATTATTAGAA
Sc15_Sc11 GTGGATATACGCTGCTATTGCTATCTGGACTATTGATAGGCTAATTCGAA
Scer_chr15 GTGGATATACGCTGCTATTGCTATCTGGACTATTGATAGGCTAATTCGAA

Scer_chr11 TTATCAAAGCTTCTTATTTTGGTTTCCCAAAGCTTCCCTACAACATAAC
Sc11_Sc11 TTATCAAAGCTTCTTATTTTGGTTTCCCAAAGCTTCCCTACAACATAAC
Sc15_Sc11 TTGTTAGAGTATCTTATTTTGGTTTCCCAAAGCTTCCCTACAAGTATGTT
Scer_chr15 TTGTTAGAGTATCTTATTTTGGTTTCCCAAAGCTTCCCTACAAGTATGTT

Scer_chr11 GGGGATGATCATTTCGTTTAAACAGTTAAAACCAGGCAAGGCATGGAG
Sc11_Sc11 GGGGATGATCATTTCGTTTAAACAGTTAAAACCAGGCAAGGCATGGAG
Sc15_Sc11 GGCAGTGCATCATTTCGAGTACAGTCAAACGACAGTAAGGCATGGAA
Scer_chr15 GGCAGTGCATCATTTCGAGTACAGTCAAACGACAGTAAGGCATGGAA

Scer_chr11 GGCCAAACCTGGGCAATATGTTTTGTTTTGTTTTTACATCCACTGTACT
Sc11_Sc11 GGCCAAACCTGGGCAATATGTTTTGTTTTGTTTTTACATCCACTGTACT
Sc15_Sc11 AGCCAAACCAAGGACAGTATGTTTTGTTTTGTTTTTACATCCACTGTATT
Scer_chr15 AGCCAAACCAAGGACAGTATGTTTTGTTTTGTTTTTACATCCACTGTATT

Scer_chr11 TCTGGCAGTCACATCCATTACTGTTTTGGATTCAAGCAAGAATGGT
Sc11_Sc11 TCTGGCAGTCACATCCATTACTGTTTTGGATTCAAGCAAGAATGGT
Sc15_Sc11 TTTGGCAGTCACATCCTTTCACAGTCTTAGATTCAATTATCAAAGATGGT
Scer_chr15 TTTGGCAGTCACATCCTTTCACAGTCTTAGATTCAATTATCAAAGATGGT

Scer_chr11 GAACTGGTTATTATCCTGAAAGAAAAAAGGGAGTAACAAACTTGTCAA
Sc11_Sc11 GAACTGGTTATTATCCTGAAAGAAAAAAGGGAGTAACAAACTTGTCAA
Sc15_Sc11 GAGCTGACTATTATCCTGAAAGAAAAAAGGGAGTAACAAACTTGTCAA
Scer_chr15 GAGCTGACTATTATCCTGAAAGAAAAAAGGGAGTAACAAACTTGTCAA

Scer_chr11 AAAGTATGTGTGTCGCAATGGAGGTAAGACATCTATGAGACTAGCTATAG
Sc11_Sc11 AAAGTATGTGTGTCGCAATGGAGGTAAGACATCTATGAGACTAGCTATAG
Sc15_Sc11 AAAGTATGTGTGTCGCAATGGAGGTAAGCATCTATGAGACTAGCTATAG
Scer_chr15 AAAGTATGTGTGTCGCAATGGAGGTAAGCATCTATGAGACTAGCTATAG
Sc15 > Sc11

Scer_chr11 AAGGTCCATATGGTCTTTCATCTCCGGTCAATAATTACAATAATGTATTG
Sc11_Sc11 AAGGTCCATATGGTCTTTCATCTCCGGTCAATAATTACAATAATGTATTG
Sc15_Sc11 AAGGTCCATATGGTCTTTCATCTCCGGTCAATAATTACAATAATGTATTG
Scer_chr15 AAGGTCCATATGGCTTTCATCTCCAGTCAATAATTATGATAACGCTTTG

Scer_chr11 TTACTCACTGGAGGTACCGGTTTGCCGGACCTATTGCACATGCAATTAA
Sc11_Sc11 TTACTCACTGGAGGTACCGGTTTGCCGGACCTATTGCACATGCAATTAA
Sc15_Sc11 TTACTCACTGGAGGTACCGGTTTGCCGGACCTATTGCACATGCAATTAA
Scer_chr15 CTACTTACGGAGGTACTGGTTTGCCAGGCGCCATTGCACACGCGATTAA

Scer_chr11 ACTTGAAA GACGTCAGCGGC TGCTGAAAACAATCTGTAAAATTAGTGA
Sc11_Sc11 ACTTGAAA GACGTCAGCGGC TGCTGAAAACAATCTGTAAAATTAGTGA
Sc15_Sc11 ACTTGAAA GACGTCAGCGGC TGCTGAAAACAATCTGTAAAATTAGTGA
Scer_chr15 ACTTGAAA AACGTCAGCGGC AA CTGAAAACAATTCATAAAAATTAGTGA

Scer_chr11 TTGCAGTTAGAGG ATTCGACGTACTCGAGGCTTATAAGCCGGAGTTGATG
Sc11_Sc11 TTGCAGTTAGAGG ATTCGACGTACTCGAGGCTTATAAGCCGGAGTTGATG
Sc15_Sc11 TTGCAGTTAGAGG ATTCGACGTACTCGAGGCTTATAAGCCGGAGTTGATG
Scer_chr15 TTGCAGTTAGAGG GTTTA ACGTACTCGAGGCTTACAAGCCGGAGCTGATG

Scer_chr11 TGT TTAGAAA ATCTGAATGTACAGCTTACATCTACAACACAATGGAAGT
Sc11_Sc11 TGT TTAGAAA ATCTGAATGTACAGCTTACATCTACAACACAATGGAAGT
Sc15_Sc11 TGT TTAGAAA ATCTGAATGTACAGCTTACATCTACAACACAATGGAAGT
Scer_chr15 TGT CTAGAA GATCTTAAATGTACAGCTTACATCTACAATACAATGGAAGT

Scer_chr11 CCCATCATTAAACCCTAGTGATAGTTTAGATATTTCTCAACAGGATGAGA
Sc11_Sc11 CCCATCATTAAACCCTAGTGATAGTTTAGATATTTCTCAACAGGATGAGA
Sc15_Sc11 CCCATCATTAAACCCTAGTGATAGTTTAGATATTTCTCAACAGGATGAGA
Scer_chr15 TCCGGCATTAACTCTAATGATAGTTTGAAATTTCTCAACAAGACGAGA

Scer_chr11 AGGCTGATGAAAAAGGCACGTGTGTGGCAACTACTTTAGAAAAGTCTGCC
Sc11_Sc11 AGGCTGATGAAAAAGGCACGTGTGTGGCAACTACTTTAGAAAAGTCTGCC
Sc15_Sc11 AGGCTGATGAAAAAGGCACGTGTGTGGCAACTACTTTAGAAAAGTCTGCC
Scer_chr15 AGGC CGATG GAAAAGGTGTGTGTATGGCAACTACC TAGAACAGTCACT

Scer_chr11 AATCCACTTGTTTTGATGGTGTGTTTTCCATGCGGGCGACCAAATGT
Sc11_Sc11 AATCCACTTGTTTTGATGGTGTGTTTTCCATGCGGGCGACCAAATGT
Sc15_Sc11 AATCCACTTGTTTTGATGGTGTGTTTTCCATGCGGGCGACCAAATGT
Scer_chr15 AATCCAGTTGAAATTTGATGGTACTGTTTTTCATCATGGAAGACCCAATGT

Scer_chr11 TAAGGAAC TTCTACATGAAGCGGCTGAATTGAGTGGCTCATTATCTGTGG
Sc11_Sc11 TAAGGAAC TTCTACATGAAGCGGCTGAATTGAGTGGCTCATTATCTGTGG
Sc15_Sc11 TAAGGAAC TTCTACATGAAGCGGCTGAATTGAGTGGCTCATTATCTGTGG
Scer_chr15 TGA AAGCTTCTGCATGAAGTTGTGACC TAAATGGATCGTTAGCTGTGG

Scer_chr11 TTTGCTGTGGACCTCCTATTTTGTGACAAAGTGAGGAATGAAA.....
Sc11_Sc11 TTTGCTGTGGACCTCCTATTTTGTGACAAAGTGAGGAATGAAA.....
Sc15_Sc11 TTTGCTGTGGACCTCCTATTTTGTGACAAAGTGAGGAATGAAA.....
Scer_chr15 TTTGTTGTGGGCCTCCTGTTTTCGTTGACGAAGTAAGGATCAA.....
← Scer_YKL220C
← Spas_ScYKL220C
Spas_ScYOR381W/YKL220C →
Scer_YOR381W →

1-2) SbII/SbIV

Sbay_YBR030W →
Spas_SbyYBR030W →
 Sbay_c532 GTC**TTT**G**CCAA**GACTGACATTGGCAGGGCGAGGCAATAT-TGAC
 Sb02_sb04 GTC**TTT**G**CCAA**AGTCCGACATTGCGCAGGGCGAGACAATAT-TGAC
 Sb04_sb02 GTC**GTTT**---ATG**CTTT**CATT**TT**GTGGT**TTA**CA**CAGCC**T**GTTT**C
 Sbay_c611 GTC**GTTT**---ATG**ATTT**CATT**CT**GTGGT**TTA**CG**CAACC**G**TTC**
Spas_SbYDR011W →
Sbay_YDR011W →

 Sbay_c532 ATT**GAA**-CAAGT**CCT**CA**AATT**-TT**TT**CTG**CGTCC**AA**CA**GCTCCAT**TGC**CAA
 Sb02_sb04 GCT**GAA**-TAAGT**CCT**CA**AATT**-TT**CT**CTG**CATCT**AA**CA**GCTCCAT**TGC**CAA
 Sb04_sb02 ATT**GAT**G**CCT**G**GCT**T**CT**TGGAC**TTT**TAT**GT**G**GA**AGG**CTT**CTCCAT**TAC**ACT
 Sbay_c611 TT**TGAT**G**CCT**G**GTT**T**CT**TGGAC**TTT**TAT**GT**G**GA**AG**CA**CTCCAT**TAC**ACT

 Sbay_c532 TT**TAT**TATGCGATA**ACG**AT**ATT**G**AC**GGC**CAT**GT**TAG**CGCTAA**AA**CAT**GG**CAT
 Sb02_sb04 TT**TGT**TATGCGATA**ACG**AT**ATT**G**AC**GGT**AT**GT**TGG**CGCTAA**AA**CAT**GG**CAT
 Sb04_sb02 A**TTTT**G**TT**CA**GA**-----AC**TT**GT**CGG**TATA**AT**GT**CT**GC**AAAA**AA**CC**AG
 Sbay_c611 A**TTTT**G**TT**CA**AA**-----AC**TT**GT**CGG**TATA**AT**GT**CT**GC**AAAA**AA**CC**AG

 Sbay_c532 TT**AT**CT**AC**G**AAA**CC**AC**AGT**TTT**T**AA**GA**AC**AG**CC**AC-----TG**GT**ACT
 Sb02_sb04 TT**AT**CT**AC**G**AAA**TC**AC**AGT**TTT**T**CA**GA**AC**ACT**AGT**CAT-----TG**GT**ACT
 Sb04_sb02 TC**GT**AT**GC**AAAA**GA**AA**GA**AT**TAA**CTACT**TTA**CC**CA**CC**AG**AT**TGGT**T**CA**
 Sbay_c611 TC**GT**AT**GC**AAAA**GA**AA**GA**ACT**GAA**CTACT**TCA**CC**CA**CC**AA**T**TGGT**T**CA**

 Sbay_c532 C**CT**TT**CT**G**CGA**AC**CA**TCC**GG**AT**CCA**CG**AT**GAT**CA**AG**GG**CGT**CT**G**AA**T**CTA**
 Sb02_sb04 C**CT**TT**CT**G**CGA**AC**CA**TCC**GG**TT**CCA**CG**AT**GAT**CA**AG**GG**CGC**CT**G**AA**T**CTA**
 Sb04_sb02 A**CGT**G-**TGGG**AG**TAC**AT**GA**AA**CC**AT**TT**TA**GA**AA**AGT**CTACT**GGC**T**ATA**
 Sbay_c611 A**CGT**G-**CGGC**AG**TAC**AT**GA**AA**CT**AT**TTT**TA**GA**AA**CT**ACT**GGC**T**ATA**

 Sbay_c532 C**CG**CC**AA**G**CT**TT**TG**--AG**T**GC**AG**CG**TA**-AA**AA**ACT**TTT**G**AA**GG**G**---
 Sb02_sb04 C**CG**CC**AA**G**CT**TT**TG**--AG**T**AC**AA**T**TG**CA-AG**AA**ACT**TTT**G**AA**GG**G**---
 Sb04_sb02 T**CA**AA**AA**T**CC**GG**AC**G**CT**AC**CT**CA**GA**T**TGT**GC**ATA**CT**GT**TT**TAT**G**AG**GT**A**
 Sbay_c611 T**TAA**AA**AT**CC**GG**AC**GCT**AC**CT**CA**GA**T**TGT**GC**ATA**CT**GT**TT**TAT**G**AG**GT**A**

 Sbay_c532 -----A**ACC**AG**TT**TC**G**AT**ACT**TT**TAT**-TC**G**AT**GC**TT**TGG**CA**CC**AG**AG**GAT
 Sb02_sb04 -----A**ACT**AG**TT**T**G**AT**ACT**TT**TAT**-TC**G**AT**GC**TT**TGG**CA**CC**AG**AG**GAT
 Sb04_sb02 G**GT**GAT**ACT**AT**TT**G**AC**AC**ATT**AG**CT**CT**AA**AT**AT**AG**CT**ACT**TT**G**GA**-
 Sbay_c611 G**GT**GAT**AG**CT**AT**TT**G**AC**GC**AC**AT**CA**GC**CT**CT**AA**AT**AT**AG**CT**AT**CT**GT**G**GA**-

 Sbay_c532 G**AA**AT**CA**T**ACA**AG**GG**TT**TG**AA**AT**CG**CC**G**TAG**AT**TT**G**GC**AC**ACA**AT**GG**AA
 Sb02_sb04 G**AA**AT**CA**T**ACA**AG**GA**TT**TG**AA**ACC**CG**TAA**AT**CT**G**GC**AC**ACA**ACT**GG**AA
 Sb04_sb02 G**AA**ACT**T**G**GG**AT**AT**TT**TG**AT**TTA**C**ATT**--TT**CT**T**CA**AT**AT**CG**T**CG**GA**
 Sbay_c611 G**AA**ACT**T**CG**GA**T**AT**TT**TG**AT**CTA**C**ATC**--TT**CT**T**CA**AT**AT**AG**T**CG**GA**

 Sbay_c532 T**G**AA**GA**AT**T**T**G**GG**CT**G**G**AG**GT**ACC---T**G**---C**AG**AG**TT**CT-T**CC**-----
 Sb02_sb04 T**G**AA**GA**AT**T**T**G**AT**T**G**G**AG**GT**ACC---T**G**---C**AG**AA**TT**CT-T**CC**-----
 Sb04_sb02 T**GGT**GT**GC**GT**TACT**AC**CT**CT**CCA**CG**TG**AG**AC**AG**TT**CT**CT**CC**TA**AG**C**
 Sbay_c611 T**GGT**TT**GC**GT**TACT**AT**CT**CT**CCA**T**GT**G**AG**CA**AA**AG**TT**CT**CT**CC**TA**AG**C**

 Sbay_c532 ---AG**ATT**G**AC**GG**AA**GC**AG**CG**TG**AA**AG**GAT**TATA**AG**TTG**-A**AG**CT**A**--
 Sb02_sb04 ---A**C**ATT**GAT**G**AG**AG**CG**CG**TG**AA**AA**AGAT**TATA**AA**TTG**-A**AG**CT**A**--
 Sb04_sb02 C**CT**AA**AT**TT**AT**GT**TAA**AAAA**ATA**AAAA**CATA**AG**GA**AA**AGT**A**AG**CA**AT**G
 Sbay_c611 C**CT**AA**AG**TT**TAT**T**ATA**AAAA**AGAT**C**AAAA**C**ATA**AG**GA**AA**AGCA**AAAA**AT**G

 Sbay_c532 ---G**AA**AG**TT**CA**TT**CG**GT**G**GC**AT**AC**AG**TTAT**-C**G**T**CA**AG**GG**G**TTT**
 Sb02_sb04 ---G**AA**AG**TT**CA**TT**CG**GT**G**GC**AT**AC**AG**TTAT**-C**G**T**CA**AG**GG**G**TTT**
 Sb04_sb02 A**AG**AG**AA**AG**TTT**CA**GAT**TT**TG**AC**AT**TT**CT**AT**CT**AT**CT**GT**AT**TT**CT**G
 Sbay_c611 A**AG**G**AA**AG**TTT**CA**GAT**T**CTA**G**CA**T**TTTAA**TT**AT**--G**T**CC**G**T**AT**--TT
Spas_SbYDR011W →
Sbay_YDR011W →

 Sbay_c532 G**AA**AT---C**G**AT**TC**GT**ATC**--AT**G**AA**AC**AG**CG**CT**CG**TG**CC**CAT**TGC**GG**AC**
 Sb02_sb04 G**AA**AT---C**G**AT**TC**GT**ATC**--AT**G**AA**AC**AG**CG**CT**AG**T**CCC**CAT**TGC**GG**AC**
 Sb04_sb02 G**T**AA**TA**CG**CC**TT**CT**TT**TTT**AT**CA**T**ACA**T**AA**T**AAA**AG**CT**T**G**AA**AT**C
 Sbay_c611 C**T**AA**TA**--G**T**TA**TC**TT**TT**AT**TA**CC**ATA**T**ACA**AT--A**AA**AG**CG**T**G**AA**CA**-C

Sbay_c532 CTTTCAATCACCATGCTACGC AACCTGATT----TGAAGTTT-GTATC-
Sb02_sb04 CTGTTCAATCACCATGCTACAAAACCTGATT----TGAAGTTTTGTATC-
Sb04_sb02 TTTTGTCTCGCTTTATATAGACCTTCATACAA-TTAAGCAATACACC-
Sbay_c611 ACCTCGTTTGTTTTATATAGACGTTCAATAAATCAATAATACATTT

Sbay_c532 -----GTTGTATGATGTTG---TG-----ACAAAT
Sb02_sb04 -----GTTGTATGATGTTG---TG-----ACAAAT
Sb04_sb02 -----GATACCACATGATAA---TA-----ATTTTA
Sbay_c611 ATAATTGATACCATATGATAAGTTTATCTTGTCTTCACTTCATATTTTG

Sbay_c532 GTGGC----GAGC----CCGTTATGTGCAAACACTTGATAGCGGAGGAAT
Sb02_sb04 GTGGC----GAGC----CTGTTATGTGCAAACACTTGATAGCGGAGGAAT
Sb04_sb02 TTACCCTTTGTTC---CTTATTT-TACTGAACTATATCTATTATGAAA
Sbay_c611 TTCACCTTCTTCACTTCTTGTTT-TGCTGTACTGTGTTTATTATAAAA

Sbay_c532 ACC--TG---GAAGCAAAG--GAA---CAAGAGGA---GTATGCGCCT
Sb02_sb04 TCC--TG---GAAGCAAAG--GAA---CAAGAGAA---GCATACGCC
Sb04_sb02 ACC--TTTTTGAAGCAAATTGAAATTGCTAGAGGC---GGAACCGG--
Sbay_c611 GCCAATTTCTTGAACGATTGGAAAGCTCAAGTTGCTAGAGGGAACCGGAA

Sbay_c532 GCGACAAGTGGTGCAAACACTGCTGCTATTGA--CGATGATTTGA-TTAA
Sb02_sb04 GCGACGGGCGGTACAGGTACTGCTACTATTGA--CGATAACTTAA-TCAA
Sb04_sb02 GACTCAAGTCATTTATAGGCCAGTATCTATCTATA CGACGGCTTTT-GTAA
Sbay_c611 GT-TCAAGCTATTTATAGTCCGGTATCTAT--A--CGATGCTTTTATAT

Sbay_c532 TAGACTAGAAAAT---AATT--TGGAGGACGCATATTCTAATAAGAGCGC
Sb02_sb04 TAGGCTCGAAAAT---AATT--TGGAGGACGCATGCTCTAATAAGAGCGC
Sb04_sb02 GACTTCGAGAATTTGAGGTACTCGAGTAGAGCTTTCCTACTTGTTCGC
Sbay_c611 GACTTTCGAGAATTTGTAGTACATATTTATAG-TTTCCTTGTTCGC

Sbay_c532 GGATGACGAAGACGATGATAATG---GAATACAAAACCAGACGAATGCG
Sb02_sb04 GGATGACGAAGACGATGATGATGATGGTATACAAAACCAGACGAATGCG
Sb04_sb02 ATATGT--TACCTGTTCCATATG---CTTAGCAAAACAGAGTAAATTATC
Sbay_c611 ATATGT--TACCTGTTCCATATG---CTTAGCAAAACGGAGTAAATTATC

Sbay_c532 TTGACTTGGTGC-----TGAAGAACGATGTAAGCCAGGCGCAAGAAATAT
Sb02_sb04 TTGACTTGGTGC-----TAAAGAACGATGTAAGCCAGGTCAGGAAATAT
Sb04_sb02 TGCGGTGTCAGCC--TTTGGACAAAATTAACCTTGGTTGGACACATTT
Sbay_c611 TGCGGTGTCAGTCTTTTGGCCAAAACCTTAAACTTGGTTGGACACAC-T

Sbay_c532 TCAATTCTATGGCAGCTGTCGA-A-CGTTTTCTATTGGCCAGATAT-
Sb02_sb04 TTAATTCAATGGCAGCTGTCGA-A-CGTTTTCTATTGGCCAGATAT-
Sb04_sb02 TGGAGTTACAGTGGTTTCTGAGAAGA-GGCGCGCGAATGCGCACAAA--
Sbay_c611 TGGGCTACGGCGATTTCTAAGTAGACGGGAGGCGGTGTGCAATAATC

Sbay_c532 ---GGCTTTACCATACT---GGGAACCTATATGATATTGTTCATCTGGG
Sb02_sb04 ---GGCTTTACCATACT---GGGAACCAATATGATATTGTTCACTTGGG
Sb04_sb02 ---GTCAGAACTACCCTT---AGGTTGCCAA--AAAGGGACACCAGT
Sbay_c611 GAGGTTACCCTACCCTTTTTGCGTTGCCAA--AAAGAAGCACCCAGT

Sbay_c532 ACCCGACTTTATGGAATCTTTAGGAAAGATGACAAAACCAAGAGAAAG
Sb02_sb04 ACCCGATTTTTTGGAAATTTTCAGGAAAGATGACAAAACCAAGAGAAAG
Sb04_sb02 GAAAAACTGGCGTCACAAGT-AGTAAAGACCCAACCAACCAGTTTAAA
Sbay_c611 GAAAAACTGGCGTCCGCAAAATCGTTAAAGACCCAACCAACCAGATCTGC

Sbay_c532 TTAAGTGGTGGAGCCAAAGTCGGCCATGTTTGTGTTGTTGCGTGGTACGCC
Sb02_sb04 TTAAGTGGTGGAGCCAAAGTCGGCCATGTTTGTGTTTCTGTCATGGTACGCT
Sb04_sb02 AGAA----TCCAAATGAGTAGTCGAGTACTGATTAATCCTGGAATGCT
Sbay_c611 AGAA----TTC AATATAGTAAATGTTAGTAC----TAATCCTAAAAGCT

Sbay_c532 A-AAATGCGGTGAGGAAGAGATGAAGATGAAGATGAAGATGAAG
Sb02_sb04 C-AAATGCGCCAGGAAGAGATGAAGACGAAACGAAACGAAGCAATCAG
Sb04_sb02 T-AGTTGACTAAAGCCATGGGGGGGTTCTGTTACTGTCACTTTTC
Sbay_c611 TTAGTTG---GA--ATCATTAT-----TTAAGTTACTATCAGTTTTGG

Sbay_c532 ATG-----AAGACGAA CAGAAC---GAAGCAGTCAGATGCCCTCGCAC
Sb02_sb04 ATGGCTCGCACCAGGAA GTGAACAGTGAATAGAGGAAAGAAAGCGATGAG
Sb04_sb02 GGCGCTGTTCCGCTATAGCAGTATTGAAAAATTATTAGCGCTCCGACAC
Sbay_c611 ACA-----CCCGCTACAGCAATATTGAGAAAGGAATGTGTCTCCAGCAT

Sbay_c532 CAGGAAGCGGACAGTGAATGGAGGAAGAAAGCGAGGAGGAGGAAGAGGA
Sb02_sb04 GATGAGGATGAGGATGAGGATGAGGATGAGGATGAGGATGAGGACGAGGA
Sb04_sb02 AACTA-GTAGAAATAGAAATGGGAAAGTCTGCTTTTATTCA- AAGTGTA
Sbay_c611 ATCTA-GGAGGATACAAATAGGAAAGTCCGCTTTTACCAGAA-TATA

Sbay_c532 GGAAAG-----AGGAGGAAGATGGTTG--AAATCGTGGCTATCCCAACTA
Sb02_sb04 TGAGG-----ACGAGGAAGATGTTTG--AAGTCGTGGCTATCCGACTA
Sb04_sb02 TATAT-----CGTTTTAAGTATTGTGGTAATTACTTACATTCTTTCC
Sbay_c611 TATATTGTACCGTTTCTAGCTATTATAAATAACTGTATAACATTATTTCC

Sbay_c532 TACATTG--ATTT CAGCGGCGAGCCTTCCCCTTCGACGTGGGCC-CTGGC
Sb02_sb04 TACATTG--ATTT CAGCGGCGAGCCTTGCCTTCGACGTGGGCC-CTGGC
Sb04_sb02 AATGTTATTATTCTG-GCCTCGAGTTATGTTGCCAGCAGTACT-ACAGC
Sbay_c611 AATGTTATCATTCTG-GCCTCGAAATATGTTGTGAGCAGTACAGACCGC

Sbay_c532 CAACCTGCTAACTTTAACA-ACTGCGCAATGGGACACATTCTTC-----TC
Sb02_sb04 CAATCTGCTAACTTTAACA-ACAGCGCAATGGGACACATTCTTT-----TC
Sb04_sb02 ---ACTG-TAACTATATCATAGTTCATAATACAGCAGTCGCTACGTAGTC
Sbay_c611 ---ACTG-TAGATATAGCA-----T---AA CAAGAATATCGTACGCGCTC

Sbay_c532 TCAAAAGTCAACTCTCCACATCACCAGCTCTATTATCAACGAGGAAAAAC
Sb02_sb04 TCAAAAGGCACTCTCACCATATCACCAGCTCTATCAATCAACGAGGAAAAAT
Sb04_sb02 CGACAAAGTAGCCCCCC-CCGCCCCCAATCAAGCTCTGTATTAT
Sbay_c611 CAGAAAGTAGTTCC-----AATCCAAGCT-GTA-----

Sbay_c532 TGCCCTTCTAGC-----CAAGACCGACAA-CTTACACGCCA-AGAAA
Sb02_sb04 TGCCCTTCTTAGC-----CAAGACCGACAA-CTTACACGCCA-AGAAA
Sb04_sb02 TTTTGTTTTACGTCTCT--CTATACTGCAAGCTTGCGCATTTTACAG
Sbay_c611 TCTTTGTTTTACGAGTCTCACTATACTGCAAGCTTGCGCATTTTACAG

Sbay_c532 ATGCTGTCGAAAGCTGCTAAAGACAAGCAACTGCCCCCTCTAACCGACAG
Sb02_sb04 ATACTGTCGAAAGCTACTAAAGACAAGCAACTGCCCACTTTAACCGATAG
Sb04_sb02 AATCTTCTAGAACGTTTGAACAA-----TGCTAGTTCGTTCCGTGTGT
Sbay_c611 GATCTATCTAGAACGTTTGA-AACAA-----TGCTAATTTGTGCGTGTGT

Sbay_c532 CAACGCACCAAGGGAGCAGGAGTCACTGACGCCATGCTCCATAACT-CT
Sb02_sb04 CCACGCAGTAAAGGAAGCAGGAGTCACTGAGGCCAATGCTCCAGAACT-CT
Sb04_sb02 GGAAGTTCTT---GAATCTGC--TTAATGTCAAAACAATT CAGAAATGCT
Sbay_c611 AGAAGTTTTT---GAAGCTGC--TTGATACCAAGA-AATTCAGAAACATT

Sbay_c532 CGGATTTGGTGCAAT--CAGAGCAGAT-ATCTTAGATAGATGCTCAA
Sb02_sb04 CGCATCTTGGTGCAAT--CCGAGCAAGAA-ATTTTAGATAGATGCTCAA
Sb04_sb02 TGC--CTTAGTACTATTCCATGTATGATGACCATGCATCCATCGCAT
Sbay_c611 TGC--CTTAGTGCATTTCTATGTATGAC-----CATGCATCTCAGAT

Sbay_YBR030W →
Spas_SbYBR030W →

Sbay_c532 AAGACTAACCTAATAGCATT----AAGTATTTCATAGCGTAT-TACTAT
Sb02_sb04 AAGACTAACCTAATAGCATT----AAGTATTTCATAGCGTAT-TACTAT
Sb04_sb02 ATGCTTTAGCTGCTTGCATTCTT-AAATATACGCCAGCTTTTGTCTAT
Sbay_c611 ATGCTTTAGCCAATTGCCTTCCCAATATCGTGCAGTTTCTGTCCCAT

Sbay_c532 CACGCCACA-CGAGA-GCA--ATAGTGAAAAAAA-----TGAAA
Sb02_sb04 CACGCCACA-CGAGG-GCA--ATAGTGAAAAAAA AATGAAAAATGAAA
Sb04_sb02 TAAACATCATCGTGTGCACGATATTATCGCACCGA-----CGCAA
Sbay_c611 --AACATCA---TGC GGCACGATATCATCGCACCGA-----CGCAA

Sbay_c532 AAAAA--AT-TTTTTTCATCTGAAAAATATTTAAGCGAAGAGATACCTT
Sb02_sb04 AAAAAATGAAA-AA TTTTCGCTGAAAAATATTTAAGCGAAGAGATACCTT
Sb04_sb02 TCGTTTTTCATCATTTTTTTTTCAAGCATGATTTAAAAAAATTTTCAT
Sbay_c611 TTTTTTTTTT-TTTTTTTTTTCAAGCATAGTTTAAAAAA--TTTCAT

Sbay_c532 TCACTCTTTT--CTCTTTAGACATTACTACTTACATATGTTTTTCTTTT
Sb02_Sb04 TCAAATCTTTT-CTCTTTAGGCATTGCTACTTGGGTTTCTTTTTCTTTT
Sb04_Sb02 CCAAATTTTCAACACATCAGTTTTTTAACTGTGTGATGCATTTTTTATC
Sbay_c611 CCTAACTTCGAAACAGTTAGTTCGTT-AACTATGTAATGC-TTTTTGATC

Sbay_c532 TGTAATTGC-----CCAATCAT---CCAAG--ACAATCAT--CGA-
Sb02_Sb04 AGAGTTTGC-----TCAATATA---CCAAG--ACAATCAT--CGA-
Sb04_Sb02 TGGTTTACTT-ACATACCAATAAATAACCAATTAACAACAACAA-CTAT
Sbay_c611 TGGCTCTACTTTACATATCAATAAAAACCTAATAAACAAGCAATTAT

→ Sbay_YBR031W
→ Spas_SbYBR031W/SbYDR012W
Sbay_c532 AATGTC CCGTCCACAAGTTACTGTTCACTCCTTGACC GGTGAAGCTACTG
Sb02_Sb04 AATGTC CCGTCCACAAGTTACTGTTCACTCCTTGACC GGTGAAGCTGCTG
Sb04_Sb02 AATGTC TCGTCCACAAGTTACTGTTCACTCCTTGACC GGTGAAGCTACTG
Sbay_c611 AATGTC TCGTCCACAAGTTACTGTTCACTCCTTGACC GGTGAAGCTACTG
→ Spas_SbYDR012W/SbYBR031W
→ Sbay_ORF(not annotated)

Sbay_c532 CCAATGCCTTGCCATTGCCAGCTGTCTTCTCCGCTCCTATCCGTCCAGAC
Sb02_Sb04 CCAATGCCTTGCCATTGCCAGCTGTCTTCTCCGCTCCTATCCGTCCAGAC
Sb04_Sb02 CCAATGCTTTGCCATTGCCAGCCGTCTTCTCCGCTCCTATCCGTCCAGAC
Sbay_c611 CCAATGCTTTGCCATTGCCAGCCGTCTTCTCCGCTCCTATCCGTCCAGAC

Sbay_c532 ATTGTCCACACTGTTTTACCTCTGTGAACAAGAACAAGAGACAAGCTTA
Sb02_Sb04 ATTGTCCACACTGTTTTACCTCTGTGAACAAGAACAAGAGACAAGCTTA
Sb04_Sb02 ATTGTCCACACTGTTTTACCTCTGTGAACAAGAACAAGAGACAAGCTTA
Sbay_c611 ATTGTCCACACTGTTTTACCTCTGTGAACAAGAACAAGAGACAAGCTTA

Sbay_c532 CGCTGTTTCTGAAAAGCTGGTCACCAAACCTCTGCTGAATCCTGGGGTA
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Sb04_Sb02 CGCTGTTTCTGAAAAGCCGGTCACCAAACCTCTGCTGAATCCTGGGGTA
Sbay_c611 CGCTGTTTCTGAAAAGCCGGTCACCAAACCTCTGCTGAATCCTGGGGTA

Sbay_c532 CCGGTCGTGCTGTCGCCCGTATTCCAAGAGTTGGTGGTGGTACC GGT
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Sb04_Sb02 CTGGTCGTGCTGTCGCCCGTATTCCAAGAGTTGGTGGTGGTACC GGT
Sbay_c611 CCGGTCGTGCTGTCGCCCGTATTCCAAGAGTTGGTGGTGGTACC GGT

Sbay_c532 AGATCCGGTCAAGGTGCTTTCGGTAACATGTGTCGTGGTGGTTCGTATGTT
Sb02_Sb04 AGATCCGGTCAAGGTGCTTTCGGTAACATGTGTCGTGGTGGTTCGTATGTT
Sb04_Sb02 AGATCCGGTCAAGGTGCTTTCGGTAACATGTGTCGTGGTGGTTCGTATGTT
Sbay_c611 AGATCCGGTCAAGGTGCTTTCGGTAACATGTGTCGTGGTGGTTCGTATGTT

Sbay_c532 CGCTCCAACTAAGACCTGGAGAAAGTGGAACTTAAGGTTAACCACAACG
Sb02_Sb04 CGCTCCAACTAAGACCTGGAGAAAGTGGAACTTAAGGTTAACCACAACG
Sb04_Sb02 CGCTCCAACTAAGACCTGGAGAAAGTGGAACTTAAGGTTAACCACAACG
Sbay_c611 CGCTCCAACCAAGACCTGGAGAAAGTGGAACTTAAGGTTAACCACAACG

Sbay_c532 AAAAGCGTTACGCCACTGCTTCTGCTATTGCTGCTACTGCTGTTGCCTCT
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Sb04_Sb02 AAAAGCGTTACGCCACTGCTTCTGCTATTGCTGCTACTGCTGTTGCCTCT
Sbay_c611 AAAAGCGTTACGCCACTGCTTCTGCTATTGCTGCTACTGCTGTTGCCTCT

Sbay_c532 TTGGTCTTGGCCAGAGGTCACAGAGTCGAAAAGATTCCAGAAATCCATT
Sb02_Sb04 TTGGTCTTGGCCAGAGGTCACAGAGTCGAAAAGATTCCAGAAATCCATT
Sb04_Sb02 TTGGTCTTGGCCAGAGGTCACAGAGTCGAAAAGATTCCAGAAATCCATT
Sbay_c611 TTGGTCTTGGCCAGAGGTCACAGAGTCGAAAAGATTCCAGAAATCCATT

Sbay_c532 GGTGTTTTCCACCGATTTGGAATCCGTCCAAAAGACTAAGGAAGCTATTG
Sb02_Sb04 GGTGTTTTCTCCGATTTGGAATCCGTCCAAAAGACTAAGGATGCCATTG
Sb04_Sb02 GGTGTTTTCTCCGATTTGGAATCCGTCCAAAAGACTAAGGATGCCATTG
Sbay_c611 GGTGTTTTCCACCGATTTGGAATCCGTCCAAAAGACTAAGGAAGCTATTG

Sbay_c532 CTGCTTTGAAGGCTGTTGGTGCCTCACTCCGACTTGTGGAAGGCTTTGAAG
Sb02_Sb04 CTGCTTTGAAGGCTGTTGGTGCCTCACTCCGACTTGTGGAAGGCTTTGAAG
Sb04_Sb02 CTGCTTTGAAGGCTGTTGGTGCCTCACTCCGACTTGTGGAAGGCTTTGAAG
Sbay_c611 CTGCTTTGAAGGCTGTTGGTGCCTCACTCCGACTTGTGGAAGGCTTTGAAG

Sbay_c532 TCCAAGAAATTGAGAGCCGGTAAGGGTAAGTACAGAAACAGAAGATGGAC
Sb02_sb04 TCCAAGAAATTGAGAGCTGGTCAAGGTAAGTACAGAAACAGAAGATGGAC
Sb04_sb02 TCCAAGAAATTGAGAGCTGGTCAAGGTAAGTACAGAAACAGAAGATGGAC
Sbay_c611 TCCAAGAAATTGAGAGCCGGTAAGGGTAAGTACAGAAACAGAAGATGGAC

Sbay_c532 TCAAAGAAGAGGTCCATTAGTCGTCTACGCTGAAGACAACGGTATTGTCA
Sb02_sb04 TCAAAGAAGAGGTCCATTAGTCGTCTACGCTGAAGACAACGGTATTGTCA
Sb04_sb02 TCAAAGAAGAGGTCCATTAGTCGTCTACGCTGAAGACAACGGTATTGTCA
Sbay_c611 TCAAAGAAGAGGTCCATTAGTCGTCTACGCTGAAGACAACGGTATTGTCA

Sbay_c532 AGGCTTTGAGAAACGTTCCAGGTGTCGAAACCTCTAACGTTGCCTCTTTG
Sb02_sb04 AGGCTTTGAGAAACGTTCCAGGTGTCGAAACCTCTAACGTTGCCTCTTTG
Sb04_sb02 AGGCTTTGAGAAACGTTCCAGGTGTCGAAACCTCTAACGTTGCCTCTTTG
Sbay_c611 AGGCTTTGAGAAACGTTCCAGGTGTCGAAACCTCTAACGTTGCCTCTTTG

Sbay_c532 AACTTGTGCAATTGGCTCCAGGTGCTCACTTGGGTAGATTTCGTCATCTG
Sb02_sb04 AACTTGTGCAATTGGCTCCAGGTGCTCACTTGGGTAGATTTCGTCATCTG
Sb04_sb02 AACTTGTGCAATTGGCTCCAGGTGCTCACTTGGGTAGATTTCGTCATCTG
Sbay_c611 AACTTGTGCAATTGGCTCCAGGTGCTCACTTGGGTAGATTTCGTCATCTG

Sbay_c532 GACTGAAGCTGCCTTCTCCAAGTTGGACCAAGTCTGGGGTCCGAAACCG
Sb02_sb04 GACTGAAGCTGCCTTCTCCAAGTTGGACCAAGTCTGGGGTCCGAAACCG
Sb04_sb02 GACTGAAGCTGCCTTCTCCAAGTTGGACCAAGTCTGGGGTCCGAAACCG
Sbay_c611 GACTGAAGCTGCCTTCTCCAAGTTGGACCAAGTCTGGGGTCCGAAACCG

Sbay_c532 TTGCCTCTTCCAAGTTCGGTTACACTTTGCCATCCCACATCATTTCCACT
Sb02_sb04 TTGCCTCTTCCAAGTTCGGTTACACTTTGCCATCCCACATCATTTCCACT
Sb04_sb02 TTGCCTCTTCCAAGTTCGGTTACACTTTGCCATCCCACATCATTTCCACT
Sbay_c611 TTGCCTCTTCCAAGTTCGGTTACACTTTGCCATCCCACATCATTTCCACT

Sbay_c532 TCCGATGTACCAGAATCATCAACTCTTCTGAAATCCAATCTGCTGTTAG
Sb02_sb04 TCCGATGTACCAGAATCATCAACTCTTCTGAAATCCAATCTGCTGTTAG
Sb04_sb02 TCCGATGTACCAGAATCATCAACTCTTCTGAAATCCAATCTGCTGTTAG
Sbay_c611 TCCGATGTACCAGAATCATCAACTCTTCTGAAATCCAATCTGCTGTTAG

Sbay_c532 ACCAGCTGGCCAAGTACTCAAAGCGTACCCACGTTTTGAAGAAGAAC
Sb02_sb04 ACCAGCTGGTCAAGTACTCAAAGCGTACCCACGTTTTGAAGAAGAAC
Sb04_sb02 ACCAGCTGGTCAAGTACTCAAAGCGTACCCACGTTTTGAAGAAGAAC
Sbay_c611 ACCAGCTGGCCAAGTACTCAAAGCGTACCCACGTTTTGAAGAAGAAC

Sbay_c532 CATTGAAGAACAAGCAAATCTTGTGAGAATGAACCTTACGCCAAGGTT
Sb02_sb04 CATTGAAGAACAAGCAAATCTTGTGAGAATGAACCTTACGCCAAGGTT
Sb04_sb02 CATTGAAGAACAAGCAAATCTTGTGAGAATGAACCTTACGCCAAGGTT
Sbay_c611 CATTGAAGAACAAGCAAATCTTGTGAGAATGAACCTTACGCCAAGGTT

Sbay_c532 TTTGCTGCTGAAAAGCTAGGTTCCAAGAAGGTCGAAAAGACTGGTGTCAA
Sb02_sb04 TTTGCTGCTGAAAAGCTAGGTTCCAAGAAGGTCGAAAAGACTGGTGTCAA
Sb04_sb02 TTTGCTGCTGAAAAGCTAGGTTCCAAGAAGGTCGAAAAGACTGGTGTCAA
Sbay_c611 TTTGCTGCTGAAAAGCTAGGTTCCAAGAAGGTCGAAAAGACTGGTGTCAA

Sbay_c532 Sbay_YBR031W →
Sb02_sb04 Spas_SbYBR031W/SbYDR012W →
Sb04_sb02 GCCAGCTGCTGTCTTCACTGAAACTTTGAAGCACGATTAAGCTTTGATATT
Sbay_c611 ACCAGCTGCTGTCTTCACTGAAACTTTGAAGCACGATTAAGCTTTGATATT
GCCAGCTGCTGTCTTCACTGAAACTTTGAAGCACGATTAAGCTTTGATATT
GCCAGCTACCGTCTTCACTGAAACTTTGAAGCACGATTAAGCTTTGATATT
Sbay_ORF(not annotated) →

Sbay_c532 A--TAGAAATTTAATTATAATCTAAATATCTTTTATAA--AACTTTTAAATC
Sb02_sb04 A--TAGAAATTTAATTATGAACATAATATCTTTTATA--AACTTTCAATC
Sb04_sb02 ACGTATGAATATCTTAGTTACTTCTATATACTG-ACACACACTTCTAAGT
Sbay_c611 ACGTATGAATATCTTAGTTACTTCTATATACTG-ACAAATACTTTTAAAGC

Sbay_c532 AAACCTCCAAATTTTAT---TGAAGTGTAT----CTTTT--GTATCAT
Sb02_sb04 AAACCTCCAAATTTTATTTTACATGAAGTGCAT----CTTTTGTATATT
Sb04_sb02 CA--TTAAAGTAGTACTCC--ATAAAGTTGAG----CACCCTGCCAAGGT
Sbay_c611 CA--TTAAAGGAGTACACC--ATGAAGTGTATGACCCGCTGCCAAGGT

Sbay_c532 TAT-GGCGTGGAAATAATAACGGCCTAGACTTGATGAATAGCATAGCCTTT
Sb02_Sb04 TAT-GGCTTGGAAATAATAACGGCCTAGACTTGATGAATAGCATAGCCTTT
Sb04_Sb02 AATTGGCGTGAACTAGGAGGAATTGTAACCA--GATAGTAGAAAGATC
Sbay_c611 AATTGGCATGAAACCGCCAGGAATTGTAATCT--GATAGTAAAAAGATC

Sbay_c532 AGTCAGCAGGATACAAATGATCTTCCATCAAGAACAG-GAATATTGGA
Sb02_Sb04 AGTCAGCAGGATACAAATGACCTTCTCATCAAGAGCAA-GAGTATCTAA
Sb04_Sb02 ACCAAGCAAAGGAGAGAGGCTTCTCGCGCTTGTGACCAATGTAGAAAGAA
Sbay_c611 ACGAAGCAAAGGAGAGAGGCTTCTCGCGCTTGTGACCAATGTAGAAAGAA

Sbay_c532 AAGAATACTCGGATTTGATCACTGATCTGAAAAGTGGTGATCTCGCTGAT
Sb02_Sb04 AAGAATACTCGGATTTGATCACTGAGCTGAAAAGTGGTGATCTGGCTGAT
Sb04_Sb02 AAGAAT---CAAATGCGAATACA-ATCAACATACCAGAGTT-----TGCC
Sbay_c611 AAGAAT---CAAATGCGAATACA-ATCAACATACCAGAGTT-----TGCC

Sbay_c532 ATCGATTTATCTGGCTCCTTGGTACCCTCCAAGTGATGTTTTATTGACGT
Sb02_Sb04 ATCGATTTCTCTGGCTCCTTGGTACCCTCCAGTGATGTTTTATTGACGT
Sb04_Sb02 AGGGGT-----GCTTGGAGGTAGGTC-----AGTTTGCCCTTTGT
Sbay_c611 AGGGGT-----GCTTAGAGGTGCGCG-----AGTTCTGTCTGTTTGT

Sbay_c532 CAGAGTCTCAAAGACGCTGGTGAAATCCAAACCGAATACGGTGTATCA
Sb02_Sb04 CAGAGTCTCAAAGACGCTGGCGAAATCCAAACCGAATATGGTGTGTCA
Sb04_Sb02 CAGAGTTC-CACTGAAACGTGGCCCAACCAAAAATAAAC-----T-CA
Sbay_c611 CAGAGTTC-CACTGAAACGTGGTCCACGAAAATAAGGAC-----TCCA

Sbay_c532 ACCTAATCAAAGATTCTCAATTTTCGTAAGGCAATCTGATGTAG.....
Sb02_Sb04 ACCTAATCAAAGATTCTCAATTTTCGTAAGGCAATCTGATGTAG.....
Sb04_Sb02 GGAAATTGCAAG--TGACAAGATGAGCTCCGTAATAACCTTCTT.....
Sbay_c611 GGG-ACGACAAG--TGACAAAATGAGCTCGGAGAAATAGTCTTTT.....
Sbay_YDR013W→
Spas_SbYDR013W→
Spas_SbYBR033W→
Sbay_YBR033W→

1-3-a) SbVIII > SbXV

```

      ←Sbay_YHR013C
Sbay_c668 .....TCATCTGCGTGATCACAATCTAAAGTCGTAGTTGTAGCAACAAAG
Sb08_sb15 .....TCATCTGCGCCATCACAATCTAAAGTCGTAGTTGTAGCAACAAAG
      ←Spas_SbYHR013C

Sbay_c668 GAGTTTCTGGCCAAGAAAGAATATGATACATATAATATTTTCATCATATA
Sb08_sb15 GAGTTTCTGGCCAAGAAAGAATATGATACATATAATATTTTCATCATATA

      Sbay_YHR013C ←
Sbay_c668 ATTCTCGGGCAGGTTATGAAGGTTGGCATTTCATACAAATAATGTCAT
Sb08_sb15 ATTCTCGGGCAGGTTATGAAGGTTGGCATTTCATACAAATAATGTCAT
      Spas_SbYHR013C ←

Sbay_c668 TGATTGTCGCTCTACGAATATTGATTGGCATAATCAGAGTAGTTCTATAT
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1-3-b) SbxV > SbvIII

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→ Spas_sbYOR018W

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Sb15_sb08 AAAATAGTTC-ATCAGAAAAGACGTCATGTAGACCCAG-TTTCATACCACT

Sbay_c606 AAGCCGGTAAAGTCGCTATTTACCACATTCAAATTCGAAAGGCTCT-GAT
Sb15_sb08 AAGCCGATAAAGTCGTTGTTTACCACCTCAAATTCGAAAGATGATGAT

Sbay_c606 CATAAGAGCTTGACAAAAGAGACTTCCTAAAATCACTTGAATAACTATAT
Sb15_sb08 CATAAAGCTTGACGAAAAGACTTCCTAAGACACCTTGATAATTTTAT

Sbay_c606 AACTACACGGATTTATAAACATAACTGCATGGCTCCATTGTTCAGTTT
Sb15_sb08 AGCTACACGTATTCATTAAACATAACTGCATGAGCTCCATTGTTGCCTT

Sbay_c606 CAATAATTCGGAAAATGGATATATACAAAAGCAGAAATGTGTATGA-CGT
Sb15_sb08 C-----TGGAAAATCAATATATACAAAAGCAGATGTGTATAAGCTT

Sbay_c606 TATCAAGCTAAGAAACTCGAACATAATTTGCAGGAAAATACCTTCTTTG
Sb15_sb08 GTTCGAGCTAAGAAACTCGAACATAATTTGCAGGAAAATACCTTCTTTG

Sbay_c606 CCATTAAACCTTCCCGTCCACCAATCATTCTGGGAATCTGATTTCTTCAA
Sb15_sb08 CCATTGACTTCCCGTCCACCAATCATTCTGGGAATCTGATTTCTTCAA

Sbay_c606 GATGGTTATAACGTCACCTTCTTAAAAGCCAATCGCCAGATTGCTCTC
Sb15_sb08 GATGGTTATAACGTCACCTTCTTAAAAGCTAGATCGCCAGATTGCTCTC

Sbay_c606 CTGCAAAGTTATAGAGCAACAGCTGTTTGGTTGGCGATTGAAGAGAT
Sb15_sb08 CTGCAAAGTTATACAGAGCAACAGCTGTTTGTGAAGTTCGAGTGAAGAGAT

Sbay_c606 GTGGGTAGCTTGACCCTAGAATGATTATCATCAATCTCTGTTTTAGACAT
Sb15_sb08 GTGGCGACTTCGCCCTAGAATGATTATGTCAATGTCAATTTTAGACAT

Sbay_c606 TTTATGCGATAAGTTATCAGCTTTGTTATCGCCGTGGAAATAGCTTGAC
Sb15_sb08 TTTATGCGATGAATTATCGCATTGTTATCGCCGTGAAATAGCTTTGAC

Sbay_c606 CATATCCTCGGCTATAGCCTCTTTCTTACCATTGCTACCTGTATTTCCT
Sb15_sb08 CATGCTTTGGCTATAGCCTCTTTCTTACCATTAGCTACGCTGTATTTCCT

Sbay_c606 CGAGTGTGTCAAAATCTTTACCAGCATCCAGAACTCTGTGCATACAA
Sb15_sb08 CGAGCGTTGTCAATCTTTACTGGCATAACCAGAACTCTGTGCATACAA

Sbay_c606 ATCATCCTCCCATCGAGTATTGTGCGGGTTTAGTGCCCTGTCTACTT
Sb15_sb08 ATCATCTCCCATCGAGTATTAGTGCGGGTTTAGTGCCCTATCTACAT

Sbay_c606 GTGGGCTCCGTTGTGGCCAGCATTCCTGTGCGGAGATCTTTTCGTAATCA
Sb15_sb08 GCGGGCTATATTGTGGCTAGCACTTTATCGGGAGACCTTCCGTAATCA

Sbay_c606 TAGTCGTCATCGGTGCTGCCAAATTCGGCATCATAATCCGGACCTTCGTA
Sb15_sb08 CGCTCGTCATCGGCACTGTGAGATTTCGTCATCATAAACCGGATCTTCATA

Sbay_c606 ACGACTGCGAGATCCTTGTGACATTCCTCTTCTTGATGATTTTGTGTTG
Sb15_sb08 ACGACTGCGAGATCCTTGTGATATTTCCTCTTCTTGACGATTTTGTGTTG

Sbay_c606 GCGTGTGAGGATTCATCAGCAGAATCAAAGGAGTCTGGAATGTCATCA
Sb15_sb08 GCGTGTGAGGATTCATCAGCAGAATCAAAGGAGTCTGGAATGTCATCA

Sbay_c606 TAGTAGCGGCTATTATTATCGCTGTTAGGTTCGTCATATAAAGTTTCGTT
Sb15_sb08 TAGTAACGGCTGTTTTCATCGCTGTTTGGTTCGTCATGATAAATTCGTC

Sbay_c606 ACCATCATCATATAGCCGGGTCCTGTGAAGTTAAACGCTCTTGATTCTA
Sb15_sb08 AGCATCATCATCATGACCGGGACCTGTAAAATTAAACGCTCTTGATTCTA

Sbay_c606 GGATATGAAGCAAGGGATCTGCTGTGGCGGAACCCTTACTTTACCTGTC
Sb15_sb08 GAATATGAAGCAATGGATCTGCTGTGGCGGAACCCTTACTCTACCTGAC

Sbay_c606 AAAATCATCTTTGAAGTACAATTATCGCCATAGAACTTTCTATTAGCTTC
Sb15_sb08 AAAATCATCTTTGAAGTACAGTCATCACCATAGAACTTTCTGTTAGCTTC

Sbay_c606 CCTTCTTCCAAAGATGGCTGAACCTTCTACAGAGACACCTGCAATAACC
Sb15_sb08 CCTCCTCTTAAGATGGCTGAACCTTCCACAGAAACACCTGCGAATAACC

Sbay_c606 CTTTGCTCTTTGAATAAGCAAAAACAGCTGAGACACCGCCTGTAGATGCA
Sb15_sb08 CTTTGCTCTTTGAATAAGCGAAAACAGCCGAGACACCACTGTAGATGCT

Sbay_c606 GATGCTGCTGCTTCAAGCACTTCTACCAAGAGGACCTGCGGAAACTGATA
Sb15_sb08 GATGCTGCTGCTTCCGCACTTCTACCAAGAGGACCTGCGGAAACTGATAC

Sbay_c606 ATTACCACCTAAGTGATCGTACCGAATTCAGAAAAAGACCTCACCCTT
Sb15_sb08 ATTACCACCTAGAGTGATGTACCGAATTCAGAAAAAGACCTCACCCTT

Sbay_c606 CCTCAGAATTTAAAATGAAGACAATAATCAGTCAGTTCAATACCGACCATA
Sb15_sb08 CCTCAGAATTTAAAATAAAGACGAAATCAGTCAGTTCAATACCGACCATA

Sbay_c606 CCACCGGCACCGGCACCCGCCATAGCAATAGCGGAAGGAGCAGACCATGA
Sb15_sb08 CCACCGGCACCGGCACCCGCCATAGCAATAGCGGAAGGAGCAGACCATGA

Sbay_c606 ACCATCTTTCAATCTGGCCACAATCACACCCGAACCAGCTCTTCTTCTGAAA
Sb15_sb08 ACCATCTTTCAATCTGGCCACAATCACACCCGAACCAGCCCTCCCGAAA

Sbay_c606 ATAAGAAACCTGCCTTCAAACCGTTATAATGGCTAGACCTTTGGCTTTT
Sb15_sb08 ATAAGAAACCTGCCTTCAAACCGTAATAATGGCTAGACCTTTGGCTTTT

Sbay_c606 TTTAGCACATAAGGTGGAATGACCTGATCTGCTCCAAACACTTGATTTGG
Sb15_sb08 TTTAACACATACGGTGAATAACCTGATCTGCTCCAAACACTTGATTTGG

1-4-a) ScIII > ScIII

```

      ← Scer_YCR038C
      ← Spas_ScYCR038C
Scer_chr03  .... GGATTTT TTTGGGACGATATTGT CATTATAGGGCAGTGTGTGAC
Sc03_Sc03  .... GGATTTT TTTGGGACGATATTGT CATTATAGGGCAGTGTGTGAC
Sbay_chr03  .... GGATTTT CTTTGGGACGATATTGT TGT TATGATT C TGTGTGTGGC
      ← Sbay_YCR038C

Scer_chr03  TTATGAAT TGT TGTAG AAGGACGTCTGTGATGTTGGAGATA TGTATTTTG
Sc03_Sc03  TTATGAAT TGT TGTAGGAGGACGTCTGTGATGTTGGAGATA TGTATTTTG
Sbay_chr03  TTAAGAACTGTAT TAGGAGTACATCGGTAATTTTGGAAAGGTGTGTTTTG

Scer_chr03  TTAACTCTTCTTGAGACGATTTGGCCCTGGATAGCGAAGCGT GCGGTTAC
Sc03_Sc03  TTAACTCTTCTTGAGACGATTTGGCCCTGGATAGCGAAGCGT GCGGTTAC
Sbay_chr03  TTTACTCTTCTTGT TACTATTTGGCCCTGAATAGCGAAGCGTACGGTTAC

Scer_chr03  AAATAGGTCGTCTTGTTC AAGAAGGTAGGCCAGGACATTATCTATCAGTA
Sc03_Sc03  AAATAGGTCGTCTTGTTC AAGAAGGTAGGCCAGGACATTATCTATCAGTA
Sbay_chr03  AAAT TGGTCGTCTTGTTC AAGAAGGTAGGCCAGGACATTATCTATCAGTA

Scer_chr03  CAAACATCTTAGTAGTGTCTGAGGAGAGGGTTGATTGTTTATGTATTTTT
Sc03_Sc03  CAAACATCTTAGTAGTGTCTGAGGAGAGGGTTGATTGTTTATGTATTTTT
Sbay_chr03  CAAACATCTTAGTAGTGTCTGAGGAGAGGGTTGATTGTTTATGTATTTTT
      Sbay_YCR038C ←

Scer_chr03  GCGAA-----ATATATATATATATATTTCTACACAGA
Sc03_Sc03  GCGAA-----ATATATATATATATATTTCTACACAGA
Sbay_chr03  GTTTATGTATATGTATATATATATATATATATATATATATTTCTACACAGA

      Scer_YCR038C ←
      Spas_ScYCR038C ←
Scer_chr03  TATATACATA TTTGTTTTTCGGGCTCATTCTTTCTTCTTTGCCAGAGGCT
Sc03_Sc03  TATATACATA TTTGTTTTTCGGGCTCATTCTTTCTTCTTTGCCAGAGGCT
Sbay_chr03  TATATACATA ATTGTTTTTCGGGCTCATTCTTTCTTCTTTGCCAGAGGCT
      → Scer_MATalpha2
      → Spas_MATalpha2
      → Sbay_YCL067C

Scer_chr03  CACCGCTCAAGAGGTCCGCTAATTCTGGAGCGATTGTTATGTTTTTTCT
Sc03_Sc03  CACCGCTCAAGAGGTCCGCTAATTCTGGAGCGATTGTTATGTTTTTTCT
Sbay_chr03  CACCGCTCAAGAGGTCCGCTAATTCTGGAGCGATTGTTATGTTTTTTCT

Scer_chr03  TTTCTTCTTCTATTTCGAAACCCAGTTTTTGTATTGAATGCGAGATAAACT
Sc03_Sc03  TTTCTTCTTCTATTTCGAAACCCAGTTTTTGTATTGAATGCGAGATAAACT
Sbay_chr03  TTTCTTCTTCTATTTCGAAACCCAGTTTTTGTATTGAATGCGAGATAAACT

Scer_chr03  GGTATTCCTCATTAGATTCTCTAGGCCCTGGTATCTAGATATGGGTTCT
Sc03_Sc03  GGTATTCCTCATTAGATTCTCTAGGCCCTGGTATCTAGATATGGGTTCT
Sbay_chr03  GGTATTCCTCATTAGATTCTCTAGGCCCTGGTATCTAGATATGGGTTCT

Scer_chr03  CGATGTTCTTTGCAAACCAACTTTCTAGTATTCGGACATTTCTTTTGTGA
Sc03_Sc03  CGATGTTCTTTGCAAACCAACTTTCTAGTATTCGGACATTTCTTTTGTGA
Sbay_chr03  CGATGTTCTTTGCAAACCAACTTTCTAGTATTCGGACATTTCTTTTGTGA

Scer_chr03  AACCGGTGTCCTCTGTAAGGTTTAGTACTTTTGTATCATATCTTGAGT
Sc03_Sc03  AACCGGTGTCCTCTGTAAGGTTTAGTACTTTTGTATCATATCTTGAGT
Sbay_chr03  AACCGGTGTCCTCTGTAAGGTTTAGTACTTTTGTATCATATCTTGAGT

Scer_chr03  TACCACATTAATACCAACCCATCCGCCGATTTATTTTTCTGTGTAAGTT
Sc03_Sc03  TACCACATTAATACCAACCCATCCGCCGATTTATTTTTCTGTGTAAGTT
Sbay_chr03  TACCACATTAATACCAACCCATCCGCCGATTTATTTTTCTGTGTAAGTT

Scer_chr03  GATAATTACTTCTATCGTTTTCTATGCTGCGCATTCTTTGAGTAATACA
Sc03_Sc03  GATAATTACTTCTATCGTTTTCTATGCTGCGCATTCTTTGAGTAATACA
Sbay_chr03  GATAATTACTTCTATCGTTTTCTATGCTGCGCATTCTTTGAGTAATACA

```

Scer_chr03 GTAATGGTAGTAGTGAGTTGAGATGTTGTTTGAACAACCTTCTTCTCCTC
Sc03_Sc03 GTAATGGTAGTAGTGAGTTGAGATGTTGTTTGAACAACCTTCTTCTCCTC
Sbay_chr03 GTAATGGTAGTAGTGAGTTGAGATGTTGTTTGAACAACCTTCTTCTCCTC

Scer_chr03 ATCACTAATCTTACGGTTTTTGTGGCCCTAGATAAGAATCCTAATATAT
Sc03_Sc03 ATCACTAATCTTACGGTTTTTGTGGCCCTAGATAAGAATCCTAATATAT
Sbay_chr03 ATCACTAATCTTACGGTTTTTGTGGCCCTAGATAAGAATCCTAATATAT

Scer_chr03 CCCTTAATTCAACTTCTTCTTCTGTTGTTACTCTCTGGTAACTTAGGT
Sc03_Sc03 CCCTTAATTCAACTTCTTCTTCTGTTGTTACTCTCTGGTAACTTAGGT
Sbay_chr03 CCCTTAATTCAACTTCTTCTTCTGTTGTTACTCTCTGGTAACTTAGGT

Scer_chr03 AAATTACAGCAAATAGAAAAGAGCTTTTTATTTATGTCTAGTATGCTGGA
Sc03_Sc03 AAATTACAGCAAATAGAAAAGAGCTTTTTATTTATTTCTAGTATACTTGA
Sbay_chr03 AAATTACAGCAAATAGAAAAGAGCTTTTTATTTATGTCTAGTATACTTGA

Scer_chr03 TTTAAACTCATCTGTGATTTGTGGATTTAAAAGGTCTTTAATGGGTATTT
Sc03_Sc03 TTTGAACTCATCTGTAATTTGTGGATTTAAAAGGTCTTTAATGGGTATCT
Sbay_chr03 TTTGAACTCATCTGTGATTTGTGGATTTAAAAGGTCTTTAATGGGTATCT

Scer_MATalpha2 ←
Spas_MATalpha2 ←
Scer_chr03 TATTCATTTTCTTGTCTTATCTTCTTTTCTTGGCCACTTCTAAGC
Sc03_Sc03 TATTCATTTGTCTTGGTTATCCTCTCTGTTTCTTGGCTGCCCAATGC
Sbay_chr03 TATTCATTTGTCTTGTCTTATCCTCTTTGTTCTTGGCTGCCCAACGC
Sbay_YCL067C ←

Scer_chr03 TGATTTCAATCTCTCCTTTATATATATTTTAAAGTTCCAACATTTTATGT
Sc03_Sc03 TAATTTTATCTCTCCTTTATATATATTTTCATGTTGCAACATTTTATGT
Sbay_chr03 TAATTTTATCTCTCCTTTATATATATTTTCATGTTGCAACATTTTATGT

Scer_chr03 TTCAAAACATTAATGATGTCTGGGTTTTGTTGGGATGCAATTTATTGCT
Sc03_Sc03 TTCAAAACAT-AATGCGTCTGGGTTTTGTTGGGATGCAATTTATTGCT
Sbay_chr03 TTCAAAACAT-AATGCGTCTGGGTTTTGTTGGGATGCAATTTATTGCT

Scer_chr03 TCCCAATGTAGAAAAGTACATCATATGAAACAACCTTAAACTCTTAACTAC
Sc03_Sc03 TCCCAATGTAGAAAAGTACATCATTTGAAACAACCTTAAACTCTTAAACAT
Sbay_chr03 TCCCAATGTAGAAAAGTACATCATTTGAAACAACCTTAAACTCTTTAGCAT

Scer_chr03 TTCTTT-TAACCTTCACTTTT-ATGAAATGTATCAACCATATATAATAA
Sc03_Sc03 TTCTTCACTAATTTTCACTCAAGCAAGAACTCTATCGAGTATATATAATAA
Sbay_chr03 TTCTTCACTAATTTTCACTCAAGCAAGAACTTTATCGAGTATATATAATAA

Scer_MATalpha1 →
Spas_MATalpha1 →
Scer_chr03 CTTAATAAGCG--ACATTCACAAATATGTTTACTTTCGAAGCCTGCTTTCAA
Sc03_Sc03 CTCAATACCTTCACAATCCTAAGATGTTCACTTCTAAGCCTGCCTTCAG
Sbay_chr03 CCAATAAGCCCAATAATACTAAGATGTTCACTCTAAACCTGCCTTCAG
Sbay_YCL066W →

Scer_chr03 AATTAGAACAAGCATCCAAATCATACAGAAACACAGCGGTTTCAAAAA
Sc03_Sc03 AATCAAGAACAAGACCTCTAAATCACATAAAAAACCGCATACCAAAAA
Sbay_chr03 AATCAAGAACAAGACCTCTAAATCACATAGAAAACAGACATGCTAAAA

Scer_chr03 AGCTGAAGAAAACGTC TAGCTGAGCATGTGAGGCCAAGCTGCTTCAAT
Sc03_Sc03 AAGTGAAGGTAAGCGTATAGCAAACTGATAAATCCAAGTGTTTTTAAT
Sbay_chr03 AAGTGAAGGTAAGCGTATAGCAAACTGATAAATCCAAGTGTTTTTAAT

Scer_chr03 ATTATTCGACCACTCAAGAAAATATCCAGATTCTGTTCCTTCCTCTCG
Sc03_Sc03 ATTATTCGTCCTCACTAAAACAAATTCAGCTCCTTCACCTTT
Sbay_chr03 ATTATTCGACCACTTAAAGAAAACATTCAAATTCAGCTCCTTCACCTTT

Scer_chr03 ATTTTAAATAAAATCCAAATTCACAGGATAGCGTCTGGAAATCAAATA
 Sc03_Sc03 ATTTTAAAGAAAATCCAACTATATAGAATAGCGTCTGGAAATCAAATG
 Sbay_chr03 ATTTCTAAAGAAAATCCAACTATATAGAATAGCATCCGGAAATCAAATA

Scer_chr03 CTCAGTTTCGACAGTTC AATAAGACATCTA TAAATCTTCAAAGAAATAT
 Sc03_Sc03 TACAATGCCGACAGTCTAGAAAAGCATCATTAACATCATCTAAGAAGTAT
 Sbay_chr03 TTCAATGCCGACAGTCTGAGAAAAGCATCAATAACACCATCTAAGAAGTAT

Scer_chr03 TTAAACTCATTTATGGCTTTTAGAGCATAT TACTCACAGTTTGGCTCCGG
 Sc03_Sc03 CTAAATCTTTTCATGGCATTAGAGCTTACTATTCTCAGTTTGGCGCCGG
 Sbay_chr03 CTAAATCTTTTCATGGCATTAGAGCTTACTATTCTCAGTTTGGCGCCGG

Scer_chr03 TGTAAAACAAAATGCTCTGTCTTCTCTGCTCGCTGAAGAATGGCACGCGG
 Sc03_Sc03 TGTTAAGCAGAACATCTTGTCTTCTTACTTTCTGAGGAATGGCACGCGG
 Sbay_chr03 TGTTAACAGAACATCTTGTCTTCTTACTTTCTGAAGAATGGCACGCGG

Scer_chr03 ACAAAATGCAGCACGGAATATGGGACTACTTCGCGCAACAGTATAATTTT
 Sc03_Sc03 ACAAAATGCAGCACGGAATATGGGACTACTTCGCGCAACAGTATAATTTT
 Sbay_chr03 ACAAAATGCAGCACGGAATATGGGACTACTTCGCGCAACAGTATAATTTT

Scer_chr03 ATAAACCCTGGTTTTGGTTTTGTAGAGTGGTTGACGAATAATTATGCTGA
 Sc03_Sc03 ATAAACCCTGGTTTTGGTTTTGTAGAGTGGTTGACGAATAATTATGCTGA
 Sbay_chr03 ATAAACCCTGGTTTTGGTTTTGTAGAGTGGTTGACGAATAATTATGCTGA

Scer_chr03 AGTACGTGGTGACGGATATTGGGAAGATGTGTTGTACATTGGCCTTAT
 Sc03_Sc03 AGTACGTGGTGACGGATATTGGGAAGATGTGTTGTACATTGGCCTTAT
 Sbay_chr03 AGTACGTGGTGACGGATATTGGGAAGATGTGTTGTACATTGGCCTTAT

→ Scer_YCR041W
 → Spas_ScYCR041W
 → Sbay_ORF(not annotated)

Scer_MATalpha1 →
 Spas_MATalpha1 →
 Scer_chr03 AGAGTGTGGTCGTGGCGGAGGTTGTTTATCTTTTCGAGTACTGAATGTTGT
 Sc03_Sc03 AGAGTGTGGTCGTGGCGGAGGTTGTTTATCTTTTCGAGTACTGAATGTTGT
 Sbay_chr03 AGAGTGTGGTCGTGGCGGAGGTTGTTTATCTTTTCGAGTACTGAATGTCGT
 Sbay_YCL066W →

Scer_chr03 CAGTATAGCTATCCTATTTGAAACTCCCCATCGTCTTGCTCTTGTCCCA
 Sc03_Sc03 CAGTATAGCTATCCTATTTGAAAATCCCCATCGTCTTGCTCTTGTCCCA
 Sbay_chr03 CAGTATATCTATCCTATTTACAAATCCCCATCTCTTGCTCTTGTCTCA

Scer_chr03 ATGTTTGTTTATACACTCATATGGCTATACCCTTATCT----ACTTGCCT
 Sc03_Sc03 ATGTTTGTTTATACACTCATATGGCTATACCCTTATCT----ACTTGCCT
 Sbay_chr03 ATGTTTGTTTATATAATCCATATGCTATGTGTTTATGTTTATATATACCT

Scer_chr03 CTTTTGTTTATGCTATGTATTTGTATAAAAATATGATATTACTCA.....
 Sc03_Sc03 CTTTTGTTTATCTCTATGTATTTGTATAAAAATATGATATTACTCA.....
 Sbay_chr03 -TACTGTGTACATATATGTATATATGCTTG-TCGTATATTAATCT.....

Scer_YCR041W →
 Spas_ScYCR041W →
 Sbay_ORF(not annotated) →

1-4-b) SbIII > ScIII

Scer_chr03GGCCGTTCTCATGCTGTCGAGGATTTTTTTGGGACGATATTGTC
 Sb03_Sc03GGCCGTTCTCATATATTCGAGGATTTTTTTGGGACGATATTGTT
 Sbay_chr03GGCCGTTCTCATATATTCGAGGATTTTC TTTGGGACGATATTGTT

← Spas_SbYCR038C
 ← Sbay_YCR038C

Scer_chr03 ATTATAGGGCAGTGTGTGACTTATGAATGTTGTGTAGAGGACGCTGTGTA
 Sb03_Sc03 GTTATGATTCTGTGTGTGGCTTAAGAACGTATTAGGAGTACATCGGTAA
 Sbay_chr03 GTTATGATTCTGTGTGTGGCTTAAGAACGTATTAGGAGTACATCGGTAA

Scer_chr03 ATAAGAATCCTAATATATCCCTTAATTCAACTTCTTCTTCTGTTGTTACA
Sb03_sc03 ATAAGAATCCTAATATATCCCTTAATTCAACTTCTTCTTCTGTTGTTACA
Sbay_chr03 ATAAGAATCCTAATATATCCCTTAATTCAACTTCTTCTTCTGTTGTTACA

Scer_chr03 CTCTCTGGTAACTTAGGTAAATTACAGCAAATAGAAAAGAGCTTTTTATT
Sb03_sc03 CTCTCTGGTAACTTAGGTAAATTACAGCAAATAGAAAAGAGCTTTTTATT
Sbay_chr03 CTCTCTGGTAACTTAGGTAAATTACAGCAAATAGAAAAGAGCTTTTTATT

Scer_chr03 CTTGATTTTTGTTCTTTTCGGGGAAACTGTATAAAACTTCCAAAAGGAAA
Sb03_sc03 CTTGATTTTTGTTCTTTTCGGGGAAACTGTATAAAACTTCCAAAAGGAAA
Sbay_chr03 ATCGATTTTTGTAGATTCGGGAAAACCTATAAAACTGACAAACA-GGAAA

Scer_chr03 AGTAAAACAATACATCTCCTTATATCAAAGAAAATCAAGAAGGACAACAT
Sb03_sc03 AGTAAAACAATACATCTCCTTATATCAAAGAAAATCAAGAAGGACAACAT
Sbay_chr03 AGTGAACAAAGACATCTCCTTGAAGCAAAGAAAAGCAAGAAAGACAACAT

Scer_MATa1 →
Spas_MATa1 →

Scer_chr03 GGATGATATTTGTAGTATGCGGAAAACATAAACAGAACTCTGTTTAAACA
Sb03_sc03 GGATGATATTTGTAGTATAGCGGAAAACATAAACAGAACTCTGCTTAAACA
Sbay_chr03 GGACGATATTTGTAGTATAGCTGAAAACATTAACAGAGCTCTGTTTAAAAA

Scer_chr03 TTCTAGGTACTGAGATTGATGAAATCAATCTCAATACTAAATAATCTTTAT
Sb03_sc03 TTCTAGGTACTGAGATTGATGAAATCAATCTCAATACTAAATAATCTTTAT
Sbay_chr03 TTTTAGGTACTGAGATTGATGAAATCAATCTCAATACTAAATAATCTTTAT

Scer_chr03 AATGTATGTTT--TCATTTCAAGGATAGCCTTTGAATCAATTTACTAACA
Sb03_sc03 AATGTATGTTT--TCATTTCAAGGATAGCCTTTGAATCAATTTACTAACA
Sbay_chr03 AAAGTATGTTCAATCATT--AGAAAGAGTTTAAACGGCT-ACTAACA

Scer_chr03 ATACTTCAGTTTATAATGGAAAAGTAATTTGACTAAAGTAGAGCAACATAC
Sb03_sc03 ATACTTCAGTTTATAATGGAAAAGTAATTTGACTAAAGTAGAGCAACATAC
Sbay_chr03 ACAGTTTAGTTTGTATGGAAAAGCAATTTAAACAAAAGTAGAACAAACGCAC

Scer_chr03 ATTACACAAAATATTTCTAACAAATAGGTTAGAAATATACCACCACATTA
Sb03_sc03 ATTACACAAAATATTTCTAACAAATAGGTTAGAAATATACCACCACATTA
Sbay_chr03 TCTACAAAAGAAATATTTCTAACAAACAGGTTAGAAATATATCACGGATCA

Scer_chr03 AAAAAAGAGAAGAGCCCAAAGGGAAAATCATCAATATCACCCCAAGCACGG
Sb03_sc03 AAAAAAGAGAAGAGCCCAAAGGGAAAATCATCAATATCACCCCAAGCACGG
Sbay_chr03 AGAAAGAAAAGAAATCACAAAGGAAAATCTCAATATCACCTCAAGCACGG

Scer_chr03 GCATTTT TAGAACAGGTTTTT TAGAAGAAAGCAAAGCCTTAATTTCCAAGGA
Sb03_sc03 GCATTTT TAGAACAGGTTTTT TAGAAGAAAGCAAAGCCTTAATTTCCAAGGA
Sbay_chr03 GCATTTT TAGAACAGGTTTTT CAGAGAAAGCAAAGTCTTAATTTCCAAGGA

Scer_chr03 AAAAGAAGAAGTTGCAAAGAAATGTGGCATTACTCCACTTCAAGTAAGAG
Sb03_sc03 AAAAGAAGAAGTTGCAAAGAAATGTGGCATTACTCCACTTCAAGTAAGAG
Sbay_chr03 AAAAGAAGAAGTAGCAAAGAAATGTGGCATTACTGCCACTTCAAGTAAGAG

Scer_chr03 TTTGGGTATGTAATATGAGAATCAAACCTAAATATATCCTATACTAACAA
Sb03_sc03 TTTGGGTATGTAATATGAGAATCAAACCTAAATATATCCTATACTAACAA
Sbay_chr03 TCTGGGTATGTAACAAGTGAATCAATCTCTAAATATTTCTTATACTAACAA

Scer_MATa1 →
Spas_MATa1 →

Scer_chr03 TTTGTAGTTCATAAATAAACGTATGAGATCTAAATAAATTCGTTTTCAAT
Sb03_sc03 TTTGTAGTTCATAAATAAACGTATGAGATCTAAATAAATTCGTTTTCAAT
Sbay_chr03 TTTGTAGTTCATAAATAAACGTATGAGATCTAAATAAATTCGTTTTCAAT

Scer_chr03 GATTAAAATAGCATAGTCGGGTTTTTCTTTTAGTTTCAGCTTTCCGCAAC
Sb03_sc03 GATTAAAATAGCATAGTCGGGTTTTTCTTTTAGTTTCAGCTTTCCGCAAC
Sbay_chr03 GACTAAAATAGCATATTCGCGGTTTTTCTTTTAGCTTCAGCTTTCCGCAAC

Scer_chr03 AGTAAATTTTATAAACCTGGTTTTGGTTTTGTAGAGTGTTGACGAAT
Sb03_sc03 AGTATAATTTTATAAACCTGGTTTTGGTTTTGTAGAGTGTTGACGAAT
Sbay_chr03 AGTATAATTTTATAAACCTGGTTTTGGTTTTGTAGAGTGTTGACGAAT

Scer_chr03 AATTATGCTGAAGTACGTGGTGACGGATATTGGGAAGATGTGTTGTACA
Sb03_sc03 AATTATGCTGAAGTACGTGGTGACGGATATTGGGAAGATGTGTTGTACA
Sbay_chr03 AATTATGCTGAAGTACGTGGTGACGGATATTGGGAAGATGTGTTGTACA

Scer_YCR041W →
Spas_ScYCR041W →

Scer_chr03 TTTGGCCTTATAGAGTGTGGTCGTGGCGGAGGTTGTTTATCTTTCGAGTA
Sb03_sc03 TTTGGCCTTATAGAGTGTGGTCGTGGCGGAGGTTGTTTATCTTTCGAGTA
Sbay_chr03 TTTGGCCTTATAGAGTGTGGTCGTGGCGGAGGTTGTTTATCTTTCGAGTA

Scer_chr03 CTGAATGTTGTCAGTATAGCTATCCTATTTGAAACCTCCCATCGTCTTGC
Sb03_sc03 CTGAATGTTGTCAGTATAGCTATCCTATTTGAAATCCCATCGTCTTGC
Sbay_chr03 CTGAATGTCGTCAAGTATAGCTATCCTATTTACAAATCCCATTCCTTGC

Scer_chr03 TCTTGTCCCAATGTTTGTTTATACACTCATATGGCTATACCCTTATCTA
Sb03_sc03 TCTTGTCCCAATGTTTGTTTATACACTCATATGGCTATACCCTTATCTA
Sbay_chr03 TCTTGTCTCAATGTTTGTTTACATAATCTATGCTATGTGTTTATGT-

Scer_chr03 CTTGCCCTTTTGTATGTCATGTATTGTATAAAATATGATA.....
Sb03_sc03 CTTGCCCTTTTGTATGTCATGTATTGTATAAAATATGATA.....
Sbay_chr03 -TTATAATACC-TTACTGTGACATACATGTATACGCCTGTATT.....

Scer_YCR041W →
Spas_ScYCR041W →

1-5) ScVII / SbvII

← Scer_YGL173C
 ← Spas_ScYGL173C
 Scer_chr07 AAAATTCTAAATGATCTTTATGTCCTAAGTCCTTAGGTAAGTCTA
 Sc07_Sc07 AAAATTCTAAATGATCTTTATGTCCTAAGTCCTTAGGTAAGTCTA
 Sc07_Sb07 AAAATTCTAAATGATCTTTATGTCCTAAGTCCTTAGGTAAGTCTA
 Sbay_c674 AAAATTCAAATGATCTTTAACAATCAATCAATCCTTAGGCAACTCTA
 ← Spas_ScYGL173C/SbYGL173C
 ← Sbay_YGL173C

Scer_chr07 AAGTTGGAATTTCTTCACTGGTAAATCAGGCGATAATTTTCTGTAAT
 Sc07_Sc07 AAGTTGGAATTTCTTCACTGGTAAATCAGGCGATAATTTTCTGTAAT
 Sc07_Sb07 AAGTTGGAATTTCTTCACTGGTAAATCAGGCGATAATTTTCTGTAAT
 Sbay_c674 AGGTCGGAATTTTCTGTCAGGTAATCAGGCGATAATTTTCTGTAAT

Scer_chr07 TGCTCCATCAACCATGGTTTTATACTTCCAATTAATTTCTTCTGTTGTTT
 Sc07_Sc07 TGCTCCATCAACCATGGTTTTATACTTCCAATTAATTTCTTCTGTTGTTT
 Sc07_Sb07 TGCTCCATCAACCATGGTTTTATACTTCCAATTAATTTCTTCTGTTGTTT
 Sbay_c674 TGCTCCATTAACCAAGGTTTTATCTTCCGATCAGTTTCTTCTGTTGTTT

Scer_chr07 TACCAGTAATTTTACCAACCCTCTGTCTTTTCTTTCCACCCTCCAAAG
 Sc07_Sc07 TACCAGTAATTTTACCAACCCTCTGTCTTTTCTTTCCACCCTCCAAAG
 Sc07_Sb07 TACCAGTAATTTTACCAACCCTCTGTCTTTTCTTTCCACCCTCCAAAG
 Sbay_c674 AATCAATAATTTCTTACCAACCCTTGTCTTTTCTTTCCACCCTTCTAAAG

Scer_chr07 AAATATTCTCTAATTGCTTGTGTAACCACTCAACGTCTATATCATCCTTT
 Sc07_Sc07 AAATATTCTCTAATTGCTTGTGTAACCACTCAACGTCTATATCATCCTTT
 Sc07_Sb07 AAATATTCTCTAATTGCTTGTGTAACCACTCAACGTCTATATCATCCTTT
 Sbay_c674 AAATGTTTCTAGTTGTTTGTGTAACCACTCAACATCTATATCATCCTTC

Scer_chr07 TCGAAATTTAATAACTCAAAATGAGACAGATAATTTAACGAGACACCTAA
 Sc07_Sc07 TCGAAATTTAATAACTCAAAATGAGACAGATAATTTAACGAGACACCTAA
 Sc07_Sb07 TCGAAATTTAATAACTCAAAATGAGACAGATAATTTAACGAGACACCTAA
 Sbay_c674 TCGAAATTTAACAACTCGAATTGAGACAGTAGTCCAGCCAGACTCCTAA

Scer_chr07 TCTCTTTAAATTTATTTTACCATGTTTCATTAATGTAGCCATCAGTATGTA
 Sc07_Sc07 TCTCTTTAAATTTATTTTACCATGTTTCATTAATGTAGCCATCAGTATGTA
 Sc07_Sb07 TCTCTTTAAATTTATTTTACCATGTTTCATTAATGTAGCCATCAGTATGTA
 Sbay_c674 TCTTCTCAGTTTATTTTCCGTTGTTTCATTAATGTAGCCATCGGTATGTA

Scer_chr07 AAAGAGCTTCTTTGAACTTTGTAACAACGGGAAATGCTCCTTTGTTA
 Sc07_Sc07 AAAGAGCTTCTTTGAACTTTGTAACAACGGGAAATGCTCCTTTGTTA
 Sc07_Sb07 AAAGAGCTTCTTTGAACTTTGTAACAACGGGAAATGCTCCTTTGTTA
 Sbay_c674 AGAGAGCTTCTTTGAAAGTTTGTAAACAGGACAGGAAAGCACCTTTATTT

Scer_chr07 AGGTGCAAACTGGCAAATTTGGCAAGAAATCATTACCAATGACGAACAT
 Sc07_Sc07 AGGTGCAAACTGGCAAATTTGGCAAGAAATCATTACCAATGACGAACAT
 Sc07_Sb07 AGGTGCAAACTGGCAAATTTGGCAAGAAATCATTACCAATGACGAACAT
 Sbay_c674 AGGTGTAATCAGGCAAATTTGGCAAGAAATCATTACCAATGACGAACAT

Scer_chr07 GACAAGAATAAAATCATCCAAATACGTTCAAATGTATTCAAATTGCA
 Sc07_Sc07 GACAAGAATAAAATCATCCAAATACGTTCAAATGTATTCAAATTGCA
 Sc07_Sb07 GACAAGAATAAAATCATCCAAATACGTTCAAATGTATTCAAATTGCA
 Sbay_c674 GACAAGAATAAAATCATCCAAAGATACGTTCAAATCGTACTCAAATTGCA

Scer_chr07 TTTTCATCGGCAATTTCTTTGAATTCCAACTCCATGTATTCTCTTAATAAA
 Sc07_Sc07 TTTTCATCGGCAATTTCTTTGAATTCCAACTCCATGTATTCTCTTAATAAA
 Sc07_Sb07 TTTTCATCGGCAATTTCTTTGAATTCCAACTCCATGTATTCTCTTAATAAA
 Sbay_c674 TTTTCATCGGCGATTTCTTTGAATTTCAACTCCATGTATTCTCTCAATAAA

Scer_chr07 GAAAGATGTAATAAGTAGAAATTTTGATGTTCAAGCGATTTTTTTTCACT
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 Sc07_Sb07 GAAAGATGTAATAAGTAGAAATTTTGATGTTCAAGCGATTTTTTTTCACT
 Sbay_c674 GAAAGGTGTAAGAAAGAAAGAAATTTTGATGTTCTAGAGATTTTTTTTCTGCT

Scer_chr07 ATTTCTTCTACCAAATGTCACCTTCTTCTCAATAACGCAAATGTGGCC
Sc07_Sc07 ATTTCTTCTACCAAATGTCACCTTCTTCTCAATAACGCAAATGTGGCC
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Sbay_c674 ATTCCTTCTCCAAACCTGACTTCTTCTTAATAGAGCAAATGAGGCC

Scer_chr07 CATGAGTAGACAAACCAGCATAAATCAAATCTGCGTCAAGACCGTAAATA
Sc07_Sc07 CATGAGTAGACAAACCAGCATAAATCAAATCTGCGTCAAGACCGTAAATA
Sc07_Sb07 CATGAGTAGACAAACCAGCATAAATCAAATCTGCGTCAAGACCGTAAATA
Sbay_c674 CGTGAGTAGATAAACCTAGCATGATCAAATCGCATCAAGACCAATAAATA

Scer_chr07 CAATGTCTCGTATTCTGGTTGAAATCCTTTGGGATTTTAAATGCCTTAT
Sc07_Sc07 CAATGTCTCGTATTCTGGTTGAAATCCTTTGGGATTTTAAATGCCTTAT
Sc07_Sb07 CAATGTCTCGTATTCTGGTTGAAATCCTTTGGGATTTTAAATGCCTTAT
Sbay_c674 CAATGTCTCGTATTTGGTTAAAATCCTTCTGTGATTTTAAATGCCTTAT

Scer_chr07 AAAGTTCATGATCTTGTGTTACACCTCACCTGGAACCTCATGGCCAGAAA
Sc07_Sc07 AAAGTTCATGATCTTGTGTTACACCTCACCTGGAACCTCATGGCCAGAAA
Sc07_Sb07 AAAGTTCATGATCTTGTGTTACACCTCACCTGGAACCTCATGGCCAGAAA
Sbay_c674 GAAATTCATGATTTGTGCTCACCTCACCTGGAACCTCATGGCCAGAAA

Scer_chr07 ATATGATTGCACTTCCCTCCATTTGGAATCGTTAGAAATCTTGTCTGTA
Sc07_Sc07 ATATGATTGCACTTCCCTCCATTTGGAATCGTTAGAAATCTTGTCTGTA
Sc07_Sb07 ATATGATTGCACTTCCCTCCATTTGGAATCGTTAGAAATCTTGTCTGTA
Sbay_c674 ATATAATTGTACTTCTCTCCACTTAGAATCGTTAGAGATCTTGTCTGTA
Sc07 > sb07

Scer_chr07 ATAAAATATGTAAATTTTTGGTCAATTTGGCCATAAATCCGTACCTGG
Sc07_Sc07 ATAAAATATGTAAATTTTTGGTCAATTTGGCCATAAATCCGTACCTGG
Sc07_Sb07 ATGAAATACTGTAAATTTTTTGTCAATTTAGCCATAAATTCAGTACCTGG
Sbay_c674 ATGAAATACTGTAAATTTTTTGTCAATTTGGCCATGAATTCAGTACCTGG

← Scer_YGL173C
← Spas_ScYGL173C
Scer_chr07 AGTAATAGAATTGAAATCAAAATGGCTCACC.....
Sc07_Sc07 AGTAATAGAATTGAAATCAAAATGGCTCACC.....
Sc07_Sb07 AGTAATACAGTTTGAATCGAACGGCTCACCT.....
Sbay_c674 AGTAATACAATTTGAGTCGAACGGTTCACCT.....
← Spas_ScYGL173C/SbYGL173C
← Sbay_YGL173C

1-6) ScVIII / SbVIII

← Scer_YHR165C
 ← Spas_ScYHR165C
 ← Spas_ScYHR165C/SbYHR165C

Scer_chr08 CATCGGATATCTCAATAAACTTCTTTAATAAATTTTGGGAAGGA
 Sc08_Sc08 CATCGGATATCTCAATAAACTTCTTTAATAAATTTTGGGAAGGA
 Sc08_Sb08 CATCGGATATCTCAATAAACTTCTTTAATAAATTTTGGGAAGGA
 Sb08_Sb08 CATCAGATATCTCAATAAACTTCTTTAATAAATTTCTTGGGAGCA
 Sbay_c599 CATCAGATATCTCAATAAACTTCTTTAATAAATTTCTTGGGAAGTA
 ← Spas_SbYHR16C
 ← Sbay_YHR165C

Scer_chr08 CGTAAACATTCTGTTCCTCCACGAAATCATCAGCCGAAACATAAATGTTT
 Sc08_Sc08 CGTAAACATTCTGTTCCTCCACGAAATCATCAGCCGAAACATAAATGTTT
 Sc08_Sb08 CGTAAACATTCTGTTCCTCCACGAAATCATCAGCCGAAACATAAATGTTT
 Sb08_Sb08 CATAAACATTCTGCTTCTTACAAAATCATCGGCTGAGATATAAGTGTTT
 Sbay_c599 CATAGACATTCTGCTTCTTACAAAATCATCAGCTGAGATATAAGTGTTT

Scer_chr08 TTTAACCTCAAATAAATAGTGTATTAGCAATTGCAGATTTTCTCCATTC
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 Sc08_Sb08 TTTAACCTCAAATAAATAGTGTATTAGCAATTGCAGATTTTCTCCATTC
 Sb08_Sb08 TTCAGTCTCAAATGTAATAATGTATTGGCGATGGCTGATTTTCTCCATTC
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 Sc08_Sc08 ATTCTTTGAACATAACGTTTGACTTTCGTAATCAGCGGAAGCTACTACAA
 Sc08_Sb08 ATTCTTTGAACATAACGTTTGACTTTCGTAATCAGCGGAAGCTACTACAA
 Sb08_Sb08 GTTCTTCGAGCTAAACGTTTGTTGTTTCGTAATCAGCAGAAGCTACTACGA
 Sbay_c599 GTTCTTCGAGGTAATGTTTGATTTTCGTAATCAGCAGAAGCTACTACGA

Scer_chr08 CTATCTCCTCACCTTGCGCATTGATAGTTTTAGTTTCATAACAGTTGAT
 Sc08_Sc08 CTATCTCCTCACCTTGCGCATTGATAGTTTTAGTTTCATAACAGTTGAT
 Sc08_Sb08 CTATCTCCTCACCTTGCGCATTGATAGTTTTAGTTTCATAACAGTTGAT
 Sb08_Sb08 CAATTTCTCCTCACCTTGCGCATTATGGTCTTAGTTTCATAACAGTTGAT
 Sbay_c599 CGATTTCTTCCCTTGCGCGTTGATAGTCTTGGTCTTCATAACAGTTGAT

Scer_chr08 GCACCTGCAGCTTCTTCGTGTTCTGCTTTTCTGACCTGGCAGCTTCTAA
 Sc08_Sc08 GCACCTGCAGCTTCTTCGTGTTCTGCTTTTCTGACCTGGCAGCTTCTAA
 Sc08_Sb08 GCACCTGCAGCTTCTTCGTGTTCTGCTTTTCTGACCTGGCAGCTTCTAA
 Sb08_Sb08 GCACCTACAGTTTCTTCATCATTGTTTTTTCAGCCCTAGCAGCTTCTAA
 Sbay_c599 GCACCTACAGTTTCTTCGTCAATTTGCTTTTTCAGCCCTAGCAGCTTCTAA

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 Sc08_Sc08 TTCAGCCATTTTTGTCTCTTACAGATGGTGCCTTGATATTTGACCCA
 Sc08_Sb08 TTCAGCCATTTTTGTCTCTTACAGATGGTGCCTTGATATTTGACCCA
 Sb08_Sb08 TTCAGCCATTTTTGTCTCTTGACAGATGGCGCTTTGATATTTGACCCA
 Sbay_c599 TTCAGCCATTTTTGTCTCTTGACAGATGGCGCTTTGATATTTGACCCA

Scer_chr08 ATATAATATCTTTAATTTCCGTTTGAAGTTAAGGCAGATATATTGACATTG
 Sc08_Sc08 ATATAATATCTTTAATTTCCGTTTGAAGTTAAGGCAGATATATTGACATTG
 Sc08_Sb08 ATATAATATCTTTAATTTCCGTTTGAAGTTAAGGCAGATATATTGACATTG
 Sb08_Sb08 ATATGATATCCTTTAATTTAGTTTGGTTAAGGCAGATATATTGACATTG
 Sbay_c599 ATATGATATCCTTTAATTTAGTTTGAAGTTAAGGCAGATATATTGACATTG

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 Sc08_Sc08 TATTTTCTGCCGTACTCAGTCAAATCAAATCTCTCATTGAGATTCGAT
 Sc08_Sb08 TATTTTCTGCCGTACTCAGTCAAATCAAATCTCTCATTGAGATTCGAT
 Sb08_Sb08 TATTTTACCCTGATTTCTGTTAAATTAATCTCTCATTGAGATTCGAT
 Sbay_c599 TACTTTTGGCCGTATTTCTGTAAGAAATTAATCTCTCATTGAGATTCGAT

Scer_chr08 AGTGATCCATTGTTCAATCAGTGAATGAAGGCCATAAATGGTACGATTTGA
 Sc08_Sc08 AGTGATCCATTGTTCAATCAGTGAATGAAGGCCATAAATGGTACGATTTGA
 Sc08_Sb08 AGTGATCCATTGTTCAATCAGTGAATGAAGGCCATAAATGGTACGATTTGA
 Sb08_Sb08 ATTAATCCATTGTTCTCAGAGAAAGATGGCCATAAATGGTACGATTTGA
 Sbay_c599 ATTAATCCATTGTTCTCAGAGAAAGATGGCCATAAATGGTACGATTTGA

Scer_chr08 TAGTGATCGTGGGTCACTGAGTAGAATCATTTTGGCACTTTCCCTCGTTC
Sc08_Sc08 TAGTGATCGTGGGTCACTGAGTAGAATCATTTTGGCACTTTCCCTCGTTC
Sc08_Sb08 TAGTGATCGTGGGTCACTGAGTAGAATCATTTTGGCACTTTCCCTCGTTC
Sb08_Sb08 TCGTGATCGTGGGTCACTGAGTAGAATCATCTTCGCACTTTCTTCATTT
Sbay_c599 TAGTGATCGTGGGTCACTGAGTAGAATCATCTTCGCACTTTCTTCATTT

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Sc08_Sc08 GTCTTTAAAGCTCTTAAAGTAGTGTAAAGTCTAGAAAATGCAGTGTACGA
Sc08_Sb08 GTCTTTAAAGCTCTTAAAGTAGTGTAAAGTCTAGAAAATGCAGTGTACGA
Sb08_Sb08 GTCTTCAAAGCTCTCAAAGTAGTGTAAAGTCTAGAAAATGCAGTGTACGA
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Sb08_Sb08 CGAAATACGCTCCAACCAATCATCTAGATATTGAAAGAACCATTGAG
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Sc08_Sb08 GTTCAGTAGCTTTTCATCACAACATCAGAAAAGTTTATCTATTGACATTGCA
Sb08_Sb08 GCTCCGTAGCTTTTCATGACAACATCAGAAAAGTTTATCTATTGACATTGCA
Sbay_c599 GCTCCGTAGCTTTTCATGACAACATCAGAAAAGTTTATCTATTGACATTGCA

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Sc08_Sb08 GCAGAAAATGGTAGTCGCAGCTCTGTGGCCTGATTGCTATGTTAGGAAA
Sb08_Sb08 GCAGAAAATGGCACTGTAGTTCTGTAGGCTGATTGCTATGTTAGGAAA
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Sc08_Sb08 GTCAAGCATGTGAACCTCTAAAGGATCAAGCATTGCCTTTCTTGTGACGA
Sb08_Sb08 ATCAAGCATGTGAACCTCTAAAGGATCTAGCATTGCCTTTCTCGTACTA
Sbay_c599 GTCAAGCATGTGAACCTCTAAAGGATCTAGCATTGCCTTTCTCGTACTA

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Sc08_Sc08 TAATTTGTTTTGGCTGCTCTTCTTTGGGCAAAGATCTCACAAGAGCACTA
Sc08_Sb08 TAATTTGTTTTGGCTGCTCTTCTTTGGGCAAAGATCTCACAAGAGCACTA
Sb08_Sb08 TGATTTGTTTTGGTTGTTCTTCTTTGGGTAGAGACCTTACAAGAGCACTA
Sbay_c599 TAATTTGTTTTGGTTGTTCTTCTTTAGGTAGAGACCTTACAAGAGCACTA

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Sc08_Sc08 ACTTCTCAGCTGTTTTCCATTTGGCCAATTGGCTTAAACGTTTTTGACC
Sc08_Sb08 ACTTCTCAGCTGTTTTCCATTTGGCCAATTGGCTTAAACGTTTTTGACC
Sb08_Sb08 ACTTCTTCGGCGTTTTCCATTTGGCCAATTGGCTTAAACGTTTTTGACC
Sbay_c599 ACTTCTTCGGCAGTTTTCCATTTGCTAACTGACTCAGACGCTTTTGACC

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Sc08_Sc08 GGCCCATACAGAGGTATGGATAATTTTCAGAAACAGATGCCAGTCTTTG
Sc08_Sb08 GGCCCATACAGAGGTATGGATAATTTTCAGAAACAGATGCCAGTCTTTG
Sb08_Sb08 AGCCCATACAGAGTATGAATGATTTTCAAAAATAGTGGCCAGTCTTAG
Sbay_c599 AGCCCATACAGAGTATGGATGATTTTCAAAAATAAGTGGCCAGTCTTAG

Scer_chr08 GATTTAAAGTGAAAATGCAACCATTAAATTGCTTTGTAGCAACGTTCCCT
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Sc08_Sb08 GATTTAAAGTGAAAATGCAACCATTAAATTGCTTTGTAGCAACGTTCCCT
Sb08_Sb08 GGTTTAAAGTGAAAATGCAACCATTAAATTGCTTTGTAGCAACGTTCCCT
Sbay_c599 GGTTTAAAGTGAAAATGCAACCATTAAATTGCTTTGTAGCAACGTTCCCT

Scer_chr08 TCAAAAGTCTTGTGGACAGTAACTCTATACACATTAGTGTGTCACGAA
Sc08_Sc08 TCAAAAGTCTTGTGGACAGTAACTCTATACACATTAGTGTGTCACGAA
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Sbay_c599 TCAAAAGTCTTGTGGACAGTAACTCTATAAACATTAGTGTGTCACAAA

Scer_chr08 GAGTTTAAATGTCGTTATTGAATAACTCGGCATAGTTTGAGGAGTTTAAAA
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Sc08_Sb08 GAGTTTAAATGTCGTTATTGAATAACTCGGCATAGTTTGAGGAGTTTAAAA
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Sc08_Sb08 ATGGTTCCTGTACTAGATTGATATATTTGAAGACCTTTTCTAATACGT
Sb08_Sb08 ACGTTCCTGTACTAGATTGATATATTTGAAGACCTTTTCTGATACGC
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Sc08_Sb08 ACATGTTATAAGCCAAATCGATACCGATCATAACACCAAGTTGGTGAGGGA
Sb08_Sb08 ACATATTGTAGGCCAGATCGATACCAATCATAACACCAAGTTGGTGAGGGA
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Sc08 > Sb08

Scer_chr08 TACATGCTGACATTATCTGTTGTATAATCGAGGAATTTGCTCCTCACATA
Sc08_Sc08 TACATGCTGACATTATCTGTTGTATAATCGAGGAATTTGCTCCTCACATA
Sc08_Sb08 TACATGCTGACATTATCTGTTGTATAATCAAGAAATTTGCTCCTCACATA
Sb08_Sb08 TACATGCTGACATTATCCGTTGTATAATCAAGAAATTTGCTCCTCACATA
Sbay_c599 TACATGCTAACAATTATCCGTCGTATAATCAAGGAATTTGCTCCTCACATA

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Sc08_Sb08 ACGAGATATATCTGGGAATCGTAATCACCATATCTCAATTGCACATCAA
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Sbay_c599 ACGAGATATATCTGGGAATCGTAATCACCATATCTCAATTGCACATCAA

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Sc08_Sc08 ACCACATTTTGTGGTAAATCAATCCCTTAAATGAGTCAATTTGTTTCATGT
Sc08_Sb08 ACCACATCTTATTGGTAAACCATCCTTGAAGTTATCAATTAGTTTCATGT
Sb08_Sb08 ACCACATCTTATTGGTAAACCATCCTTGAAGTTATCAATTAGTTTCATGT
Sbay_c599 ACCACATCTTATTGGTAAACCACACCTTAAAGTTATCGTTGGTTTCATGT

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Sc08_Sb08 AATAAGGAAGGTTTCGAGACCTCCCATTCATAAACACTATCCATGGTGAC
Sb08_Sb08 AATAAGGAAGGTTTCGAGACCTCCCATTCATAAACACTATCCATGGTGAC
Sbay_c599 AATAAGGAAGGTTTGAACCTCCCATTCATGAACACTTCCATAGTTAT

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Sc08_Sb08 AATCCGTTCCCCTGAATAGAGTATGTTCCAAAATGTTTCAATACCCTCC
Sb08_Sb08 AATCCGTTCCCCTGAATAGAGTATGTTCCAAAATGTTTCAATACCCTCC
Sbay_c599 AAACCAAGTCCCCTGAATAGAGTATGTTCCAAAATGTTTCAATACCCTCC

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Sc08_Sc08 TAGGCTTGAATCACATCAGTTCTATAGGCATTAAATTCATAATTAC
Sc08_Sb08 AAGCGCTTGGATAACATCGGTTCTATACGCATTCAAATTCACAACCTAC
Sb08_Sb08 AAGCGCTTGGATAACATCGGTTCTATACGCATTCAAATTCACAACCTAC
Sbay_c599 GAGCGCTTGGATAACATCGGTTCTATACGCATTCAAATTCACAACCTAC

Scer_chr08 CGTCATGGTGGAGTTTGTCCACCAAAAAGGGCTGTTTCTCTCTAGAGAG
Sc08_Sc08 CGTCATGGTGGAGTTTGTCCACCAAAAAGGGCTGTTTCTCTCTAGAGAG
Sc08_Sb08 CATCGTGGTGTGAGTTTGTCCACCAAAAAGGACTGTTTCTCTCTAGAGAG
Sb08_Sb08 CATCGTGGTGTGAGTTTGTCCACCAAAAAGGACTGTTTCTCTCTAGAGAG
Sbay_c599 CATCGTGGTGTGAGTTTGTCCACCAAAAAGGACTGTTTCTCTCTAGAGAG

Scer_chr08 TACTGTTTAAATCCCTACGGATTCTGTGACCTCTGCATACGCTAGAGT
Sc08_Sc08 TACTGTTTAAATCCCTACGGATTCTGTGACCTCTGCATACGCTAGAGT
Sc08_Sb08 TACTGCTTAAATCCCTACGGATTCTATGACCTCTATCATAAGCCAGGGT
Sb08_Sb08 TACTGCTTAAATCCCTACGGATTCTATGACCTCTATCATAAGCCAGGGT
Sbay_c599 TATGCTTGAACCTCTACGGATTCTATGACCTCTATCATAAGCCAGAGT

Scer_chr08 ATGTCGATCTCTTTGAAATAAAGTGCTAATACGAGGTATACCACGATCCC
Sc08_Sc08 ATGTCGATCTCTTTGAAATAAAGTGCTAATACGAGGTATACCACGATCCC
Sc08_Sb08 GTGCCATCTTTTGAATAGTGTACTGATACGCGGTATACCACGATCCC
Sb08_Sb08 GTGCCATCTTTTGAATAGTGTACTGATACGCGGTATACCACGATCCC
Sbay_c599 GTGCTATCTTTTGAATAGCTACTAATACGCGGTATACCACGATCCC

Scer_chr08 ACGATCCTTCAAGTTCTTCAAAGCTAACCTCCTATTCTGCTGAATAGCT
Sc08_Sc08 ACGATCCTTCAAGTTCTTCAAAGCTAACCTCCTATTCTGCTGAATAGCT
Sc08_Sb08 ATGATCCTTCTAGTTCTTCAAAGCCAGTCTTCTATTCTGCTGTATAGCT
Sb08_Sb08 ATGATCCTTCTAGTTCTTCAAAGCCAGTCTTCTATTCTGCTGTATAGCT
Sbay_c599 ATGATCCTTCAAGTTCTTCAAAGCCAGTCTTCTATTCTGCTGAATAGCT

Scer_chr08 TCTTGCCTTTTCGTTGCATACTCGGCCACACCCTTGTGAGAGTCTAAAAA
Sc08_Sc08 TCTTGCCTTTTCGTTGCATACTCGGCCACACCCTTGTGAGAGTCTAAAAA
Sc08_Sb08 TCTTGCCTTTTCGTTGCATACTCGGCCATACCCTTGTGAGAGTCTAAAAA
Sb08_Sb08 TCTTGCCTTTTCGTTGCATACTCGGCCATACCCTTGTGAGAGTCTAAAAA
Sbay_c599 TCTTGCCTTTTCGTTGCATATTCGGCCATACCCTTGTGAGAGTCTAAAAA

Scer_chr08 TTCATTTTCCAAGTAGTGATGTAAACGGAAGATAGTTGGGATTAAATTTT
Sc08_Sc08 TTCATTTTCCAAGTAGTGATGTAAACGGAAGATAGTTGGGATTAAATTTT
Sc08_Sb08 TTCATTTTCCAAGTAGTTATATAACGGAATCGTGGGAATCAATTTT
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Sbay_c599 TTCATTTTCCAAGTAGTTATATAACGGAATCGTGGGAATCAATTTT

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Sc08_Sc08 CATCCTCGTGCATACACCAGCACGAAAATGCGTAATTCCAGTATCGGTC
Sc08_Sb08 CGTCCTCATGTGTACATACACCAGCACGAAAAGTGTGATTCCAGTATCAGTT
Sb08_Sb08 CGTCCTCATGTGTACATACACCAGCACGAAAAGTGTGATTCCAGTATCAGTT
Sbay_c599 CGTCCTCATGTGTACATACACCAGCACGAAAAGTGTGATTCCAGTATCAGTT

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Sc08_Sc08 TGTTTTGACCAACTTAAGTCAGATGCAGGAATTAATATGAGAAGCACT
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Scer_chr08 AATCATACCAACCACCAAGTTCTTTTGGTGTATAAAAAACAGCAGGTG
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Sc08_Sb08 GAAATCTTGTGGCATTTCGATTTAGACCTAGTTTGACTCTGTTTTGA
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Sc08_Sb08 ATTCTTGTTCCTCTTTTACAAGTATATCTAATAAGGGCTCTGTGGCAAC
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Scer_chr08 AATGGCTTCTCTAAGTATGTGAAAAGGATATCAGTGAAGTGTCCATT
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Sc08_Sb08 AATAGCTTCCCTGAAGTAAAGTAAAAGAGATATTAAGAGGTATCCATT
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Sbay_c599 GATAGCTTCTCTGAAGTAGGTAAAAGAGATATTAAGAGGTATCCATT

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Sc08_Sc08 TAGCGGCCACTTTAGTAAAAGTGGTGAACCGGAGGCCATCAATATGCCT
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Sb08_Sb08 TTGCCGCAACTTTGTTGAAAAGTGGTGAACCGGAGGCCATTAATATGCCT
Sbay_c599 TTGCCGCAACTTTCTGAAAAGTGGTGAACCGGAGGCCATTAATATGCCT

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Sc08_Sc08 CTTATTCTGCTGTCAAATTTTGGATTTCTTCTTCTGAGATACCTTTAAATA
Sc08_Sb08 CTTATTCTGCTGTCAAATTTATCGATTTCTTCTTCTGAGATACCTTCAAGTA
Sb08_Sb08 CTTATTCTGCTGTCAAATTTATCGATTTCTTCTTCTGAGATACCTTCAAGTA
Sbay_c599 CTTATTCTGCTGTCAAATTTATCGATTTCTTCTTCTGAGATACCTTCAAGTA

Scer_chr08 T GCTTTTGCAGTTCTTGGCTTGGTTCCTTCGTCAACTAAATCCCAAACAC
Sc08_Sc08 T GCTTTTGCAGTTCTTGGCTTGGTTCCTTCGTCAACTAAATCCCAAACAC
Sc08_Sb08 CGCTTTTGTCTGTTCTCTGCTTTGTTTCTCGTCGATTAATCCCAAACAC
Sb08_Sb08 CGCTTTTGTCTGTTCTCTGCTTTGTTTCTCGTCGATTAATCCCAAACAC
Sbay_c599 CGCTTTTGTCTGTTCTTGGCTTTGTTTCTCGTCGACTAAATCCCAAACAC

Scer_chr08 CTTTCATCGTTAGAAACACCTCTTCCATTCTTTGTCTTGGTAAATATTCTG
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Sc08_Sb08 CTTTCATCATTGGAATTACATCTTCCATCCTTTGTCTTGGTAAATCCTA
Sb08_Sb08 CTTTCATCATTGGAATTACATCTTCCATCCTTTGTCTTGGTAAATCCTA
Sbay_c599 CTTTCATCATTGGAATCACTTCTTCCATCCTTTGTCTTGGTAAATCCTA

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Sc08_Sc08 ACTTCAAAACCCACACATAGAGAAAGATAAGTTCGGATTGTTTTACTGTA
Sc08_Sb08 ACCTCAAAGCCACACATAGAGAAATAATAAATTTGGATTATTTTTACTATA
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Sbay_c599 ACCTCAAAGCCACACATAGAGAAAGCAATTTGGATTGTTTTACTATA

Scer_chr08 TACGGAAACAAAAGCATTTCCTATTAATTGACGTTAACGAAGTTGGCA
Sc08_Sc08 TACGGAAACAAAAGCATTTCCTATTAATTGACGTTAACGAAGTTGGCA
Sc08_Sb08 CACTGAAACAAATGCATTTTCCATTTATGGATGTAATTGAAGTAGGCA
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Sbay_c599 CACAGAAACAAATGCATTTTCCATTTATGGATGTAAGTAGGATAGGCA

Scer_chr08 CCTACTTTGAATTTCCCAAACACTGCTCGCCCTAGGTTAACGTCTGTA
Sc08_Sc08 CCTACTTTGAATTTCCCAAACACTGCTCGCCCTAGGTTAACGTCTGTA
Sc08_Sb08 CTCTGCCTTGAATTTCCCAAACACTGCACGTCCCAAGTTTACATCTGG
Sb08_Sb08 CTCTGCCTTGAATTTCCCAAACACTGCACGTCCCAAGTTTACATCTGG
Sbay_c599 CTCTGCCTTGAATTTCCCAAGAACACAGCACGTCTAGGTTTACGTCTGG

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Sc08_Sc08 CGTATTAGCCTCATGCGCGAATCTTTGGGCCAACATTTCTATTATTGTA
Sc08_Sb08 CGGATTAGCCTCATGCGTGAGTCTTAGGCCAGCATTCTGTTATTGTA
Sb08_Sb08 CGGATTAGCCTCATGCGTGAGTCTTAGGCCAGCATTCTGTTATTGTA
Sbay_c599 CGGATTAACTCATTCGTGAGTCTTAGGCCAGCATTCTGTTATTGTA

Scer_chr08 TCCGATGCTGTTTTCAAAGTTGGATCTGGATTCCTGCGCAAGTATTCAT
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Sc08_Sb08 TCCAATGCTATTTCAAAGTTGGATCTGGGTTTCCGCTAAATATTCAT
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Sc08_Sc08 CAGTCAATTCCCTCCTCATCTTCTTCAAAGTGAAGAGCATATATATA
Sc08_Sb08 CTGTCAAGTTCAATTCCTCCTCATCTTCTTCAAAGCGAAGAGCATATAAATG
Sb08_Sb08 CTGTCAAGTTCAATTCCTCCTCATCTTCTTCAAAGCGAAGAGCATATAAATG
Sbay_c599 CAGACAGTTCAATTCCTCCTCATCTTCTTCAAAGTGAAGAGCATATAAATG

Scer_chr08 CGATCTAAATATCTGGTGTAAAGTCTGATCGGATGTGCTTTTCTACTTC
Sc08_Sc08 CGATCTAAATATCTGGTGTAAAGTCTGATCGGATGTGCTTTTCTACTTC
Sc08_Sb08 CGATCCAAATATCTGGTATAGAGCTGATCGGATGTGCTTTTCTGTTC
Sb08_Sb08 CGATCCAAATATCTGGTATAGAGCTGATCGGATGTGCTTTTCTGTTC
Sbay_c599 CGATCCAAATATCTAGTATAGAGCTGATCGGATGTGCTTTTCTGTTC

Scer_chr08 TTTGCTCTTGAATTGCATAAATTCATTTGGATTGTTAGCTGGACCAGCCA
Sc08_Sc08 TTTGCTCTTGAATTGCATAAATTCATTTGGATTGTTAGCTGGACCAGCCA
Sc08_Sb08 TCTGCTTTTGAATTGCATAAATTCATTTGGATTGTTGGCAGGGCCAGCCA
Sb08_Sb08 TCTGCTTTTGAATTGCATAAATTCATTTGGATTGTTGGCAGGGCCAGCCA
Sbay_c599 TCTGCTTTTGAATTGCATAAATTCATTTGGATTGTTGGCAGGGCCAGCCA

Scer_chr08 AATCTGTAGCCCTTTCCTGACCCAATAGTAAAAGATCTATAACTAGTCCG
Sc08_Sc08 AATCTGTAGCCCTTTCCTGACCCAATAGTAAAAGATCTATAACTAGTCCG
Sc08_Sb08 AATCAGCAGCCCTTTCCTGGCCCAACAACAAAAGATCAACAACACTAGTCCA
Sb08_Sb08 AATCAGCAGCCCTTTCCTGGCCCAACAACAAAAGATCAACAACACTAGTCCA
Sbay_c599 AATCAGCAGCCCTTTCCTGGCCCAATAATAAGAGATCAATAACTAATCCA

Scer_chr08 TAATATTGGAATATGAAAGAAGCGAACTTCAACCCGCGTATTAAGCCATA
 Sc08_Sc08 TAATATTGGAATATGAAAGAAGCGAACTTCAACCCGCGTATTAAGCCATA
 Sc08_Sb08 TAATATTGGAATATAAAAGAGGCAAACTGTAATCCGCGTACTAGACCGTA
 Sb08_Sb08 TAATATTGGAATATAAAAGAGGCAAACTGTAATCCGCGTACTAGACCGTA
 Sbay_c599 TAATATTGGAATATGAAAGAGGCAAACTGTAATCCGCGCACTAAACCGTA

Scer_chr08 TTTGTTGACGTGACTCATATCTTTAAAGTTGATAACAACATTATTTTTG
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 Sc08_Sb08 TTTGTTAACGTGACTCATATCCTTAAAGTTGATCATAACATTGTTTTTG
 Sb08_Sb08 TTTGTTAACGTGACTCATATCCTTAAAGTTGATCATAACATTGTTTTTG
 Sbay_c599 TTTGTTAACGTGACTCATATCCTTAAAGTTAATGATAACATTATTTCTTG

Scer_chr08 CAGTGATATAGTCAGCAATATTAGGATCTACAATCAGCGAAGTAATCTA
 Sc08_Sc08 CAGTAATATAGTCAGCAATATTAGGATCTACAATCAGCGAAGTAATCTA
 Sc08_Sb08 CAGTAATGTAGTCAGCAATATTGGGTCACAATCAGACGAAGTAATCTA
 Sb08_Sb08 CAGTAATGTAGTCAGCAATATTGGGTCACAATCAGACGAAGTAATCTA
 Sbay_c599 CAGTGATGTAGTCAGCAATATTGGGTCACAATCAGACGAAGTAATCTA

← Scer_YHR165C
 ← Spas_ScYHR165C
 ← Spas_ScYHR165C/SbYHR165C

Scer_chr08 TT
 Sc08_Sc08 TT
 Sc08_Sb08 TT
 Sb08_Sb08 TT
 Sbay_c599 TT

← Spas_SbYHR16C
 ← Sbay_YHR165C

1-7) ScX / SbX

Scer_YJR008W →
 Spas_ScYJR008W →
 Scer_chr10CACAGAGTTCTCATGTGACAAGTATTGATGATAGTAGTGT CAGTT
 Sc10_Sc10CACAGAGTTCTCATGTGACAAGTATTGATGATAGTAGTGT CAGTT
 Sc10_Sb10CACAGAGTTCTCATGTGACAAGTATTGATGATAGTAGTGT CAGTT
 Sb10_Sc10CACAGAGTTCTCACGTGACAAGTATTGATGATAGTAGC GTTAGTT
 Sb10_Sb10CACAGAGTTCTCACGTGACAAGTATTGATGATAGTAGC GTTAGTT
 Sbay_c646CACAGAGTTCCATGTGACAAGTATTGATGATAGTAGC GTTAGTT
 Spas_SbYJR008W →
 Sbay_YJR008W →

Scer_YJR008W →
 Spas_ScYJR008W →
 Scer_chr10 ATGCTTCAGGTTATGTTACTATAGGATAATGATCACGGCTAAAACGGTCG
 Sc10_Sc10 ATACTTCAGGTTATGTTACTATAGGATAATGATCACGGCTAAAACGGTCG
 Sc10_Sb10 ATACTTCAGGTTATGTTACTATAGGATAATGATCACGGCTAAAACGGTCG
 Sb10_Sc10 ACCTTCAGGATATGTTACTTTAGATTAGCTATTGTGCATTAAACAG-TTG
 Sb10_Sb10 ACCTTCAGGATATGTTACTTTAGATTAGCTATTGTGCATTAAACAG-TTG
 Sbay_c646 ACCTTCAGGATATGTTACTTTAGATTAGCTATTGTGCATTAAAGAC-TTG
 Spas_SbYJR008W →
 Sbay_YJR008W →

Scer_chr10 AATGTAAGCATATATCTTTTCGATTGTATAAATTGTCCCAAATACCTACAGC
 Sc10_Sc10 AATGTAAGCATATATCTTTTCGATTGTATAAATTGTCCCAAATACCTACAGC
 Sc10_Sb10 AATGTAAGCATATATCTTTTCGATTGTATAAATTGTCCCAAATACCTACAGC
 Sb10_Sc10 AATGCGTACATATAC---TCATATGTATCATTTTGTACAATAAATGAAT
 Sb10_Sb10 AATGCGTACATATAC---TCATATGTATCATTTTGTACAATAAATGAAT
 Sbay_c646 AATGCATACATATAT---TCGTAAAATCGTTTGTATAAGCAATGAAGT

Scer_chr10 ATCTCAAGGAAAAAAAACAA-----AAACTTC--AAAAAATCGAAT
 Sc10_Sc10 ATCTCAAGGAAAAAAAACAA-----AAACTTC--AAAAAATCGAAT
 Sc10_Sb10 ATCTCAAGGAAAAAAAACAA-----AAACTTC--AAAAAATCGAAT
 Sb10_Sc10 ATAATAAAAAACAGTAACAA-----AGCCTTTAAAAAAAATAAAT
 Sb10_Sb10 ATAATAAAAAACAGTAACAA-----AGCCTTTAAAAAAAATAAAT
 Sbay_c646 AAAATAAAAAAACAAATAA---TTAACGAAGCTTCTAAAAAAAATAAAT

Scer_chr10 CCC---TGAGGAATCTTTAATACATTTCATCTATTTAAGTTTTATAAA
 Sc10_Sc10 CCC---TGAGGAATCTTTAATACATTTCATCTATTTAAGTTTTATAAA
 Sc10_Sb10 CCC---TGAGGAATCTTTAATACATTTCATCTATTTAAGTTTTATAAA
 Sb10_Sc10 TCCCAATGTGGAACCTTTAACAAATTCATCTATTTAAGTTTTATAAA
 Sb10_Sb10 TCCCAATGTGGAACCTTTAACAAATTCATCTATTTAAGTTTTATAAA
 Sbay_c646 TCCAT-TGTGGAACCTTTAACAAATTCATCTATTTAAGTTTTATAAA

Scer_chr10 CGTGTATATGAGATGTCATGAGCATGAATTATTAATAATAAAAACTAAT
 Sc10_Sc10 CGTGTATATGAGATGTCATGAGCATGAATTATTAATAATAAAAACTAAT
 Sc10_Sb10 CGTGTATATGAGATGTCATGAGCATGAATTATTAATAATAAAAACTAAT
 Sb10_Sc10 CGTGTAT--GAGATATCATGAGCATGAATTATTAATAATAAAAACTAAT
 Sb10_Sb10 CGTGTAT--GAGATATCATGAGCATGAATTATTAATAATAAAAACTAAT
 Sbay_c646 CGTGTAT--GAGATGTCATGAGCATGAATTATTAATAATAAAAACTAAT

Scer_YJR009C →
 Spas_ScYJR009C →
 Spas_ScYJR009C/SbYJR009C →
 Scer_chr10 CATTAAAGTAACTTAAAGGAGTTAAATTTAAGCCTTGGCAACGTGTTCAAC
 Sc10_Sc10 CATTAAAGTAACTTAAAGGAGTTAAATTTAAGCCTTGGCAACGTGTTCAAC
 Sc10_Sb10 CATTAAAGTAACTTAAAGGAGTTAAATTTAAGCCTTGGCAACGTGTTCAAC
 Sb10_Sc10 CATTAAAGCAACTTAAAGGAGTTAAATTTAAGCTCTGGCAACGTGTTCAAC
 Sb10_Sb10 CATTAAAGCAACTTAAAGGAGTTAAATTTAAGCTCTGGCAACGTGTTCAAC
 Sbay_c646 CATTAAAGCAACTTAAAGGAGTTAAATTTAAGCCTTGGCAACGTGTTCAAC
 Spas_SbYJR009C/ScYJR009C →
 Spas_SbYJR009C →
 Sbay_YJR009C →

Scer_chr10 CAAGTCGACAACCTCTGGTAGAGTAACCGTATTCGTTGTCGTACCAGGAAA
 Sc10_Sc10 CAAGTCGACAACCTCTGGTAGAGTAACCGTATTCGTTGTCGTACCAGGAAA
 Sc10_Sb10 CAAGTCGACAACCTCTGGTAGAGTAACCGTATTCGTTGTCGTACCAGGAAA
 Sb10_Sc10 CAAGTCGACAACCTCTGGTAGAGTAACCGTATTCGTTATCGTACCAGGAGA
 Sb10_Sb10 CAAGTCGACAACCTCTGGTAGAGTAACCGTATTCGTTATCGTACCAGGAGA
 Sbay_c646 CAAGTCGACAACCTCTGGTAGAGTAACCGTATTCGTTATCGTACCAGGAGA

Scer_chr10 CCAACTTGACGAAC TTTGGAGACAATTGGATACCAGCGG CAGCATCGAAG
Sc10_Sc10 CCAACTTGACGAAC TTTGGAGACAATTGGATACCAGCGG CAGCATCGAAG
Sc10_Sb10 CCAACTTGACGAAC TTTGGAGACAATTGGATACCAGCGG CAGCATCGAAG
Sb10_Sc10 CCAACTTGACGAAC TTTGGAGACAATTGGATACCAGCGG CAGCATCGAAG
Sb10_Sb10 CCAACTTGACGAAC TTTGGAGACAATTGGATACCAGCGG CAGCATCGAAG
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Sb10_Sb10 AGTGTAAACCAA AACACCCTTCA T CTTACCTTCAG A GGCAGCCTTGACAA
Sbay_c646 AGTGTAAACCAA AACACCCTT T A CTTACCTTCAG C GGCAGCCTTGACAA

Scer_chr10 CCTTCTTGATTTCA TCGTAGGTGGTTTCCTTGTTCAACTTGACAGTCAAG
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Sc10_Sb10 CCTTCTTGATTTCA TCGTAGGTGGTTTCCTTGTTCAACTTGACAGTCAAG
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Sb10_Sb10 CCTTCTTGATTTCA TCGTAGGTGGTTTCCTTGTTCAACTT AACAGTCAAG
Sbay_c646 CCTTCTTGATTTCA TCGTAGGTGGTTTCCTTGTTCAACTT AACAGTCAAG

Sc10 > Sb10

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Sc10_Sc10 TCAACAACGGAA ACATCGACGGTTGGGACTCTGAAAGCCATACCGGTCAA
Sc10_Sb10 TCAACAACGGAG ACATCGACGGTTGGGACTCTGAAAGCCATACCGGTCAA
Sb10_Sc10 TCAACAACGGAG ACATCGACGGTTGGGACTCTGAAAGCCATACCGGTCAA
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Sbay_c646 TCAACAACGGAG ACATCGACGGTTGGGACTCTGAAAGCCATACCGGTCAA

Scer_chr10 CTTACCTTGCAATTCTGGCAAGACCTTACCGACAGCCTTAGCAGCACCGG
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Sc10_Sc10 TAGAGGATGGGATGATGTTACCGGAAGCGGTTCTACCACCTCTCCAGTCC
Sc10_Sb10 TGAGGATGGGATGATGTTACCGGAAGCGGTTCTACCACCTCTCCAGTCC
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Sc10_Sc10 TTGTGGGATGGACC GTCAACAGTCTTTTGGTGGCGGT CATGGAGTGAAC
Sc10_Sb10 TTGTGGGATGGACCA TCGACAGTCTTTTAGTGGCGGT CATGGAGTGGAC
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Sbay_c646 TTGTGGGATGGACCA TCGACAGTCTTTTAGTGGCGGT CATGGAGTGGAC

Scer_chr10 AGTGGTCATCAAACCTTCTTCAATACCGAAAGCATCGTTGATAACCTTGG
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Sc10_Sb10 AGTGGTCATCAAACCTTCTTCAATACCGAAAGCATCGTTGATAACCTTGG
Sb10_Sc10 AGTGGTCATCAAACCTTCTTCAATACCGAAAGCATCGTTGATAACCTTGG
Sb10_Sb10 AGTGGTCATCAAACCTTCTTCAATACCGAAAGCATCGTTGATAACCTTGG
Sbay_c646 AGTGGTCATCAAACCTTCTTCAATACCGAAAGCATCGTTGATAACCTTGG

Scer_chr10 CCAATGGAGCCAAACAGTTGGTGGTACAAGAAGCGTTGGAACAATCTTC
Sc10_Sc10 CCAATGGAGCCAAACAGTTGGTGGTACAAGAAGCGTTGGAACAATCTTC
Sc10_Sb10 CCAATGGAGCCAAACAGTTAGTGGTACAGGAAGCGTTGGAGACAATCTTC
Sb10_Sc10 CCAATGGAGCCAAACAGTTAGTGGTACAGGAAGCGTTGGAGACAATCTTC
Sb10_Sb10 CCAATGGAGCCAAACAGTTAGTGGTACAGGAAGCGTTGGAGACAATCTTC
Sbay_c646 CCAATGGAGCCAAACAGTTAGTGGTACAGGAAGCGTTGGAGACAATCTTC

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Scer_chr10 AAGTCAGAAGTGTATTTTCTTCGTAAACACCCATGACGAACATTGGGGC
Sc10_Sc10 AAGTCAGAAGTGTATTTTCTTCGTAAACACCCATGACGAACATTGGGGC
Sc10_Sb10 AAGTCAGAAGTGTATTTGTCTTCGTAAACACCCATAACGAACATTGGGGC
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Sb10_Sb10 AAGTCAGAAGTGTATTTGTCTTCGTAAACACCCATGACGAACATTGGGGC
Sbay_c646 AAGTCAGAAGTGTATTTGTCTTCGTAAACACCCATAACGAACATTGGGGC
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Scer_chr10 GGTGGAAGATGGAGCAGTGATGACAACCTTCTTGGCACCAGCGTCAATGT
Sc10_Sc10 GGTGGAAGATGGAGCAGTGATGACAACCTTCTTGGCACCAGCGTCAATGT
Sc10_Sb10 GGTGGAAGATGGAGCAGTGATGACAACCTTCTTGGCACCAGCGTCAATGT
Sb10_Sc10 GGTGGAAGATGGAGCAGTGATGACAACCTTCTTGGCACCAGCGTCAATGT
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Scer_chr10 GCTTTTGAGCAGTGTCCAATTCCTTGAAAAACACCAGTGGAGTCAATGGCG
Sc10_Sc10 GCTTTTGAGCAGTGTCCAATTCCTTGAAAAACACCAGTGGAGTCAATGGCG
Sc10_Sb10 GCTTTTGAGCAGTGTCCAATTCCTTGAAAAACACCAGTGGAGTCAATGGCG
Sb10_Sc10 GCTTTTGAGCAGTGTCCAATTCCTTGAAAAACACCAGTGGAGTCAATGGCG
Sb10_Sb10 GCTTTTGAGCAGTGTCCAATTCCTTGAAAAACACCAGTGGAGTCAATGGCG
Sbay_c646 GCTTTTGAGCAGTGTCCAATTCCTTGAAAAACACCAGTGGAGTCAATGGCG
```

```
Scer_chr10 ATGTCAATGTTTAGAGAAAGCCCATGGCAAGTTAGCTGGGTCTCTTTCTTG
Sc10_Sc10 ATGTCAATGTTTAGAGAAAGCCCATGGCAAGTTAGCTGGGTCTCTTTCTTG
Sc10_Sb10 ATGTCAATCTTTAGAGAAACCCCATGGCAAGTTAGCTGGGTCTCTTTCTTG
Sb10_Sc10 ATGTCAATCTTTAGAGAAACCCCATGGCAAGTTAGCTGGGTCTCTTTCTTG
Sb10_Sb10 ATGTCAATCTTTAGAGAAACCCCATGGCAAGTTAGCTGGGTCTCTTTCTTG
Sbay_c646 ATGTCAATCTTTAGAGAAACCCCATGGCAAGTTAGCTGGGTCTCTTTCTTG
Sb10 > Sc10
```

```
Scer_chr10 GAAAGTGGCGATCTTGTGACCATCAACGATGATGTGCTTGTATCGTGGG
Sc10_Sc10 GAAAGTGGCGATCTTGTGACCATCAACGATGATGTGCTTGTATCGTGGG
Sc10_Sb10 GAAAGTAGCAATCTTTGGCCATCGACGATGATGTGTTTGTATCGTGGG
Sb10_Sc10 GAAAGTGGCGATCTTGTGACCATCAACGATGATGTGCTTGTATCGTGGG
Sb10_Sb10 GAAAGTAGCAATCTTTGGCCATCGACGATGATGTGTTTGTATCGTGGG
Sbay_c646 GAAAGTAGCGATCTTTGACCATCAACGATGATGTGTTTGTATCGTGGG
```

```
Scer_YJR009C →
Spas_ScYJR009C →
Spas_ScYJR009C/SbYJR009C →
Scer_chr10 AACTTCACCAGCGTATCTACC.....
Sc10_Sc10 AACTTCACCAGCGTATCTACC.....
Sc10_Sb10 AACTTCACCAGCGTATCTACC.....
Sb10_Sc10 AACTTCACCAGCGTATCTACC.....
Sb10_Sb10 AACTTCACCAGCGTATCTACC.....
Sbay_c646 AACTTCACCAGCGTATCTACC.....
Spas_SbYJR009C/ScYJR009C →
Spas_SbYJR009C →
Sbay_YJR009C →
```


1-8) ScXI / SbXI

Scer_YKL045W →
 Spas_ScYKL045W →
 Spas_ScYKL045W/SbYKL045W →
 Scer_chr11CGTTTTGTTCAAAATTAGATTTAACATGCTAACCTCCACCGATC
 Sc11_Sc11CGTTTTGTTCAAAATTAGATTTAACATGCTAACCTCCACCGATC
 Sc11_Sb11CGTTTTGTTCAAAATTAGATTTAACATGCTAACCTCCACCGATC
 Sb11_Sb11CTTTCCGCTCAAAGATTAGGTTCAATATGCTGACCTCAGCCGACC
 Sbay_c652CCTTCCGCTTAAAGATTAGGTTCAATATGCTGACCTCAACTGACC
 Spas_SbYKL045W →
 Sbay_YKL045W →

Scer_chr11 AAACAAAATTTGTTCAATCATTGGA CTTACCCTTACTACAGTTTATCTCA
 Sc11_Sc11 AAACAAAATTTGTTCAATCATTGGA CTTACCCTTACTACAGTTTATCTCA
 Sc11_Sb11 AAACAAAATTTGTTCAATCATTGGA CTTACCCTTACTACAGTTTATCTCA
 Sb11_Sb11 AAACAAAATTCGTTCAATCGTTAGATCTGCCTTACTACAGTTTATTTCC
 Sbay_c652 AAACAAAATTCGTTCAATCGTTGGA TCTGCCTTACTACAGTTTATTTCC

Scer_chr11 AATGAAGAAAAGGCGGAATTATCTCATCAGTTGTATCAAACAGTTTCGCG
 Sc11_Sc11 AATGAAGAAAAGGCGGAATTATCTCATCAGTTGTATCAAACAGTTTCGCG
 Sc11_Sb11 AATGAAGAAAAGGCGGAATTATCTCATCAGTTGTATCAAACAGTTTCGCG
 Sb11_Sb11 AACGAAGAAAAGGCGGAATTGTCACACCAGTTGTACCAAACCGTCTCAGC
 Sbay_c652 AACGAAGAAAAGGCGGAATTGTCGACACCAGTTGTACCAAACCGTTCAGC

Scer_chr11 GTCTCTACAGTTCCAATTGAATTTAAACGAGGAACATCAAAGAAAACAGT
 Sc11_Sc11 GTCTCTACAGTTCCAATTGAATTTAAACGAGGAACATCAAAGAAAACAGT
 Sc11_Sb11 GTCTCTACAGTTCCAATTGAATTTAAACGAGGAACATCAAAGAAAACAGT
 Sb11_Sb11 TTCTTTACAGTTCCAATTGAATCTTACTGAAGAACCAAAGAAAGGAGT
 Sbay_c652 TTCTTTACAGTTCCAATTGAATCTTAAACGAGGAACCAAAGAAAGACAGT

Scer_chr11 ATTTCAACAGGAAAAATTCATAAAATACCTTTCGAAAATGTGATAGAA
 Sc11_Sc11 ATTTCAACAGGAAAAATTCATAAAATACCTTTCGAAAATGTGATAGAA
 Sc11_Sb11 ATTTCAACAGGAAAAATTCATAAAATACCTTTCGAAAATGTGATAGAA
 Sb11_Sb11 ACTTCCAACAAGAGAAATTCATAAACTACCCTTCGAAAACGTGATAGAG
 Sbay_c652 ACTTCCAACAAGAGAAATTCATAAACTACCCTTCGAAAACGTGATAGAG

Scer_chr11 CTGGTAGGAAACCGTTTAGTGTTTTTGAAGGACGGGTACGCATATTTACC
 Sc11_Sc11 CTGGTAGGAAACCGTTTAGTGTTTTTGAAGGACGGGTACGCATATTTACC
 Sc11_Sb11 CTGGTAGGAAACCGTTTAGTGTTTTTGAAGGACGGGTACGCATATTTACC
 Sb11_Sb11 CTAGTGGGTAACCGCTTAGTGTTTTTGAAGAACCGCTATGCTTATTTGCC
 Sbay_c652 CTAGTGGGTAACCGCTTAGTGTTTTTGAAGAACCGCTATGCTTATTTGCC

Scer_chr11 ACAATTCAGCAATGAATTTACTTTCTAATGAGTTTGCTAGCAAATGA
 Sc11_Sc11 ACAATTCAGCAATGAATTTACTTTCTAATGAGTTTGCTAGCAAATGA
 Sc11_Sb11 ACAATTCAGCAATGAATTTACTTTCTAATGAGTTTGCTAGCAAATGA
 Sb11_Sb11 GCGGTTCCAACAGCTGAATTTGCTATCCAATGAATTTGCTAGTAAATGA
 Sbay_c652 ACAGTTCCAACAACCTGAATCTGCTGTTCTAATGAGTTTGCTAGTAAATGA

Scer_chr11 ACCAGGAGTTAATAAAAACGTACCAGTACTTACCAAGACTGAATGAGGAT
 Sc11_Sc11 ACCAGGAGTTAATAAAAACGTACCAGTACTTACCAAGACTGAATGAGGAT
 Sc11_Sb11 ACCAGGAGTTAATAAAAACGTACCAGTACTTACCAAGACTGAATGAGGAT
 Sb11_Sb11 ACGAGGAGCTATTGAAGGCTACCAGTACTTCCAAGACTGAACGAAGAT
 Sbay_c652 ACGAGGAGCTATTGAAGACTACCAGTACTTCCAAGATTGAACGAGGAT

Scer_chr11 GACCGGTTGTTACCAATTCTAATCATCTTTTCGTCGGGTACACTATCGC
 Sc11_Sc11 GACCGGTTGTTACCAATTCTGAATCATCTTTTCGTCGGGTACACTATCGC
 Sc11_Sb11 GACCGGTTGTTACCAATTCTGAATCATCTTTTCGTCAGGATACACAATTCG
 Sb11_Sb11 GACAGGTTGCTGCCAATTTAAACCATCTTTTCGTCAGGATACACAATTCG
 Sbay_c652 GACAGGTTGCTGCCGATTTAAACCATCTTTTCGTCAGGATACACAATTCG

Sc11 > Sb11

Scer_chr11 GGATTTCAACCAGCAAAGGCAAACCAATTCAGTGAGAACGTAGATGATG
 Sc11_Sc11 GGATTTCAACCAGCAAAGGCAAACCAATTCAGTGAGAACGTAGATGATG
 Sc11_Sb11 AGACTTTAACCAGCAAAGGCAAACCAATTCGGTGAAAATGTAGACGATG
 Sb11_Sb11 AGACTTTAACCAGCAAAGGCAAACCAATTCGGTGAAAATGTAGACGATG
 Sbay_c652 GGATTTAACCAGCAAAGGCAAACCAATTCGGTGAAAATGTAGACGATG

Scer_chr11 AGATTAATGCGCAAAGTGTCTGGTCTGAAGAGATTAGCTCAAACATATCCG
Sc11_Sc11 AGATTAACGCGCAAAGTGTCTGGTCTGAAGAGATTAGCTCAAACATATCCG
Sc11_Sb11 AAATAAATGCACAAAGTGTGTGGTCCGAGGAGATCAGCTCGAATTATCCA
Sb11_Sb11 AAATAAATGCACAAAGTGTGTGGTCCGAGGAGATCAGCTCGAATTATCCA
Sbay_c652 AAATAAATGCACAAAGTGTGTGGTCCGAGGAGATTAGCTCAAACATATCCCT

Scer_chr11 CTATGTATCAAAAACCTGATGGAGGGTCTTAAAAAGAACCATCATTGAG
Sc11_Sc11 CTATGTATCAAAAACCTGATGGAGGGTCTTAAAAAGAACCATCATTGAG
Sc11_Sb11 TTGAGTATCAAAAACCTAATGGAGGGTTTGAAGAAAACCATCATTGAG
Sb11_Sb11 TTGAGTATCAAAAACCTAATGGAGGGTTTGAAGAAAACCATCATTGAG
Sbay_c652 TTGAGTATCAAAAACCTGATGGAGGGTTTGAAGAAAACCATCATTGAG

Scer_chr11 GTATTATGGGAGCAACAACCTGAGTCTGTTTTTGAAAGGTATCGGCCCTGA
Sc11_Sc11 GTATTATGGGAGCAACAACCTGAGTCTGTTTTTGAAAGGTATCGGCCCTGA
Sc11_Sb11 ATATTACGGTAGGCAACAACCTAAGCCTGTTTTCTAAAGGGAATTGGGTGA
Sb11_Sb11 ATATTACGGTAGGCAACAACCTAAGCCTGTTTTCTAAAGGGAATTGGGTGA
Sbay_c652 ATATTACGGTAGGCAACAACCTAAGCCTGTTTTCTAAAGGGAATTGGATGA

Scer_chr11 GCGCTGATGAAGCGTTAAAATTTTGGTCTGAGGCATTTACAAGAAATGGG
Sc11_Sc11 GCGCTGATGAAGCGTTAAAATTTTGGTCTGAGGCATTTACAAGAAATGGG
Sc11_Sb11 GCGCCGACGAAGCTTTGAAATTTTGGTCAGAAGCTTTCACAAGAAACGGC
Sb11_Sb11 GCGCCGACGAAGCTTTGAAATTTTGGTCAGAAGCTTTCACAAGAAACGGC
Sbay_c652 GTGCCGATGAAGCTTTGAAATTTTGGTCAGAAGCTTTCACAAGAAACGGC

Scer_chr11 AACATGACAATGGAGAAGTTCAATAAAGAATACCGTTACAGCTTCAGGCA
Sc11_Sc11 AACATGACAATGGAGAAGTTCAATAAAGAATACCGTTACAGCTTCAGGCA
Sc11_Sb11 AACATGACGATGGAAAAGTTCAATAAAGAGTACCGCTACAGTTTTAGACA
Sb11_Sb11 AACATGACGATGGAAAAGTTCAATAAAGAGTACCGCTACAGTTTTAGACA
Sbay_c652 AACATGACGATGGAAAAGTTCAATAAAGAGTACCGCTACAGTTTTAGACA

Scer_chr11 TAATTACGGTCTTGAAGGTAACAGAATCAACTACAAACCATGGGACTGTC
Sc11_Sc11 TAATTACGGTCTTGAAGGTAACAGAATCAACTACAAACCATGGGACTGTC
Sc11_Sb11 CAACTACGGCCTCGAAGGTAACAGAATCAACTACAAACCGTGGGACTGTC
Sb11_Sb11 CAACTACGGCCTCGAAGGTAACAGAATCAACTACAAACCGTGGGACTGTC
Sbay_c652 CAACTACGGTCTCGAAGGTAACAGAATTAECTACAAACCATGGGACTGTC

Scer_YKL045W→
Spas_ScYKL045W→
Spas_ScYKL045W/SbYKL045W→
Scer_chr11 ACACATATCCTTCCAAAGCCAGACCTGGCGCGGAGATTATCATG.....
Sc11_Sc11 ACACATATCCTTCCAAAGCCAGACCTGGCGCGGAGATTATCATG.....
Sc11_Sb11 ACACCATTCATCTAAGCCAGACCCGGCCGCGCGATTATCAG.....
Sb11_Sb11 ACACCATTCATCTAAGCCAGACCCGGCCGCGCGATTATCAG.....
Sbay_c652 ACACCATTCCTCCAAAGCCAGACCCGGCCGCGGACTATCAG.....
Spas_SbYKL045W→
Sbay_YKL045W→

1-9) ScXIII / SbXIII

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      ← Scer_YMR302C
      ← Spas_ScYMR302C
Scer_chr13  ....TCTACAGTTTCAAACCACAACCTTTAATAAGTAAACGGGTTTT
Sc13_Sc13  ....TCTACAGTTTCAAACCACAACCTTTAATAAGTAAACGGGTTTT
Sb13_Sc13  ....CCTGCCGTTTCAAACCACAACCTTTAATAAGTAAACGGGTTTT
Sbay_c671  ....CCTGCCGTTTCAAACCACAACCTTTAATAAGTAAACGGGTTTT
      ← Spas_SbYMR302C/ScYMR302C
      ← Sbay_YMR302C

Scer_chr13  TAGCACTTTTGCAGTTCAGGATCGTTGATCAAGTATGTGAATGCTGCC
Sc13_Sc13  TAGCACTTTTGCAGTTCAGGATCGTTGATCAAGTATGTGAATGCTGCC
Sb13_Sc13  CAACACCTTTGAAAGTTCAGCATCGTTAATCAAATATGTGAATGCTGCTC
Sbay_c671  CAACACCTTTGAAAGTTCAGCATCGTTAATCAAATATGTGAATGCTGCTC

Scer_chr13  TGTATAGCGTTTGGCAGGCTGATTCCTGTAAAACACCCCTATCTCTA
Sc13_Sc13  TGTATAGTGGTTTGGCAGGCTGATTCCTGTAAAACACCCCTATCTCTA
Sb13_Sc13  TGTATAGTGGTTTGGCAGGCTAATTCCTGTAAAACACCCCTATCCCTG
Sbay_c671  TGTATAGTGGTTTGGCAGGCTAATTCCTGTAAAACACCCCTATCCCTG

Scer_chr13  GATACAGTATTAAACCATTAATTCCTCAATTCATGATTCCTGTTCTGG
Sc13_Sc13  GATACAGTATTAAACCATTAATTCCTCAATTCATGATTCCTGTTCTGG
Sb13_Sc13  GACACAGTGATTAAACCATGTTTCCAGTTCATGATTCCTGTTCTGG
Sbay_c671  GACACAGTGATTAAACCATGTTTCCAGTTCATGATTCCTGTTCTGG

Scer_chr13  TGCAGCTTTGAATAATGGCTGTTAACGATTTTCATGGAATGGAATGACTG
Sc13_Sc13  TGCAGCTTTGAATAATGGCTGTTAACGATTTTCATGGAATGGAATGACTG
Sb13_Sc13  AGCCGCCTTGAATAATGGCATATTAACAACCTTCGTGGAATGGAAGCACTG
Sbay_c671  AGCCGCCTTGAATAATGGCATATTAACAACCTTCGTGGAATGGAAGCACTG

Scer_chr13  GGTTCGCACTCAATAATTCGATTAATTCCTCAAGGCTTGTGCACTTTTATTG
Sc13_Sc13  GGTTCGCACTCAATAATTCGATTAATTCCTCAAGGCTTGTGCACTTTTATTG
Sb13_Sc13  GATGGAACTCAATAATTCGATCAGTTCCCAAGCTTGGCACTCTTTGTA
Sbay_c671  GATGGAACTCAATAATTCATCAGTTCCCAAGCTTGGCACTCTTTGTA

Scer_chr13  CTGTCAATCTTGTCACTTAAAAACATTTGAGTTATTGCTCAGAAGCCTG
Sc13_Sc13  CTGTCAATCTTGTCACTTAAAAACATTTGAGTTATTGCTCAGAAGCCTG
Sb13_Sc13  CCATCAATTTTGTCACTCAAAAAACATTTGAGTTATCTGTTCAAGAAGCCTG
Sbay_c671  CCATCAATTTTGTCACTCAAAAAACATTTGAGTTATCTGTTCAAGAAGCCTG

Scer_chr13  TTCAATCATTTTGTCTACTGCTTCCGAGGGCTCTTCTCCTGACTTTACCC
Sc13_Sc13  TTCAATCATTTTGTCTAATGCTTCCGAGGGCTCTTCTCCTGACTTTACCC
Sb13_Sc13  TTCAATCATCTTGTCTAGCGCTTCCGTTAGGCTCTTCTCCTGATTTGACTC
Sbay_c671  TTCAATCATCTTGTCTAGCGCTTCCGTTAGGCTCTTCTCCTGATTTGACTC

Scer_chr13  TTCTTACAAATGCTGTAAAGTCTAACATCTACCACCCAATGGCTCTAA
Sc13_Sc13  TTCTTACAAATGCTGTAAAGTCTAACATCTACCACCCAATGGCTCTAA
Sb13_Sc13  TTCTTACAAATGCTTGCATCTAACATCTACCACCCAATGGCTCTAA
Sbay_c671  TTCTTACAAATGCTTGTAAATCTAACATCTACCACCCAATGGCTCTAA

Scer_chr13  GAAGCGTCAATTTCTGTAAATTCCTTTTCAATTTAAAATAACCTCAGCTTT
Sc13_Sc13  GAAGCGTCAATTTCTGTAAATTCCTTTTCAATTTAAAATAACCTCAGCTTT
Sb13_Sc13  GAAGCGTCAATTTCTGTAAATTCCTTTTCAATTTAAAATAACCTCAGCTTT
Sbay_c671  GAAGCGTCAATGCTTGCAGTTTCCTTTTCAATTTAAAATAACCTCAGCTTT
sb13 > sc13

Scer_chr13  TTTGACACTCGTATC---GGCCTCACTA---TCAGAATCATATTTTCAG
Sc13_Sc13  TTTGACACTCGTATC---GGCCTCACTA---TCAGAATCATATTTTCAG
Sb13_Sc13  TTTGACACTCGTATC---GGCCTCACTA---TCAGAATCATATTTTCAG
Sbay_c671  CTTCTTATCTGAATTCAGTATCATTAGCCTCAGAATCATCGTTTTTCAT

Scer_chr13  CAGTTTCCTTTTCTGATTCAGGTTCTTTTACGTTTTCACCTTGGATTTT
Sc13_Sc13  CAATTTCTTTTCTGATTCAGGTTCTTTTACGTTTTCACCTTGGATTTT
Sb13_Sc13  CAATTTCTTTTCTGATTCAGGTTCTTTTACGTTTTCACCTTGGATTTT
Sbay_c671  TCTTTTCTTTTCTCTTCAACTTCTTTGCGTCTTCTCCCTTGACCTTC

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Scer_chr13 TTATTGTAATATAAGTAAATCCTCCAATTGGGATAATACATAGTTCTCTCGA
Sc13_Sc13 TTATTGTAATATAAGTAAATCCTCCAATTGGGATAATACATAGTTCTCTCGA
Sb13_Sc13 TTATTGTAATATAAGTAAATCCTCCAATTGGGATAATACATAGTTCTCTCGA
Sbay_c671 CTGTTGAAATCAAGTACTCTTCCAATTGGGACAAACACATAATTTCTCGA

Scer_chr13 ATTCCTTTTGGGCATCTGATAGGATTAGGTTTTTGAAGACTTGATTGG
Sc13_Sc13 ATTTCTTTTGGGCATCTGATAAAATTAAGTTTTTGAAGACTTGATTGG
Sb13_Sc13 ATTTCTTTTGGGCATCTGATAAAATTAAGTTTTTGAAGACTTGATTGG
Sbay_c671 ATTTCTTTCGACGCATCTGATAAAATCAAATTTGAACTTGATTGG

Scer_chr13 GTAGTGATTCGCTCAATCTTTGGTTGGATGCAACGGTTTCCGTTAAGAAA
Sc13_Sc13 GTAGTGACTCGCTCAATCTTTGGTTGGATGCAACGGTTTCCGTTAAGAAA
Sb13_Sc13 GTAGTGACTCGCTCAATCTTTGGTTGGATGCAACGGTTTCCGTTAAGAAA
Sbay_c671 GCAGTGACTCACTTAATCTTTGGTTGGATGCGACAGTTTCTGTCAAGAAA

Scer_chr13 ATCACATGAGCAATATTCATTTGAAC TAGCATAGCTGCCAATCGGATAG
Sc13_Sc13 ATCACATGAGCAATATTCATTTGAAC TAGCATAGCTGCCAATCGGATAG
Sb13_Sc13 ATCACATGAGCAATATTCATTTGAAC TAGCATAGCTGCCAATCGGATAG
Sbay_c671 ATCACATGTGCAATGTTCAATTTGAAC TAGCATAGCTGCCAATCAGATAA

Scer_chr13 TTCTTTATACACAAATCCATTATTTCCGACTTGCCCTCAAACCTATCTA
Sc13_Sc13 TTCTTTATACACAAATCCATTATTTCCGACTTGCCCTCAAACCTATCTA
Sb13_Sc13 TTCTTTATACACAAATCCATTATTTCCGACTTGCCCTCAAACCTATCTA
Sbay_c671 TTCTTTGTACACAAATCCATTAAATTCAGATTTACCCTCAAACCTATCTA

Scer_chr13 TGACGATAACGGGTTTAGCTTCCGGATGTTGCTGTAGGTAATCTTCTTCC
Sc13_Sc13 TGACGATAACGGGTTTAGCTTCCGGATGTTGCTGTAGGTAATCTTCTTCC
Sb13_Sc13 TGACGATAACGGGTTTAGCTTCCGGATGTTGCTGTAGGTAATCTTCTTCC
Sbay_c671 TAACAATAACAGGCTTAGCTTCTGGATGTTGTTGCAAGTAATCTTCTTCT

Scer_chr13 TTAACATTAAGTGTCCCATCACCGGTGGAAACAAAAGCCTTGTAATTCTT
Sc13_Sc13 TTAACATTAAGTGTCCCATCACCGGTGGAAACAAAAGCCTTGTAATTCTT
Sb13_Sc13 TTAACATTAAGTGTCCCATCACCGGTGGAAACAAAAGCCTTGTAATTCTT
Sbay_c671 TTAATATTAAGTGTCTCCGTCGCTGGTGGAAATGAAGCCTTGTAATTCTT

Scer_chr13 GAGAGCAATACGTCTAATGGACATCAATGAGGTAGTTAACATGTTTCTAA
Sc13_Sc13 GAGAGCAATACGTCTAATGGACATCAATGAGGTAGTTAACATGTTTCTAA
Sb13_Sc13 GAGAGCAATACGTCTAATGGACATCAATGAGGTAGTTAACATGTTTCTAA
Sbay_c671 AAGGCAATGCGTCTAATCGACATCAATGAAGTGGTCAACATAATTTCTAA

Scer_chr13 ACCGAGATTCCTTCGT
Sc13_Sc13 ACTGAGATTCCTTCGT
Sb13_Sc13 ACTGAGATTCCTTCGT
Sbay_c671 ATTGAGATTC TTTTGT
← Scer_YMR302C
← Spas_ScYMR302C
← Spas_SbYMR302C/ScYMR302C
← Sbay_YMR302C

1-10) ScXVI / SbXVI

Scer_chr16 GATTC TTCGCGT TTTGTATGACACACTAGACGCG-----TCGGAAT
 Sc16_Sc16 GATTC TTCGCGT TTTGTATGACACACTAGACGCG-----TCGGAAT
 Sc16_Sb16 GATTC TTCGCGT TTTGCATGACACACTAGACGCG-----TCGGAAT
 Sbay_c637 CTTTT TTCGCGTCTTGAATAAATAACCTAAGCGCGCCCCCGCTTTCGCTAT

Scer_chr16 --AGT---GA-----AAACTCTAAAAAAT-----ACATTGTAATGT
 Sc16_Sc16 --AGT---GA-----AAACTCTAAAAAAT-----ACATTGTAATGT
 Sc16_Sb16 --AGT---G--A-----AAACTCTAGAAAAAT-----ACATTGTAATGT
 Sbay_c637 GTAGT TGC GATACTTCGAAATTCATTTAAAATTTTTTACTTTCATGTGT

Scer_chr16 T-----TTACCCAGTTATTTCCATGCAGATGCCCTATTTACATACTTATTT
 Sc16_Sc16 T-----TTACCCAGTTATTTCCATGCAGATGCCCTATTTACATACTTATTT
 Sc16_Sb16 T-----TTACCCAGTTATTTCCATGCAGATGCCCTACTTACATACTTATTT
 Sbay_c637 TTTTT TTACCTAGTTTATTTTATGCAGATGCCCTATTTACACTTTTACT-

Scer_chr16 ATTCATT CGAATACCTATACGTTATATTA--TGTTTTGTTTA-----TAA
 Sc16_Sc16 ATTCATT CGAATACCTATACGTTATATTA--TGTTTTGTTTA-----TAA
 Sc16_Sb16 ATTCATT CGAATACCTATACGTTATATTA--TGTTTTGTTTA-----TAA
 Sbay_c637 ATTTATT CGAATACTTATACGTTACGTTATATGTTTTGTTTGCAACC TAA

Scer_chr16 CCTAT TCAAGGCCATGATGTTCT--TACCTAATCTACCTCTTCCATTTCG
 Sc16_Sc16 CCTAT TCAAGGCCATGATGTTCT--TACCTAATCTACCTCTTCCATTTCG
 Sc16_Sb16 CCTAT TCAAGGCCATGATGTTCT--TACCTAATCTACCTCTTCCATTTCG
 Sbay_c637 CCTAATCAGGG--ATGAGGCTCTTACCTAATCGACTCTTCCATTTCG

← Scer_YPL240C
 ← Spas_ScYPL240C
 ← Spas_ScYPL240C/SbYPL240C

Scer_chr16 GTGTCAGCTGGAACCTCTTCAACCGGAGCTGCGGTGGATGCTTCTGGAGC
 Sc16_Sc16 GTGTCAGCTGGAACCTCTTCAACCGGAGCTGCGGTGGATGCTTCTGGAGC
 Sc16_Sb16 GTGTCAGCTGGAACCTCTTCAACCGGAGCTGCGGTGGATGCTTCTGGAGC
 Sbay_c637 GTGTCAGCTGGGACTTCTTCGACTGGAGCATCAGTAGCTGCATCAGTAGC

Scer_chr16 AGTCTCTGTTTCTTTCATCCTCATCAATGTTCAAACCCAAAGAGATCAATC
 Sc16_Sc16 AGTCTCTGTTTCTTTCATCCTCATCAATGTTCAAACCCAAAGAGATCAATC
 Sc16_Sb16 AGTCTCTGTTTCTTTCATCCTCATCAATGTTCAAACCCAAAGAGATCAATC
 Sbay_c637 AGCTTCAGTCTCTTCTTCTTCATCAATGTTCAAACCCAAAGAAATCAATC

Scer_chr16 TGTTAAT TCTTGATGCAAAAGGAGTTGGTTCGTCCAAC TGAAACCGGAA
 Sc16_Sc16 TGTTAAT TCTTGATGCAAAAGGAGTTGGTTCGTCCAAC TGAAACCGGAA
 Sc16_Sb16 TGTTAAT TCTTGATGCAAAAGGAGTTGGTTCGTCCAAC TGAAACCGGAA
 Sbay_c637 TGTTAAT TCTTGAGCAAAAGGAGTTGGTTCGTCCAAC TGAAACCGGAA

Scer_chr16 GTCAACA AAGCAGTTTCATATAATAACTTAGTCAAGTCCTTGACAGTCTT
 Sc16_Sc16 GTCAACA AAGCAGTTTCATATAATAACTTAGTCAAGTCCTTGACAGTCTT
 Sc16_Sb16 GTCAACA AAGCAGTTTCATATAATAACTTAGTCAAGTCCTTGACAGTCTT
 Sbay_c637 GTTAAACA GAGCGTTTCGATAATAAGTTGGTCAAATCCTTGACAGTCTT

Scer_chr16 GTCTTGAGCACCACCTTCGTCAACTCTCTTTTTCAATTCCTTGATAATTG
 Sc16_Sc16 GTCTTGAGCACCACCTTCGTCAACTCTCTTTTTCAATTCCTTAATAATTG
 Sc16_Sb16 GTCTTGAGCACCACCTTCGTCAACTCTCTTTTTCAATTCCTTGATAATTG
 Sbay_c637 ATCTTGAGCACCACCTTCGTCAACTCTCTTTTTCAATTCCTTGATGATTG

Scer_chr16 GAGATTTTGGAGAAATTTGAAAAGTCTTCTTGGAAGACATGTAGGAGGAC
 Sc16_Sc16 GAGATTTTGGAGAAATTTGAAAAGTCTTCTTGGAAGACATGTAGGAGGAC
 Sc16_Sb16 GAGATTTTGGAGAAATTTGAAAAGTCTTCTTGGAAGACATGTAGGAGGAC
 Sbay_c637 GGGATTTTGGAGATATTTCAAATGTCCTTCTTGGAAGACATGTAGGAGGAC

Scer_chr16 ATGGAAGAGTCTCTCAAGGCTTGAGCCTTCATGATTCTTTCCATGTTAGC
 Sc16_Sc16 ATGGAAGAGTCTCTCAAGGCTTGAGCCTTCATGATTCTTTCCATGTTAGC
 Sc16_Sb16 ATGGAAGAGTCTCTCAAGGCTTGAGCCTTCATGATTCTTTCCATGTTAGC
 Sbay_c637 ATGGAAGAGTCTCTCAAGGCTTGTGCCTTCATAATTCTTTCCATGTTAGC

Scer_chr16 AGACCAACCAAATTGACAGTTCTGATAGCAGCTGGGGCATCCAACAATT
Sc16_Sc16 AGACCAAGCCGAATTGACAGTTCTGATGGCAGCTGGAGCATCTAGCAATT
Sc16_Sb16 AGACCAACCAAATTGACAGTTCTGATAGCAGCTGGGGCATCCAACAATT
Sbay_c637 GGACCAACCGAATTGCCAGTTCTGATGGCAGCTGGGGCGTCCACTAGTT

Scer_chr16 TGTAAGAAACAACAACCTTCTCCACTTGGTCACCCAAATTTCTTTCAAG
Sc16_Sc16 TGTAAGAAACAACAACCTTCTCCACTTGGTCACCCAAATATCTTTCAAG
Sc16_Sb16 TGTAAGAAACAACAACCTTCTCCACTTGGTCACCCAAATTTCTTTCAAG
Sbay_c637 TGTAAGAAACAACAACCTTTCAACTTGGTCACCCAAATGCTTTTCAAG

Scer_chr16 GCCTTGGTCAATGGTTCATATTCTTTGATCTCCTTCTCTTTTCAAGCTTT
Sc16_Sc16 GCCTTGGTCAATGGTTCATATTCTTTGATCTCCTTCTCTTTTCAAGCTTT
Sc16_Sb16 GCCTTGGTCAATGGTTCATATTCTTTGATCTCCTTCTCTTTTCAAGCTTT
Sbay_c637 GCCTTGGTCAATGGTTCGAATCTTTAACTTCCTTTCTCTTTTCAAGCTTT

Scer_chr16 TTCTTCGTCAGTTTCTTCCAATTCGAAATCTTAGTAATGTC AACCAAAG
Sc16_Sc16 TTCTTCGTCAGTTTCTTCCAATTCGAAATCTTAGTAATGTC AACCAAAG
Sc16_Sb16 TTCTTCGTCAGTTTCTTCCAAGTTCGAAATCTTAGTAATGTC AACCAAAG
Sbay_c637 CTCTTCGTCAGTTTCTTCCAAGTTCGAAATCTTAGTAATGTC AACCAAAG
Sc16 > sb16

Scer_chr16 TTTTACCTTCGAATTCCTTCAATTGAGTGAAAGCGTATTTCATCAATTGGG
Sc16_Sc16 TTTTACCTTCGAATTCCTTCAATTGAGTGAAAGCGTATTTCATCAATTGGG
Sc16_Sb16 TTTTACCTTCGAATTCCTTCAATTGGTGAAAGCGTATTTCATCGATTGGA
Sbay_c637 TTTTACCTTCGAATTCCTTCAATTGAGTGAAAGCGTATTTCATCGATTGGA

Scer_chr16 TCGGTCAAGAACAAAACCTCGAAGTTT TAGCCTTCAAGGCATCCAAA
Sc16_Sc16 TCGGTCAAGAACAAAACCTCAAGTTT TAGCCTTCAAGGCATCCAAAGAA
Sc16_Sb16 TCAGTCAAGAACAAAACCTCAAGTTT TAGCCTTCAAGGCATCCAAAGAA
Sbay_c637 TCAGTCAAGAACAAAACCTCAAGTTT TAGCTTTCAAGGCATTAAGAA

Scer_chr16 TGGAGACTTTTCGACAGCCTT TAGAGATTCACCAAGTGATG TAGTAGATGT
Sc16_Sc16 TGGAGACTTTTCGACTGCCTT TAGAGATTCACCGGTGATG TAATAGATGT
Sc16_Sb16 TGGGATTTTTCACAGCCTT TAGAGATTCACCTGTGATG TAGTAAATGT
Sbay_c637 TGGGATTTTTCACAGCCTTCAAGACTCACCTGTGATATAGTAGATGT

Scer_chr16 TCTTTTGGTGTCTGGCATTCTGGTAACGTAATCAGTTAAGGAAGTCAAC
Sc16_Sc16 TCTTTTGGTGTCTGGCATTCTAGTAACGTAATCAGTCAAGGAAGTCAAT
Sc16_Sb16 TCTTTTGGTGTCTGGCATTCTGGTATGTAATCGGTCAAAGAAGTAAAT
Sbay_c637 TCTTTTGGTGTCTGGCATTCTGGTAATAATAATCAGTCAAAGAAGTCAAT

Scer_chr16 TCATCTACGGACTTGGTAGAGTTGTAACGTAAACAATTAGCCAAAGCAGC
Sc16_Sc16 TCATCGACAGATTTAGTAGAATTGTAACGTAGCAACTTAGCTAAAGCAGC
Sc16_Sb16 TCGTCGACGGACTTGGTGGAGTTGTAACGTAGTAACTTAGCCAAAGCAGC
Sbay_c637 TCGTCAACGGACTTGGTGGAGTTGTAACGTAGCAATTTGCCAAAGCAGC

Scer_chr16 CCTGTTTTGGGTATCTTCATGTACACCCAACTTGATAATTTGGAGAAAG
Sc16_Sc16 TCTGTTTTGAGTGTCTTCATGTACACCCAGCTTAATGTTCTTAGCGAAGG
Sc16_Sb16 TCTGTTTTGAGTGTCTTCGTTGGACACCCAAATTTGATGTTCTTAGCGAAGG
Sbay_c637 TCTGTTTTGAGTGTCTTCATGTAACACCCAAATTTGATGTTCTTAGCGAAGG

Scer_chr16 CCGAGTAGAACTTTTCAAATGTTTCAGAGTCTT CAGCAATTT CGTTGAAG
Sc16_Sc16 CAGAGTAAAATTTGTCAAATGCTCGGAGTCTT CAGCGATTT CGTTGAAG
Sc16_Sb16 CAGAGTAGAACTTTTCAAATGTTTCAGAGTCTT CAGCAATTT CGTTGAAA
Sbay_c637 CAGAGTAGAACTTTTCAAATGTTTCAGAGTCTT CAGCGATTT CGTTGAAG

Scer_chr16 GCTTCAATCAACTTTTGGACAATGTTCTTTCTAATAACCTTCATGATCTT
Sc16_Sc16 GCTTCAATCAATTTCTTGGACAATATTCTTTCTAATAACCTTCATATCTT
Sc16_Sb16 GCTTCAATCACTTCTTGGAGATGTTCTTTCTGATAACCTTCATGATCTT
Sbay_c637 GATTCAATCACTTCTTAAACGATGTTCTTTCTGATGACCTTCATGATCTT

Scer_chr16 ATTTTGTGTAAACATTTCTCTGGACAATTCAATGGTAAATCTTCAGAGT
Sc16_Sc16 ATTTTGTGTAAACATTTCTCTGGACAATTCAATGGTAAATCTTCAGAGT
Sc16_Sb16 GTTTTGTGTAGCATTTCTCTGGACAAGTTCAATGGTAAATCTTCAGAGT
Sbay_c637 GTTTTGTGTCAACATTTCTCTGGACAAGTTCAATGGTAAATCTTCAGAGT

Scer_chr16 CAACAACACCCTTGACGAAAGATAACCACTCTGGAATCAAGTCTTCAGCT
Sc16_Sc16 CAACAACACCCTTGACGAAAGATAACCACTCTGGAATCAAGTCTTCAGCT
Sc16_Sb16 CAACAACACCCTTGACAAAGGACATCCATCTCTGGGATCAAGTCTTCAGCT
Sbay_c637 CAACAACACCCTTGACGAATGACATCCATCTCTGGAACCAAGTCTTCTGCT

Scer_chr16 TCATCAGTGATGAAAACACGACGAACGTACAACCTTGATATTATTCTTCTT
Sc16_Sc16 TCATCAGTGATGAAACACGACGAACGTACAACCTTGATATTGTTCTTCTT
Sc16_Sb16 TCGTCGGTGATGAAAACACGACGAACATACAACCTTGATGTTGTTCTTCTT
Sbay_c637 TCGTCGGTGATGAAAACACGACGAACGTACAACCTAATGTTGTTCTTCTT

Scer_chr16 CTTTCTTACTCTCAAAACAAGTCGAATGGTGTCTCTTTGGAATGAATAAGA
Sc16_Sc16 CTTCTTACTCTCAAAACAAGTCGAATGGTGTCTCTTTGGAATGAACAAGA
Sc16_Sb16 CTTCTTACTTTTGAATAAGTCGAATGGAGCTCTCTTTGGAATGTACAAGA
Sbay_c637 CTTCTTACTTTTGAATAGGTCGAATGGAGCTCTCTTTGGAATGTACAAGA

Scer_chr16 TAGCTCTAAATTCGAATGACCTTCAACGAGAAATGCCTAACGTACAAT
Sc16_Sc16 TAGCTCTAAATTCGAATGACCTTCAACGAGAAATGCCTAACGTACAAT
Sc16_Sb16 TGGCTCTGAATTCGAATGACCTTCAACGAGAAATGCCTAACATATAGT
Sbay_c637 TAGCTCTGAATTCGAATGACCTTCAACGAGAAATGCCTAACATATAGT

Scer_chr16 GGGTCTTCCAGTCGTTTGAATAGACTTATAGAAAGCATTGTATTCTTC
Sc16_Sc16 GGGTCTTCCAGTCGTTAGAAATAGACTTATAGAAAGCATTGTATTCTTC
Sc16_Sb16 GGGTCTTCCCAATCGTTGAGATGGATTGTAGAAAGCATTGTATTCTTC
Sbay_c637 GGGTCTTCCAGTCGTTGAGATGGATTGTAGAAAGCATTGTATTCTTC

Scer_chr16 TTGAGTGATATCAGATGGGTTTCTAGTCCACAAGGCTTAGTCTTGTTTA
Sc16_Sc16 TTGAGTGATATCAGATGGGTTTCTAGTCCATAATGGCTTAGTCTTGTTCA
Sc16_Sb16 TTCGGTGATTTTCGATGGGTTTCTGGTCCATAGAGGCTTAGTCTTGTTTA
Sbay_c637 TTCGGTAATTTTCGATGGGTTTCTGGTCCATAAAGGCTTAGTCTTGTTTA

Scer_chr16 GTTCTTCTAATCTTGAACCTTCTTCTTAACTTTTTTCTGTTTGGCTTC
Sc16_Sc16 ACTCTTCTAATCTTGAACCTTCTTCTTAACTTTTTTGGTTTGGCTTC
Sc16_Sb16 GTTCTTCTAATCTTGAACCTTCTTCTTAACTTTTTTGGTTTGGCTTC
Sbay_c637 GTTCTTCTAATCTTGAACCTTCTTCTTAACTTTTTTGGTTTGGCTTC

Scer_chr16 TTTTCTCTTCTTC---ATCGACTTCTTCCAATTTGGTTTCTTGTGCTC
Sc16_Sc16 TTTTCTCTTCTTCTTCATCGACTTCTTCCAATTTGGTTTCTTGTGCTC
Sc16_Sb16 TTTTCTCTTCTTCTTCATCGACTTCTTCCAATTTGGTTTCTTGTGCTC
Sbay_c637 TTTTCTCTTCTTCTTCATCGACTTCTTCCAATTTGGTTTCTTGTGCTC

Scer_chr16 TTCATCCTTCTTTTCTCATCTTCTTTTCTCGTCTTTCTTTCTTCTT
Sc16_Sc16 TTCATCCTTCTTTTCTCATCTTCTTTTCTCGTCTTTCTTTCTTCTT
Sc16_Sb16 TTCATCCTTCTTTTCTTCGTCCTTCTTTTCTTC-----TTCTTCTT
Sbay_c637 TTCATCCTTCTTTTCTTCGTCCTTCTTTTCTTCACC-----TTCTTCTT

Scer_chr16 CTGGAATGGAACCTCCTTTTCAACTTCCTTGGTGACTAATTGGATT
Sc16_Sc16 CTGGAATGGAACCTCCTTTTCAACTTCCTTGGTGACTAGAAAGTTGGATA
Sc16_Sb16 CTGGGATGGAACCTCCTTTTCAACTTCCTTGGTGACTAGCAATTGGATT
Sbay_c637 CTGGGACTGGAACCTCCTTTTCAACTTCCTTGGTGACTAGTAACCTGGATA

Scer_chr16 GGGTAGGCCACGAACTCAGAATGTCTCTTGATAAATTCTTTATTCTCTT
Sc16_Sc16 GGGTAGCAACGAATTCAGAATGTCTCTTGATGACTTCTTTAATTCTCTT
Sc16_Sb16 GGGTAGCAACAAATTCAGAATGTCTCTTGATGACTTCTTAATCTTCTT
Sbay_c637 GGGTAGCAACGAATTCAGAGTGTCTCTTGATGACTTCTTAATCTTCTT

Scer_chr16 TTCTTCCAAGTACTCCAATTTGGTCATCTTCAAGAATAACTCAAGATGG
Sc16_Sc16 TTCTTCCAAGTACTCCAATTTGGTCATCTTCAAGAATAACTCAAGACGG
Sc16_Sb16 TTCTTCCAAGTACTCCAATTTGGTCGTCCTTCATGAATAACTCAAGACAG
Sbay_c637 TTCTTCCAAGTACTCCAATTTGGTCGTCCTTCATGAACAACCTCAAGACTG

Scer_chr16 TACCCCTACCAATTCCTTTCATTAACTTCGTCAGAGTAACAGTGAAAGAA
Sc16_Sc16 TACCTCTACCAATTCCTTTCGTTAACTTCGTCCAAGTAACAGTGAAAGAA
Sc16_Sb16 TACCTCTACCGATCTTTCGTTAACTTCGTCAGAGTAACAGTGAAAGAA
Sbay_c637 TACCTCTACCGATCTTTCGTTAACTTCGTCATATGTAACAGTGAAAGAA

Scer_chr16 CCACCAGCGTTGGATTCCCAAGATGATTGTTCTCGTCGTTGCTCTTTGA
Sc16_Sc16 CCACCAGCGATTAGATTCCCAAAATATATTGTTCTCGTCTCATGTTCTTTGGA
Sc16_Sb16 CCGCCTGCGTTGGACTCCCAAGATGATTGTTCTCGTCGTTGTTCTTTAGA
Sbay_c637 CCACCTGCGTTGGACTCCCAAGATGATTGTTCTCGTCTCATGTTCTTTAGA

Scer_chr16 AATAACTGAACTCTGTCGGCAACTAAGAATAAAGAGTAAAACCAACAC
Sc16_Sc16 AATAACTGAACTCTGTCGGCGACTAAGAATAAAGAGTAAAACCAACAC
Sc16_Sb16 GATAACTTGGACCTATCAGCGACCAAGAATAAAGAGTAGAAACCAACAC
Sbay_c637 GATAACTTGGACTCTATCAGCGACTAAGAATAAAGAGTAGAAACCAACAC

Scer_chr16 CGAATTGACCAATCATGGATACATCGGCACCAGCAGATAGAGCTTCCATG
Sc16_Sc16 CGAATTGACCAATCATGGATACATCGGCACCAGCAGATAGAGCTTCCATG
Sc16_Sb16 CGAATTGGCCAATCATGGAGACATCGGCACCAGCAGAAAGAGCTTCCATA
Sbay_c637 CGAATTGACCGATCATGGAGACATCGGCACCAGCAGAAAGAGCTTCCATG

Scer_chr16 AAGGCTTTGGTACCAGACTTGGCAATGGTACCCAAAGTTATTAAATCAATTC
Sc16_Sc16 AAAGCTTTAGTACCAGACTTAGCAATGGTACCCAAATTGTTAAATCAATTC
Sc16_Sb16 AAGGCTTTGGTACCAGACTTAGCGATGGTACCCAAAGTTGTTGATCAATTC
Sbay_c637 AAGGCTTTGGTACCAGACTTGGCGATGGTACCTAAGTTATTGATCAATTC

Scer_chr16 AGCCTTGGTCATACCAATACCAGAATCTCTGATTTCCAAACCTTTTTGCTT
Sc16_Sc16 AGCCTTGGTCATACCAATACCAGAATCTCTGATTTCCAAACCTTTTTCTT
Sc16_Sb16 CGCCTTGGTCATACCAATACCAGAATCTCTGATTTCCAAGACTTTTTCTT
Sbay_c637 CGCCTTGGTCATACCAATACCGAATCTCTGATTTCCAAGACTTTTTCTT

Scer_chr16 CTGGCTTTGGAGTGATTCTAATAAAGAGATCTGGTTCGTTTCCAATTGC
Sc16_Sc16 CTGGTTTGGGGTGATTCTAATGAACAATCTGGTTCAGTTTCCAATTGC
Sc16_Sb16 CCGGCTTTGGAGTGATTCTAATGAACAATCAGGTTCAAGTTCTAATTCC
Sbay_c637 CTGGCTTTGGAGTGATTCTAATGAATAATCAGGTTCAAGTTTCAAGTTGC

Scer_chr16 TTTGGATCAGACAAAGATTGTATCTAATTTATCCAAACGCATCCGAGGC
Sc16_Sc16 TTTGGATCAGACAAAGCTTGGTATCTAATTTGTCTAAAGCATCCGAGGC
Sc16_Sb16 TTTGGTCCGACAAAGCTTATATCTGATCTTGTCCAAACGCATCCGAGGC
Sbay_c637 TTTGGTCCGACAAAGCTTGTACTGATCTTGTCTAACGCATCTGAGGC

Scer_chr16 ATTAGATATCAGTTCTCTCAAGAAAATTCCTTGTTAGAATAGACGGTGT
Sc16_Sc16 GTTAGATATCAGTTCTCTCAAGAAAATTCCTTGTTAGAATAGACAGTGT
Sc16_Sb16 GTTAGATATCAGTTCTCTCAAGAAAATTCCTTGTTAGAATAGACAGTGT
Sbay_c637 GTTAGATATCAGTTCTCTCAAGAAAATTCCTTGTTAGAATAGACAGTGT

Scer_chr16 TGATGATCAAACCTCATCAACTGAGTAATTCAGCTTGAAATTCAAAAGTT
Sc16_Sc16 TGATGATCAAACCTCATCAACTGAGTGATTCAGCTTGAAATTCAAAAGTT
Sc16_Sb16 TGATGATCAAACCTCATCAACTGAGTGATTCCTGCTTGAAATTCAAAAGTT
Sbay_c637 TGATGATCAAACCTCATCAACTGAGTGATTCCTGCTTGAAATTCAAAAGTT

Scer_YPL240C ←
Spas_ScYPL240C ←
Spas-ScYPL240C/SbYPL240C ←
Scer_chr16 TCACTAGCCATATCTTTGCGTGTGTTGTTGTTGCTTTTGTGTT-----
Sc16_Sc16 TCACTAGCCATATCTTTGCGTGTGTTGTTGTTGCTTTTGTGTTGTTGCTTTTGT
Sc16_Sb16 TCACCAGCCATATTTGT-----TTTATTCCGCTTCTTGTGTT-----
Sbay_c637 TCACCAGCCATATTTGT-----TTTGTTCTGTTCTGTTGTT-----

Scer_chr16 ---ATAGGACTCTATTTTCTATCAGGTATGATTTCTTGAAC--TC---TA
Sc16_Sc16 TTTATAGGACTCTATTTTCTATCAGGTATGATTTCTTGAAC--TC---TA
Sc16_Sb16 ---GATGTGCTCTATCTTCTATCAGACCTAGCGTATTCAACCTTCCAAA
Sbay_c637 ---ATAATTCTCTATCTTCTATCAGACCTAGTGTATTAAAGCCATC-AGAA

Scer_chr16 ATACAGCGGAAGAAATGAGGAGGTCACAGATGTTAAGAATGAAGGGAT
Sc16_Sc16 ATACAGCGGAAGAAATGAGGAGGTCACAGATGTTAAGAATGAAGGGAT
Sc16_Sb16 GTAAACGTGAAGAAAGCA--CTGCAACAGACC--ACGAATCGAAGGGAC
Sbay_c637 GTAAAGGTGAAGAAAGCA--ACCAACAGACC--ACAATCGAAGGGAT

Scer_chr16 AAGCTGCATATTTATATGTTTGGGGGT-GGCGGAAGGACCTGGTTGGT
Sc16_Sc16 AAGCTGCATATTTATATGTTTGGGGGT-GGCGGAAGGACCTGGTTGGT
Sc16_Sb16 AAACAGCTATTTATATAATTTGGGGGCGGCGGAAGGGCATGCTTTGT
Sbay_c637 AAACAGCTATTTATATAATTTGGGGGCGGCGGAAGGGCCTCTCTTGT

Scer_chr16 ATTAAGATGAGAATTAACCGCTCATAAAACCATGCGCGTGTFFF-TC TTC
Sc16_Sc16 ATTAAGATGAGAATTAACCGCTCATAAAACCATGCGCGTGTFFF-TC TTC
Sc16_Sb16 ATAAAGATGAGGATTAACCGCTCATAGAAATTATGCGCGTGTFFFCTTTTC
Sbay_c637 ATAAAGATGAGGATTAACCGCTCATAGAAATTATGCGCGTGTFFFCTTTTC

Scer_chr16 CACGGCGTTCTAGAAAAAAGAAAAATTCAAAA--GTTCTGCGAACT
Sc16_Sc16 CACGGCGTTCTAGAAAAAAGAAAAATTCAAAA--GTTCTGCGAACT
Sc16_Sb16 CACGACGTTCTAGAAAAAAGAAAAACCAAAAATTGTCGAAAGCT
Sbay_c637 CACGACGTTCTAGAAAAAAGAAAAACCAAAAATTCTGCAAGGCT

Scer_chr16 CGAAA-GAACCGAATGTTTCGAACAATATGTGACAAGCGTATGAGTTAA
Sc16_Sc16 CGAAA-GAACCGAATGTTTCGAACAATATGTGACAAGCGTATGAGTTAA
Sc16_Sb16 CGAAA-GACATAGAACTTCTTGAGTGATGTATGGCCGCTTACGGCCTT
Sbay_c637 CAAAAGACTCAGACCCTGCTTGAGTGATGTATGGTTGCCATTACGGCAGC

Scer_chr16 TAATCCGATTA-AGCTTTATTCTGTTCTTTTTACGTGTATGTAAAAC
Sc16_Sc16 TAATCCGATTA-AGCTTTATTCTGTTCTTTTTACGTGTATGTAAAAC
Sc16_Sb16 TTATGAGTGATAGACTCAAAAGATGCAATTTACTTATCCGTGCTTCG
Sbay_c637 TAATGAGTGATGGCTCTCAGATATTCATTTCTACTATCTGTGCTTCG

Scer_chr16 GTTTTATGGATTACTGTGTTGAGAGAGGGGGGTGACACCCTCCGGAATG
Sc16_Sc16 GTTTTATGGATTACTGTGTTGAGAGAGGGGGGTGACACCCTCCGGAATG
Sc16_Sb16 AGAGGCGGG--TCATGCACTCGGTAGATTGAAG-AGCACC-GATAAAGC
Sbay_c637 AGGGGCGGG--TTCGCATCGGTATTGTTGAAGGAGCACC-GCTAAGC

Scer_chr16 TGATATATCACACGCTTGACGTTGGTTCATAT--CGTAACCAAGAGAA
Sc16_Sc16 TGATATATCACACGCTTGACGTTGGTTCATAT--CGTAACCAAGAGAA
Sc16_Sb16 TAATTTTTGAAACGCCACGGTACGGTCAAACACCGCTTCAATAGAA
Sbay_c637 GAATATCCTGCACGCACACGGTACGGTCAAATACCGCTTCAATAAAG

Scer_chr16 TACAAATACGCAC--ACGCAAGCTAAGTATATTTTAAAAATTTCTGTCA
Sc16_Sc16 TACAAATACGCAC--ACGCAAGCTAAGTATATTTTAAAAATTTCTGTCA
Sc16_Sb16 GACATTCAAAGAACGATGCACTTGAACCTACTACGATCTCGGCTTGC-TGC
Sbay_c637 GACATACAAACAGCAATGCACTTGCACACTACGATACTAGCTTGA-TGT

Scer_chr16 TCAAGC----TTCAAATACTTCTAACCATCTCTTATTCTCCTCTTAGTA
Sc16_Sc16 TTAAGCCACCTTCCAAATACTTCTAACCATCTCTTATTCTCCTCTTAGTA
Sc16_Sb16 TCGAGCGT-TCAGCAAACAATCTTGACT--GCGCTTTATCCGGTG-GTA
Sbay_c637 TTGAGTATCTTAGCAA-CAATCTTGCC--CCGTTCTATCCGGCG-GTA

Scer_chr16 GCCATTCTTTGCCACGAGGAATAAAAAGTCC-CGCGCCACTAATTACAGG
Sc16_Sc16 GCCATTCTTTGCCACGAGGAATAAAAAGTCC-CGCGCCACTAATTACAGG
Sc16_Sb16 GTC-TCC-CTGCCATGGGGTTAAACAATCC--CGCGTCACTAATTGTAGG
Sbay_c637 GTC-TCTCTGCCATGGGGCTTACAGTCCCGCGTCACTAATTGACAGG

Scer_chr16 AAAAGAAAATAGGACAATCCATTGATGTCACCGTGTAATATCACCA
Sc16_Sc16 AAAAGAAAATAGGACAATCCATTGATGTCACCGTAGTAATATCACCA
Sc16_Sb16 GAGGAAGAA----TCAATT--ATTTGCTGTCA-----TCACTG
Sbay_c637 GAGGAAGAA----ACAATT--ATTTGCTGTCA-----TCACTA

Scer_chr16 TGAACGATGATATGAAATTTTCATAGAAATAAGAAGGAAAAGTAATAAAG
Sc16_Sc16 TGAACGATGATATGAAATTTTCATAGAAATAAGAAGGAAAAGTAATAAAG
Sc16_Sb16 GATACGGAAGTCTGAAATTTTCATAGCAAGT-----GAAAAG-----
Sbay_c637 GACACGGAGGCTGAAATTTTCATAGAAAT-----GAAAAG-----

Scer_chr16 AAAAGAGAACTGAGAAAAAATCGATGAGTTAATTATCATTTGTGTAAA
Sc16_Sc16 AAAAGAGAACTGAGAAAAAATCGATGAGTTAATTATCATTTGTGTAAA
Sc16_Sb16 AAAGAGAGGAATTAG---AAAATCGATGAGTTAATCAACCACTGTGTAGAA
Sbay_c637 AAAGAGAGGAATGGG---AAAATCGATGAGTTAATCAACCACTGTGTAGGA

Scer_chr16 ACAAACCGAATTGTAATACGATAGGCAAAATTGTTCCGCTCTATCTCA
Sc16_Sc16 ACAAACCGAATTGTAATAGATAGGCAAAATTGTTCCGCTCTATCTCA
Sc16_Sb16 T--AATAGTAGCTTTATCTGGTAAATCAATTATCCT-GCTCGTTC--A
Sbay_c637 T--ACTAGTAGCTTCTATCTGGTAGACAAATTATCCT-GCTCGTTC--G

Scer_chr16 AAGAAAGTAATTATTTCCAAATAGAAAAA---TCTACATATACGC
 Sc16_Sc16 AAGAAAGTAATTATTTCCAAATAGAAAAA---TCTACATATACGC
 Sc16_Sb16 AGGGAAGTAAT-----AACAGAAATCAACAT---CACATCCACACGC
 Sbay_c637 AGGAAAGTAGT-----AACAGCAAACAAAT---TATATCCACACGC

Scer_chr16 AGATATGGGCCTACACAGTGAACCGTTAGATCAAGAGGACCAAGACACCA
 Sc16_Sc16 AGATATGGGCCTACACAGTGAACCGTTAGATCAAGAGGACCAAGACACCA
 Sc16_Sb16 AGACATGGGCCTACACACTGAACCTTTGGAACAAGAAGACCAAGACGCGA
 Sbay_c637 AGACATGGGCCTACACACTGAACCTTTGGAACAAGAAGACCAAGACGCGA

Scer_YPL239W →
 Spas_ScYPL239W →
 Spas_SbYPL239W →
 Sbay_YPL239W →

Scer_chr16 TAATACTCGATGCAAGAGCTGGCGATTGGATTCTCTGAAAGATATATTT
 Sc16_Sc16 TAATACTCGATGCAAGAGCTGGCGATTGGATTCTCTGAAAGATATATTT
 Sc16_Sb16 TAATACTCGACGCCAGAGCTGGCGACCTGGATTCTGCTTAAAGATATATTT
 Sbay_c637 TAATACTCGACGCCAGAGCTGGCGACCTGGATTCTGCTTAAAGATATATTT

Scer_chr16 ACAACTTTAGTCAGTCCGAGTTACTTTTCGACTTGTAAGGAAAGTGAATC
 Sc16_Sc16 ACAACTTTAGTCAGTCCGAGTTACTTTTCGACTTGTAAGGAAAGTGAATC
 Sc16_Sb16 AGCACTTTGATCAGCCCAAGTTGTTGGTCTCGTGCAAGAAAGCGGGTC
 Sbay_c637 AGCACTTTGATCAGCCCAAGTTGTTGGTCTCATGCAAGAAAGTGGGTC

Scer_chr16 TGATTCTACGGCTTTACATATGGCTGCTGCCAACGGTCATATAGAGACCG
 Sc16_Sc16 TGATTCTACGGCTTTACATATGGCTGCTGCCAACGGTCATATAGAGACCG
 Sc16_Sb16 CAACTCTACAGCTTTGCACATGGCTGCAGCAAACGGCCATGTTGAGACAG
 Sbay_c637 CAACTCTACAGCTTTGCACATGGCCGCAGCAAATGGTCATGTCGAGACAG

Scer_chr16 TTCGGTATATACTGGAGACGGTTTCTCGCGCAAATAGTGC GAAGACTTG
 Sc16_Sc16 TTCGGTATATACTGGAGACGGTTTCTCGCGCAAATAGTGC GAAGACTTG
 Sc16_Sb16 TCCAGTACATACTTGAGACGGTTTCTCGCGAAGAACAGTGC TGAAGAGTTG
 Sbay_c637 TCCAGTACATACTTGAGACGGTTTCTCGCGAAGAACAGCGCTGAAGAGTTG

Scer_chr16 AAAGCTTTTGTTAATGAGGTGAACAAAACAGGCAACACGGCTTTACATTG
 Sc16_Sc16 AAAGCTTTTGTTAATGAGGTGAACAAAACAGGCAACACGGCTTTACATTG
 Sc16_Sb16 AAAGCCTTCATCAATGAGGTAAACGAAACAGGCAACACCGCACTTCATTG
 Sbay_c637 AAAGCCTTCATCAATGAGGTGAACGAAACAGGCAACACCGCGCTTCATTG

Scer_chr16 GGCGTCGTTGAAATGGCAAATAGACGTGGTCAAGCTACTGTGTGATGAAT
 Sc16_Sc16 GGCGTCGTTGAAATGGCAAATAGACGTGGTCAAGCTACTGTGTGATGAGT
 Sc16_Sb16 GGCCTCGTTGAAACGGCAAACCTGGACGTGGTCAAGCTACTGTGTGACGAAT
 Sbay_c637 GGCCTCGTTGAAACGGCAAACCTGGACGTGGTCAAGCTACTGTGTGACCAAT

Scer_chr16 ATGAGGCAGACCCCTTTATAGAAACAAATTCGGCCACGATGCTATCTTT
 Sc16_Sc16 ATGAGGCAGACCCCTTTATAGAAACAAATTCGGCCACGATGCTATCTTT
 Sc16_Sb16 ATGAGGCCGACCCCTTCATCAGAAATAAGTTTGGCCACGATGCCATCTTT
 Sbay_c637 ACGAGGCTGACCCCTTCATAGAAACAAATTCGGCCACGATGCCATCTTT

Scer_chr16 GAGGCCGAGAACAGCGGGAAGGAAGAAGTGAAACATACTTTTGAAGAA
 Sc16_Sc16 GAGGCCGAGAACAGCGGGAAGGAAGAAGTGAAACATACTTTTGAAGAA
 Sc16_Sb16 GAAGCCGAGAACAGCGGGAAGGAAGACTAGAGACGTACTTCTTGAAGAA
 Sbay_c637 GAAGCCGAGAACAGCGGGAAGGAAGAAGTAGAGACGTACTTCTTGAAGAA

Scer_YPL239W →
 Spas_ScYPL239W →
 Scer_chr16 GTATGATGTCGAACCTGA.....
 Sc16_Sc16 GTATGATGTCGAACCTGA.....
 Sc16_Sb16 ATACGATGTTGAGCCCGA.....
 Sbay_c637 ATACGACGTGAGCCCGA.....
 Spas_SbYPL239W →
 Sbay_YPL239W →

1-11) ScXVI / SbXVI

Scer_YPR160W →
 Spas_ScYPR160W/SbYPR160W →
 Scer_chr16GGTGTGCTGCATCCTTACACGACATCTTAAGAAGATTCAAAAAAT
 Sc16_Sb16GGTGTGCTGCATCCTTACACGACATCTTAAGAAGATTCAAAAAAT
 Sb16_Sb16GGTGTGCTGCATCCTGACGATATCCTAAGAAGATTCAAAAAAT
 Sbay_c654GGTGTGCTGCATCCTTGCACGATATCCTAAGAAGATTCAAAAAAT
 Spas_SbYPR160W →
 Sbay_YPR160W →

Scer_chr16 CCAAGAGGCCATGGACTGAATTCCTGACCAAGTGGCTATTCAATTGAAT
 Sc16_Sb16 CCAAGAGGCCATGGACTGAATTCCTGACCAAGTGGCTATTCAATTGAAT
 Sb16_Sb16 CCAAGAGGTCATGGACCGAGTTCCTGACAAGTGGCTATTCAATTGAAC
 Sbay_c654 CTAAAGAGATCATGGACCGAGTTCCTGACCAAGTGGCTATTCAATTGAAT

Scer_chr16 GATACTCATCCAACCTTAGCCATCGTTGAATTACAGAGAGTCTTGGTTCGA
 Sc16_Sb16 GATACTCATCCAACCTTAGCCATCGTTGAATTACAGAGAGTCTTGGTTCGA
 Sb16_Sb16 GATACTCATCCAACCTTAGCTATCCTTGAATTGCAAGAGTCTTGGTTCGA
 Sbay_c654 GATACCATCCAACGTTAGCTATCGTTGAATTGCAAGAGTCTTGGTTCGA

Scer_chr16 TCTAGAAAACTAGATTGGCACGAGCTTGGGACATCGTGACCAAGACTT
 Sc16_Sb16 TCTAGAAAACTAGATTGGCACGAGCTTGGGACATCGTGACCAAGACTT
 Sb16_Sb16 TTTGAAAAATTTGACTGGCACGAGCTTGGGACATCGTGACCAAGACTT
 Sbay_c654 TTTGGAGAAATTAGATTGGCACGAGCTTGGGACATCGTGACCAAGACTT

Scer_chr16 TTGCTTATACTAACCACACTGTTATGCAAGAGGCCCTGGAAAAATGGCCC
 Sc16_Sb16 TTGCTTATACTAACCACACTGTTATGCAAGAGGCCCTGGAAAAATGGCCC
 Sb16_Sb16 TTGCTTATACTAACCACACTGTTATGCAAGAGGCCCTGGAAAAATGGCCC
 Sbay_c654 TTGCTTACACCACCACACTGTTATGCAAGAGGCCCTGGAAAAATGGCCC

Scer_chr16 GTCGGCCTCTTTGGCCATTGCTACCCAGACATTTGGAAATTATATATGA
 Sc16_Sb16 GTCGGCCTCTTTGGCCATTGCTACCCAGACATTTGGAAATTATATATGA
 Sb16_Sb16 GTTGGCTTGTTCGGCCATTGTTGCCAGACATCTGGAAATCATTTACGA
 Sbay_c654 GTTGGCTTATTCTGGCCATTGTTGCCAGACATCTGGAAATTATCTACGA

Scer_chr16 TATCAACTGGTCTCTTTCGCAAGATGTGGCCAAAATAATCCCCAAGGATG
 Sc16_Sb16 TATCAACTGGTCTCTTTCGCAAGATGTGGCCAAAATAATCCCCAAGGATG
 Sb16_Sb16 TATTAATTGGTCTCTTTCGCAAGATGTGCAAGAAATAATCCCCAAGGATG
 Sbay_c654 TATTAATTGGTCTCTTTCACAGGATGTGCAAGAAATAATCCCCAAGGATG

Sc16 > Sb16
 Scer_chr16 TTGATCTTTTGTCTCGTATATCCATCATCGAAGAAAACCTCCAGAAAGA
 Sc16_Sb16 TTGATCTTTTGTCTCGTATATCCATCATCGAAGAAAACCTCCAGAAAGA
 Sb16_Sb16 TTGATCTTTTGTCTCGTATATCTATCATCGAAGAAAACCTCCAGAAAGA
 Sbay_c654 TTGATCTTTTGTCTCGTATATCCATCATCGAAGAAAACCTCCAGAAAGA

Scer_chr16 CAGATCAGAATGGCCTTTTGGCTATTGTTGGTTCACACAAGGTTAATGG
 Sc16_Sb16 CAGATCAGAATGGCCTTTTGGCTATTGTTGGTTCATATAAGTCAACGG
 Sb16_Sb16 CAGATCAGAATGGCCTTTTGGCTATTGTTGGTTCATATAAGTCAACGG
 Sbay_c654 CAGATCAGAATGGCCTTTTGGCCATTGTTGGTTCATAAAGTCAACGG

Scer_chr16 TGTGCTGAATTGCACTCTGAATTAATCAAACGACCATATTTAAAGATT
 Sc16_Sb16 TGTGCGGAATTGCACTCTGAATTAATTAAGACCACCATCTTCAAAGATT
 Sb16_Sb16 TGTGCGGAATTGCACTCTGAATTAATTAAGACCACCATCTTCAAAGATT
 Sbay_c654 TGTGCTGAATTGCACTCTGAATTAATTAAGACCACCATTTCAAAGATT

Scer_chr16 TTGTCAAAGTTCATGGTCCATCAAAGTTGTCAATGTCACTAACGGTATC
 Sc16_Sb16 TCGTCAAATTCTACGGTGCATCAAAGTTGTCAAAGTTCACTAACGGTATC
 Sb16_Sb16 TCGTCAAATTCTACGGTGCATCAAAGTTGTCAAAGTTCACTAACGGTATC
 Sbay_c654 TCGTCAAATTCTACGGTGCATCAAAGTTCGTAAATGTCACTAACGGTATC

Scer_chr16 ACACCAAGGAGATGGTTGAAGCAAGCTAACCCCTCAATTGGCTAAACTGAT
 Sc16_Sb16 ACACCAAGGAGATGGTTGAAGCAAGCTAACCCCTCAACTGGCTAGATTGAT
 Sb16_Sb16 ACACCAAGGAGATGGTTGAAGCAAGCTAACCCCTCAACTGGCTAGATTGAT
 Sbay_c654 ACACCAAGGAGATGGTTAAAGCAAGCTAACCCCTGCCTTGGCTAGATTGAT

Scer_chr16 CAGTGA AACCTT AACGATCCAACAGAGGAGTATTTGTTGGACATGGCCA
Sc16_Sb16 TAGCAAAACTCTT AACGATCCTACAGAGGACTATCTACTAGACATGACAA
Sb16_Sb16 TAGCAAAACTCTT AACGATCCTACAGAGGACTATCTACTAGACATGACAA
Sbay_c654 TAGTGA AACCTCTT AACGATCCTACAGAGGAGTATCTACTAGATATGACAA

Scer_chr16 AACTGACCCAGTTGGGAAAATATGTTGAAGATAAGGAGTTTTTGAAA
Sc16_Sb16 AGTTAACTCAACTGGCAAAGCACCTTGAGGATAAGAGTTTTTGAAAGAG
Sb16_Sb16 AGTTAACTCAACTGGCAAAGCACCTTGAGGATAAGAGTTTTTGAAAGAG
Sbay_c654 AGTTAACTCAATTGGCAAAAACAATTGAGGATAAGAGTTTTTGAAAGAA

Scer_chr16 TGGAACCAAGTCAAGCTTAATAATAAGATCAGATTAGTAGATTTAATCAA
Sc16_Sb16 TGGAAACAAGTCAAACCTCAATAATAAGATCAGATTGGTGGACCTAATCAA
Sb16_Sb16 TGGAAACAAGTCAAACCTCAATAATAAGATCAGATTGGTGGACCTAATCAA
Sbay_c654 TGGAACCAAGTCAAGCTCAACAATAAGATCAGATTAGTGGATCTAATCAA

Scer_chr16 AAAGGAAAATGATGGAGTAGACATCATTAACAGAGAGTATTTGGACGACA
Sc16_Sb16 AAAAGAAAATGGTGGTGAAGACATCATTAACAGAGAGTATCTAGACGATA
Sb16_Sb16 AAAAGAAAATGGTGGTGAAGACATCATTAACAGAGAGTATCTAGACGATA
Sbay_c654 AAAAGAAAATGACGGTGAAGACATCATTAACAGAAAGTATCTAGATGACA

Scer_chr16 CCTTGTTTGATATGCAAGTTAAACGTATTTCATGAAATATAAGCGTCAACAG
Sc16_Sb16 CTTTGTTTGATATGCAAGTTAAACGTATTTCACGAGTATAAACGTCAACAA
Sb16_Sb16 CTTTGTTTGATATGCAAGTTAAACGTATTTCACGAGTATAAACGTCAACAA
Sbay_c654 CTTTGTTTGATATGCAAGTTAAACGTATTTCATGAGTATAAGCGTCAACAA

Scer_chr16 CTAAACGTCTTTGGTATTATATACCGTTACCTGGCAATGAAGAATATGCT
Sc16_Sb16 CTAAACGTCTTTGGTATTATTTACCGTTACTTAGCAATGAAAAATATGCT
Sb16_Sb16 CTAAACGTCTTTGGTATTATTTACCGTTACTTAGCAATGAAAAATATGCT
Sbay_c654 CTAAACGTCTTTGGTATTATTTACCGTTACTTGGCAATGAAAAATATGCT

Scer_chr16 GAGAACGGTGCTTCATCGAAGAAGTTGCCAAGAAATATCCACGTAAGG
Sc16_Sb16 AGAGAACGGTGCTTCATCGAAGAAGTTGCCAAGAAATATCCACGTAAGG
Sb16_Sb16 AGAGAACGGTGCTTCATCGAAGAAGTTGCCAAGAAATATCCACGTAAGG
Sbay_c654 AGAGAACGGTGCTTCATCGAAGAAGTTGCCAAGAAATATCCACGTAAGG

Scer_chr16 TTTCAATCTTTGGTGGTAAGAGTGCTCCTGGTTACTACATGGCTAAGCTG
Sc16_Sb16 TTTCTATCTTCGGTGGTAAGAGTGCAACCGTTACTACATGGCTAAGTTG
Sb16_Sb16 TTTCTATCTTCGGTGGTAAGAGTGCAACCGTTACTACATGGCTAAGTTG
Sbay_c654 TTTCTATCTTCGGTGGTAAGAGTGCAACCGTTACTACATGGCTAAGTTG

Scer_chr16 ATCATAAAATGATCAACTGTGTGCTGACATTGTAAATAACGACGAGTC
Sc16_Sb16 ATCATCAAACTGGTCAACTCTGTGCTGAAATTGTAAATAACGACGAAATC
Sb16_Sb16 ATCATCAAACTGGTCAACTCTGTGCTGAAATTGTAAATAACGACGAAATC
Sbay_c654 ATCATCAAAATGGTCAACTCTGTGCAAGAATTGTAAATAACGACGAAATC

Scer_chr16 AATTGAGCATTGTTGAAGTTGTCTTTGTTGCTGATTATAATGTTCTTA
Sc16_Sb16 AATCGACGACTTATTGAAAGTTGTCTTCATTGCTGATTATAATGTAATCCA
Sb16_Sb16 AATCGACGACTTATTGAAAGTTGTCTTCATTGCTGATTATAATGTAATCCA
Sbay_c654 AATTGATGATTTATTAAAAGTCGTAATTATTGCTGATTATAATGTTCTTA

Scer_chr16 AGGCTGAAATCATTATTCAGCAAGTGACTTGAGTGAGCATATTTCTACT
Sc16_Sb16 AGGCCGAAATTATTATTCAGCAAGTGATTTAAGTGAAACATATTTCAACT
Sb16_Sb16 AGGCCGAAATTATTATTCAGCAAGTGATTTAAGTGAAACATATTTCAACT
Sbay_c654 AGGCTGAGATTATTATTCAGCAAGTGATTTGAGTGAAACATATTTCAACT

Scer_chr16 GCTGGTACTGAAGCGTCTGGTACTTCTAATATGAAGTTTGTATGAACGG
Sc16_Sb16 GCTGGTACAGAAGCGTCAAGTACTTCTAATATGAAGTTTGTATGAATGG
Sb16_Sb16 GCTGGTACAGAAGCGTCAAGTACTTCTAATATGAAGTTTGTATGAATGG
Sbay_c654 GCTGGTACAGAAGCGTCAAGTACTTCTAATATGAAGTTTGTATGAATGG

Scer_YPR160W →
Spas_ScYPR160W/SbYPR160W →
Scer_chr16 TGGTTTGATTAT
Sc16_Sb16 TGGTTTGATTAT
Sb16_Sb16 TGGTTTGATTAT
Sbay_c654 TGGTTTGATTAT
Spas_SbYPR160W →
Sbay_YPR160W →

1-12) ScXVI / SbXVI

← Scer_YPR190C
 Scer_chr16TGGCATTAGTTTGTCTATATGGAACATAGTAAACACCTGGTTTTGGT
 Sb16_Sc16TGGCATTAAATTTACTATACGGAACGTGATAAACACCTGGTTTTGT
 Sbay_c654TGGCATTAGTTTACTATACGGAACATAATAAACACCTGGTTTTGT
 ← Spas_SbYPR190C
 ← Sbay_YPR190C

Scer_chr16 TTCGTTCAAAAAGGGGAAATTTGATGATGCTAGGATTTTTAAATGACTAT
 Sb16_Sc16 TTCGTTTAGGAATGGAAAATTTGATGATGCTAAGATTTTTCAAATGGCTAT
 Sbay_c654 TTCGTTTAGAAAATGGAAAACCTTGACGATGCTAAGATTTTTAAATGGCTAT

Scer_chr16 TTATCAAAGAAGCTGAGTGAGGATCCTCAGTGTCTGCATCCAAATCCTCC
 Sb16_Sc16 TTATTAAAGAAGCTGAGTGTGGATTTTCCATATCTGCATCCAAATTCATCG
 Sbay_c654 TTATCAACGAAGCTGAGTGTGGATTTTCCATATCTGCGTCCAATTCATCG

Scer_chr16 TCTCTTCGTCTTCTTCTTGT-----GTA-----TCTTCACTTCTTGT
 Sb16_Sc16 TCGTCTCGGCTTCTTGTCTCTCTTGTCTCTCTTCTTCACTATCTTGT
 Sbay_c654 TCGTCAACGGCTTCTTGTCTCT-----TCTTCACTCTCTGT

Scer_chr16 AAGAGATTGGAAACAGCAGCAGGTAGCGCGGGATCAAAATCCATCTT
 Sb16_Sc16 AACAGATTGAGTATGCCAGCAGGTAGCGCAGGAATGGCAAATCCATCTT
 Sbay_c654 AACAGATTGAGTATCCTGCAGGTAATGCAGGAATGGCAAATCCATCTT

Scer_chr16 CGTTTTTAATTTTTTACTGGGTAATGATGCAGCAGCGTTTGAGCCAGAA
 Sb16_Sc16 CAGTTTTCAGTTTCTTATTTGCTGGTGGTGGAGCGGAGTTTCAACCGGAA
 Sbay_c654 CAGTTTTCAGCTTCTTATTTGCCGGTATGAAACAGAGTTTGAAGTGGAA

Scer_chr16 CGCTTTTATTGTGAGAGGCTTTCAGATAATAAGCTTCCACGCAAGTC
 Sb16_Sc16 CGTTTCTTATTGTGAGAGGCTTCTTGGTTACTAAGCTGCCGCGCAGGTC
 Sbay_c654 CGTTTCTTATTGTGAGAGGCTTCTTAGTCACTAAGCTGCCACGCAAGTC

Scer_chr16 CAATTCGCGGGGAGATGCTTGCCAAGTCAATAGCAATTAAGGTAAGCC
 Sb16_Sc16 CAATTCCTTAGGGATATGCTTAGCCAAGTCAATAGCGTTAAAGGTTAAAC
 Sbay_c654 CAATTCGTAGGGATATGTTTGGCCAAGTCAATAGCGTTGAAAGTTAAAC

Scer_chr16 CTGGTGTCTTCTCCTCAACAAGTTCGGCTTCGTCTTGAAACGATTTTGCT
 Sb16_Sc16 CTGGCGTCTTTCCTCAATGAGCTCTAGTTCTTCTGAAACGATTTTGCC
 Sbay_c654 CTGGCGTCTTTCCTCAATAAGCTCTAGTTCTTCTGAAACGATTTTGCC

Scer_chr16 TCCTCCAAATCTTGTAAGAAGCCAGTTTGAGTTAGTGGATCTCTAATTTT
 Sb16_Sc16 TCATCTAAATCCTGTAAAAGACCAGTTTGAGTTAATAGATCTATAATGCA
 Sbay_c654 TCTTCTAAATCCTGTAAAAGACCTGTTTGGTAAGGGATCTATAATGCA

Scer_chr16 AGGAGACTTTTGCTCTGTGAGTCTTAATGCAATTTGTAACCTTGAGCTG
 Sb16_Sc16 GGGAGATTTTGCTCTGTGAGTCTTAATGCAATGCTGTAACCTTGAGCTG
 Sbay_c654 AGGAGATTTTGCTCTGTGAGTCTTAATGCAATCTGTAACCTTGAGCCG

Scer_chr16 TGACGGAGCCGACTCTTGTCTTGGCCAAAGTTAATCAATTGTTTAGATCTT
 Sb16_Sc16 TAATGGATCCGACTCTCGTTTGGCCAAATTTGGTCAATTGTTTGGATCTT
 Sbay_c654 TAATGGATCCGACTCTCGTTTGGCCAAATTAGTCAATTGTTTGGATCTT

Scer_chr16 CTACCTTTCATAAATCTATCCAAATTAATCGTCAGAGAGACTGTAGGTTT
 Sb16_Sc16 CTGCCCTTCATAAACCTATCTAAATTAATAGTTAAGGAGACCGTAGACTT
 Sbay_c654 CTGCCCTTCATAAACCTATCTAAATTAATAGTTAAGGAGACCGTAGGCTT

Scer_chr16 AACAACTCCTCAATGAGGCTTTTGGATCAACCGTTAAGATTTGTGAAAGCT
 Sb16_Sc16 AACGACCCTCAATGAAGTCTTGGTGTCAACGGTTAAGATTTGTGAAAGGT
 Sbay_c654 GACCATCCTTAATGAAGTCTTAGTGTCAACGGTTAAGATTTGTGAAAGGT

Scer_chr16 CATTGGTTTATTTATGATTTTGGCAAAATCAGTTTTCGCATTCACTTGT
 Sb16_Sc16 CGTTTGGTTTACTCAAATTTTGGCAAAATCGGTCTTTCGATTCACTTCT
 Sbay_c654 CGTTTGGTTTACTCAAATTTTGGCAAAATCGGTCTTTCGATTCACTTCT

Scer_chr16 GCTTGGATCTTTTCTTCAAATCGGACAAACGGGAGTTTTCTGGGAATATT
Sb16_Sc16 GCTTGGATCTTTTCTTCAAATCGGATAAGGGAGAGTTTTCTGGGGATTGT
Sbay_c654 GCTTGGACCTTTTCTTCAAATCTGATAATGGAGAGTTTTCTGGGAATTT

Scer_chr16 TTTGTAATGTTTTTCATATAAAAATTGCCAGAGATCTTCGATTGGGGTAT
Sb16_Sc16 GTTATAATGCTTGTGCGAATAAGAATTGCCACAGGTCTTCAATCGGAGTAT
Sbay_c654 ATTATAATGCTTATCGAATAAGAATTGCCACAGGTCTTCGATCGGAGTAT

Scer_chr16 AATGC AATTTTGATATTTGAATAAGATATCCCATTTACACAGTTGCACG
Sb16_Sc16 AATGTAATTTGATATTTGAATAAGATATCCCATTTACATAAATTGCACG
Sbay_c654 AATGTAATTTGATATTTGAATAAGATATCCCATTTACACA AATTGCACG

Scer_chr16 AATAGTGATGAAATGGTGTACTTCATGGAATCTGACGTGACACTACTTAG
Sb16_Sc16 AAGAGTGACGAAATGGTGTACTTCATGGAATCTGATGTGACGCTACTTAA
Sbay_c654 AAGAGTGACGAAATGGTGTACTTCATGGAATCTGATGTGACGCTGCTCAG

Scer_chr16 ATAATCTTCACCTGTTAAGGACCCCTAATGATATAACGTTTTGTACAATTT
Sb16_Sc16 ATAGTCCTCGACAGTCAGGGAGCCCAATGATATGACGTTTTGTACGATTT
Sbay_c654 GTAGTCCTCGACAGTTAGGGAACCTAAAGATATGACGTTTTGTACAATTT

Scer_chr16 CAGCCACAGCTGTTTATGCTCCTCTTCGTCGTTTACACGCATTTGCGTA
Sb16_Sc16 GTGCCACTAATTGCTTATG-----TTCATCGTCAACACGCATTTGAGAT
Sbay_c654 GTGCCACTAATTGCTTATG-----TTCATCGTCAACACGCATCTGAGAT

Scer_chr16 ATAATTTTCGTC AATAATCAACCCTGAGTAGAGTAAAATGTTATCCCTTC
Sb16_Sc16 GTAATTTTCGTC AATAATCAACCCTGAGTAAAGCAGTAGATGAATCCCTTC
Sbay_c654 GTAATTTTCGTC AATGATCAACCCTGAGTAAAGCAAGAGATGAATCCCTTC

Scer_chr16 CTCGTTATAGTAATAATAAGTCGTTTTTTTCCCGGATATTGCTGTTTCTT
Sb16_Sc16 CTCGTTATAATAATAATAAGTGGTTTTTTTCCCGGAATCGCTGTTTCTT
Sbay_c654 CTCGTTATAGTAGTAATAAGTGGTTTTTTTCCCGGAATCGCTGTTTCTT

Scer_chr16 GCAGGTACTTAACACACCTTAATTGAGTTAATGAGACTAGTGTGCTCTTG
Sb16_Sc16 GCAAAAACCTTAACACACCTCAATTGCGTCAATGACACTAACGTGGTCTTG
Sbay_c654 GCAAAAATTTAACACACCTCAATTGCGTCAATGACACTAACGTGGCCTTG

Scer_chr16 ACGCTGCTTACATCCATACCATCTATTTCTCCACTAACTCGCGCACACT
Sb16_Sc16 ATGCTCTCCGTATGCATGCCATCTATCTTCTCCTCCAACCTCCGAACACT
Sbay_c654 ATACTCTCCGTATCCATGCCATCTATCTTCTCCACCAACTCCCGGACACT

Scer_chr16 CAATCTGCCAGCGCAACCAACATCCCAATTACAGAAGCTGCTCTTTTCCAC
Sb16_Sc16 CAATCTGCCAGTGCAAGCCAGCATTCCGACCACAGAGGCCGCCCTCTCAC
Sbay_c654 CAATCTTCCAGTGCAAGCCAGCATTCTTACCACAGAGGCCGCCCTCTCAC

Scer_chr16 CCAGATGTGCCTTACC AACTCTTTGTAAAGAAACAAATCGGGATTCAA
Sb16_Sc16 CCAGATGTGCCTTACC AATCTTATATAGAAACAAATCAGGATTCAA
Sbay_c654 CCAGATGTGCCTTACTAATCTCTTGTATAGAAACAAATCAGGATTCAA

Scer_chr16 GTTCTCTGTTCCAAGGATGATATGGTCATAACATCTTCGGGGGTGACCAA
Sb16_Sc16 GTCCGCTGTTCCAAGGAGATATGGTCATAACGTCTTCGGGCGTGACCA
Sbay_c654 GTCCGCTGTTCCAACGAAGATATGGTCATAACGTCTTCGGGCGTGACCAT

Scer_chr16 CTCTCTCAGATTTCGACAGTGCTCTCACCTGTTTGTTCTCTGCACTAAGCG
Sb16_Sc16 TCTCTCGACTCTGCCCCGCTTGACCTGCTTGATTTCGGCACTTACCA
Sbay_c654 TCTCTCGACTCTGTCCCGCTTGACCTGCTTGATTGTCGGCACTTACCA

Scer_chr16 CTTCTCCAGTAACTCGTCCATTTGGATCTTGCTCAACAAAAATTTTCC
Sb16_Sc16 CATCTTCAGTAGCTCGTCCATCCTAATGTCGACCAATTCG--TGCTTCC
Sbay_c654 CATCTTCAGTAGCTCGTCCATCGTAATATTGCGCGATTTCG--TGCTTCC

Scer_YPR190C ←
Sbay_YPR190C ←
Spas_SbYPR190C ←

Scer_chr16 CTATTCCTGTGTCTAGCAATTCTCTATTGTTCTCAATATTCTTCCACTAT
Sb16_Sc16 GG--TCCTATACCA-CCGCCCTCTATTGTTCTCAATGCATCTTTCAT--T
Sbay_c654 GG--TCCTATACCA-CCGCCCTCTATTGTTCTCAATGCATATTTCAT--T

Scer_chr16 TATTATTGATCCAAATTAATTT-T---TTTCTTCAATGCGATGAGCT
Sb16_Sc16 TATTATT--GATCCGATTTT---TAAATTTTCTCAATGCGATGAGCT
Sbay_c654 TATTATT--GATCCGAATTAATTTATTTTCTTCAATGCGATGAGCT

Scer_chr16 TTTGAAAATTTCTGATCATTCCCACGAACCAATAGAAGGCCCGCCCCG
Sb16_Sc16 CTTGAAAATTTCTAGATCGCTTAAGACGAACCAATAGAAGGTCCGCCCCG
Sbay_c654 CTTGAAAATTTCAATCGCTTGGACGAACCAATAGAAGGTCCGCCCCG

Scer_chr16 TCTTATATCCGTTAGCCTACCAAAATATATATAAAGAACAAGGGCCTTT
Sb16_Sc16 TCTTATATCCGTTAGCGTATCGAATATATATAAAGAACAAGGGCCTTT
Sbay_c654 TCTTATATCCGTTAGCGTATCGAATATATAT--AAAGAACAAGGGCCTTT

Scer_chr16 CCTCAGAGCGTTTGTGACGAAGTTTGTAGAAAGTTAATAAGGTTTTTAACA
Sb16_Sc16 CTTCAGAGAGTTTGTGTTGAAGTTCTTGAATTGTTAGGTTTTGAACA
Sbay_c654 CTTCAGAGCGTTTGTGATGAAGTTCTTGAAGTTAGTTAGGTTTTGAACA

Scer_chr16 GCAGTGTGCTCGAACGATTAGGACGGGAGAGTTAAAAATTATATAAAGGAA
Sb16_Sc16 GGAGTGTGCTCGAACGATTAGGACGGGAGACTTAAAACTATAAAGGAA
Sbay_c654 GGAGTGTGCTCGAACGATTAGGACGGGAGAGTTAAAACTATAAAGGAA

Scer_chr16 AAAAGAAGAACTGTTGATGTTGTCTGACGAGCTAGATTGCAATTTGCCAGGG
Sb16_Sc16 AATAGAAAAATTTGATGTTGTCTGACGAGCTAGATTGCAATTTGCCAGGG
Sbay_c654 AAGAGAAAAATCTGATGTTGTCTGACGAGCTAGATTGCAATTTGCCAGGG

→ Scer_YPR191W
→ Spas_SbYPR191W/ScYPR191W
→ Sbay_YPR191W

Scer_chr16 GTCAGTTAGAAGTTGACCGTTTCCGCTAGAGACGCACCTACTAAAATAT
Sb16_Sc16 GTCAGTTAGAAGATTGACTGTGTCTAGCCAGAGACGCTCCAGTAAAGTGT
Sbay_c654 GTCAGTTAGAAGATTGACTGTGTCTAGCCAGAGACGCTCCAGTAAAGTGT

Scer_chr16 CTACATTGGCTGTTAAGGTCCATGGAGGGTCTCGTTATGCAACCAAGGAT
Sb16_Sc16 CTACTTTGGCTGTCAAGGTCCATGGTGGATCCGTTATGCAACCAAGGAC
Sbay_c654 CCACTTTGGCTGTCAAGGTCCATGGTGGTCTCGTTATGCAACCAAGGAC

Scer_chr16 GGTGTGCCCATCTTTTAAACAGATTCAACTTTCAAACACGAACTAG
Sb16_Sc16 GGTGTAGCCCATCTTTTGAACAGTTCAACTTCCAGAACACAAATGCTAG
Sbay_c654 GGTGTAGCTCATCTCTTGAACAGTTCAACTTCAAACACAAATGCCAG

Scer_chr16 ATCAGCTTTGAAATTAGTCAGAGAATCCGAATTATTAGGGGGAACTTTTA
Sb16_Sc16 GTCTGCTTTGAGATTGGTCAGAGAATCCGAATTATTAGGGGGAACTTTTA
Sbay_c654 GTCTGCTTTGAGATTGGTCAGAGAATCCGAATTATTAGGGGGAACTTTTA

Scer_chr16 AGTCTACCTTGGATAGGAATACATCACTTTGAAAGCTACCTTTTGAAG
Sb16_Sc16 AGTCCACTTTGGATAGGAATACATCACTCTAAAAGCTACATTCTTGAGG
Sbay_c654 AGTCCACTTTGGACAGGAATATATCACTCTAAAAGCCACTTCTTGAGG

Scer_chr16 GACGACCTTCCCTACTACGTCAATGCCCTAGCAGACGTGCTATACAAGAC
Sb16_Sc16 GACGACCTTCCCTACTACGTCAATGCCCTGGCAGATGTGTGTATAAGAC
Sbay_c654 GATGACCTTCCCTACTACGTCAATGCCCTGGCAGATGTGTGTATAAGAC

Scer_chr16 TGCCTTCAAACCTCACGAGCTCACCGAATCTGTTTTGCCTGCTGCTAGAT
Sb16_Sc16 TGCCTTCAAACCCACGAGCTGTCTGAATCTGTTTTGCCTGCTGCTAGAT
Sbay_c654 TGCCTTCAAGCCACGAGCTACCTGAATCTGTTTTGCCTGCTGCTAGAT

Scer_chr16 ACGATTATGCGGTGCTGAAACAATGTCCGGTAAAGAGCGCCGAAGACCAA
Sb16_Sc16 ACGATTATGCGGTTGCTGAGCAGTGCCCGTAAAAAGCCGAGAAGAACAG
Sbay_c654 ACGATTATGCTGTTGCTGAGCAGTGCCCGAAAAAATGCAGAGGAACAG

Scer_chr16 **TTGTATGCCATTACATT**CAGAAAGGGTT**AGGAAACCCATTGTTATACGA**
Sb16_Sc16 **TTATTCGCTATTACATT**TAGAAAGGGCT**TGGAAATCCATTGTATTACGA**
Sbay_c654 **TTGTTCGCTATTACATT**CAGAAAGGGCT**TGGAAACCCATTGCTCTACGA**

Scer_chr16 **TGGTGTGAAAAG**AGTCAGTT**TGCAAGATATCAAGGAC**TT**TGCGGACAAAG**
Sb16_Sc16 **CGGTGTGAAAAG**AGTCAGTT**TGCAAGATATCAAGGATTACGCTGACAAAG**
Sbay_c654 **CGGC**GTGAAAAG**AGTCAGCT**TGCAAGATAT**CAAGGATTACGCTGACAAAG**

Scer_chr16 **TCTATACCAAGGAGAA**CCTT**GAAAGTTAGCGGTGAAAATG**TGTT**GAGGCC**
Sb16_Sc16 **TCTACACTAAAGAGAAT**CTT**GAAATTACAGGTGAAAATAT**TGTT**GAGGCC**
Sbay_c654 **TCTACACTAAAGAGAAT**CTT**GAAATCACAGGTGAAAATAT**CTGTT**GAGGCC**

Scer_chr16 **GATTTGAAAAGATT**TGTT**GACGAGTCAC**TGTT**AAGCACTTTG**CCT**GCAGG**
Sb16_Sc16 **GATTTGAAAAGATT**TGTT**GACGAGTCAC**TGTT**AAGCACTTTG**CCT**GCAGG**
Sbay_c654 **GATTTGAAAAGATT**CGTT**GACGATTC**CTT**GTTGGCACTTTAC**CC**ACAGG**
Sb16 > Sc16

Scer_chr16 **TAAGTCAT**TGGT**GAGTAAATCCGAACCAAAT**CTTT**TTGGGTGAAGAA**
Sb16_Sc16 **TAAGTCAT**TGGT**GAGTAAATCCGAACCAAAT**CTTT**TTGGGTGAAGAA**
Sbay_c654 **CAATCACT**GGT**AAGTAAATCCGAACCAAAT**CTTT**CTTAGGTGAAGAA**

Scer_chr16 **ACAGGGTAAGGTTT**ATCGGT**GACTCCGTTGCCGCAT**TGGT**TATCCCGGTA**
Sb16_Sc16 **ACAGGGTAAGGTTT**ATCGGT**GACTCCGTTGCCGCAT**TGGT**TATCCCGGTA**
Sbay_c654 **ACAGACTAAGATT**CC**TCCGTGAT**TCCGT**TGCTGCCATCAGTATCCCTGTG**

Scer_chr16 **AACAAAGCCT**CC**TAGCTCAATATGAAGT**ATTGG**CAACTATTTGACCTC**
Sb16_Sc16 **AACAAAGCCT**CC**TAGCTCAATATGAAGT**ATTGG**CAACTATTTGACCTC**
Sbay_c654 **AACAAAGCAT**CT**CTAGCCCAATACGAAGT**CTTGG**CAACTATTTGACCTC**

Scer_chr16 **TGCCCTATCCGAGCTT**TCCGG**TTTAATCAGCTCGGCTAACTTGATAAAT**
Sb16_Sc16 **TGCCCTATCCGAGCTT**TCCGG**TTAGTCAGCTCGGCTAACTTGATAAAT**
Sbay_c654 **CGCGCTTCCGATCT**C**TCCGGTTG**TCA**CACTGCCAACTACAAAAT**

Scer_chr16 **TCAGTGACGGCGGCCT**ATT**TA**CT**CTGTTT**GTAAGAG**CCAGGACAGCGCC**
Sb16_Sc16 **TCAGTGACGGCGGCCT**GTT**TA**CT**CTGTTT**GTAAGAG**CCAGGACAGCGCC**
Sbay_c654 **TCAGTGACGGCGGTCT**CTT**CA**CT**TGACCGT**CAGAG**ATCAAGACAGCTCT**

Scer_chr16 **GTGGTATCTTCCAACATCAAGAAAAT**TGTT**GCGGATT**TGAAGA**AGGGCAA**
Sb16_Sc16 **GTGGTATCTTCCAACATCAAGAAAAT**TGTT**GCGGATT**TGAAGA**AGGGCAA**
Sbay_c654 **GTGGTGTC**CG**CAACATCAAGAA**GATTGTT**GCAGACT**TGAAGA**AGGGTAA**

Scer_chr16 **GGACTTATCCCTGCA**ATA**AAATTACACAAGTTAAAGAATGCGTCCAAA**
Sb16_Sc16 **GGACTTATCCCTGCA**ATA**AAATTACACAAGTTAAAGAATGCGTCCAAA**
Sbay_c654 **GGATTTATCA**CT**TGCGGTA**AA**ATTACACA**AA**ATTGAAGAATGCTGTACAAA**

Scer_chr16 **ATGAATCTGTTTCCAGCCCAATTGAACTAAATTT**TGAC**CGCGTGAAGGAC**
Sb16_Sc16 **ATGAATCTGTTTCCAGCCCAATTGAACTAAATTT**TGAC**CGCGTGAAGGAC**
Sbay_c654 **ATGAACATGTTTTCA**CG**CA**GCC**GAA**TCG**AACTCGACGGCGTGAAGGAC**

Scer_chr16 **TTTAAGTTGGGAAAAT**CA**ACTATGTAGCCGT**CGGT**GATGTTTCCA**ACTT
Sb16_Sc16 **TTTAAGTTGGGAAAAT**CA**ACTATGTAGCTGT**CGGT**GATGTTTCCA**ACTT
Sbay_c654 **TTCAAGCTAGGTAAGTT**TA**ACTACGTAGCTGT**TGGT**AATGTTTCCA**ACTT

Scer_chr16 **GCCATATTTGACGAATTGTAA**GAGG**AAAGTATTTGTACAAAACGAAAA**
Sb16_Sc16 **GCCATATTTGACGAATTGTAA**GAGG**AAAGTATTTGTACAAAACGAAAA**
Sbay_c654 **GCCATATTTGATGAATTGTAA**----**AAAGTACGTGTGCA**CAA**----AAA**
Spas_SbYPR191W/ScYPR191W
Sbay_YPR191W

Scer_chr16 **CTAAAGGCAAATATATATATAGATGT**TGCC**CGCACCTTTTTTTT**-**AATG**
Sb16_Sc16 **CTTCAGGCAAATATATATATAGATGT**TGCC**CGCACCTTTTTTTT****AATG**
Sbay_c654 **C--CAGGCA--GCAC**ATAGAA**--TGCCACCACGC**TTTT**TT--AATG**

Scer_chr16 AATATTCACACA-----AATATGAAAATAAAACAAACA--
Sb16_Sc16 AATATTCACACA-----AATATGAAAATAAAACAAACA--
Sbay_c654 AATATTCACAAATGATACGTTGAGTAGTATCAAAAAAATAAAAAAAT

Scer_chr16 ---AATCAAATAACAACATGTAAGACCAAAAATAAATCCCTCATTATTT
Sb16_Sc16 ---AATCAAATAACAACATGTAAGACCAAAAATAAATCCCTCATTATTT
Sbay_c654 ACCAAATCAAATAACAACATGTAAGACCAAAAC----TCCTTCATTATTT

Scer_chr16 ATTCTTACCCTTTCCAAA-TTCTTACTATACTAGTAAATATATATTTAA
Sb16_Sc16 ATTCTTACCCTTTCCAAA-TTCTTACTATACTAGTAAATATATATTTAA
Sbay_c654 ATTCTTATCTTTTTCAAAATTCTTATTGAACTAGTAAATATATATTTAA

Scer_chr16 TTATCCTTTTTCTACTTCAGCAT-ACAATCCTTCTTTTTGCCGCAGGTTT
Sb16_Sc16 TTATCCTTTTTCTACTTCAGCAT-ACAATCCTTCTTTTTGCCGCAGGTTT
Sbay_c654 T--TCCATTCTT-TATTTAAGATTACAATTTTTCTTTTT----CAGTTTA

Scer_chr16 ATAGTTAGACCCCTCAATTCTGTCAAGTTCAGTGGTACGTTATTTTATG
Sb16_Sc16 ATAGTTAGACCCCTCAATTCTGTCAAGTTCAGTGGTACGTTATTTTATG
Sbay_c654 CTAATTAC--G----TTTTG----GCTTCACCGGCATG--ATTACG

Scer_chr16 TCTCATCTCAGATC-CTGGCAAAAAAGAAAGGCATGTAATTTGAGGAG
Sb16_Sc16 TCTCATCTCAGATC-CTGGCAAAAAAGAAAGGCATGTAATTTGAGGAG
Sbay_c654 -CC---CTCAGAACTCACTCAATTGTAAAAAAAGTCTTCAAAGGACC

Scer_chr16 GCGATTACCCTCATTTTTA--CGCAACAACAATGCTGTGTGGCTTACAC
Sb16_Sc16 GCGATTACCCTCATTTTTA--CGCAACAACAATGCTGTGTGGCTTACAC
Sbay_c654 AAGGAACACACAGGACAAAGTCAAGGGACAACATGCGAAACTGA-AT

Scer_chr16 GCCTCTGCGTACATA-TCTACATATTTAACGGTCCTGTATTTTCAAGCAC
Sb16_Sc16 GCCTCTGCGTACATA-TCTACATATTTAACGGTCCTGTATTTTCAAGCAC
Sbay_c654 ACCACTTACTACTGCTCTTCGGAAATTA-TTA-CCTCTACAGTCAAGTGC

Scer_chr16 GCAAGGCTGAAATAAACGGTGTGTTGCTTATGCGCGAT--GCACTCCGCC
Sb16_Sc16 GCAAGGCTGAAATAAACGGTGTGTTGCTTATGCGCGAT--GCACTCCGCC
Sbay_c654 GCCCGACTG-----TGCTTTTTGAAAGCGGGACGCTACGCCGCA

Scer_chr16 GAACATCACCGCAAAAGCACCGTAGGCGGAGATCTCCCAGC-TAGTATGG
Sb16_Sc16 GAACATCACCGCAAAAGCACCGTAGGCGGAGATCTCCCAGC-TAGTATGG
Sbay_c654 GTATTCGAACCGG---GCCACGTAAGCAAAGTGCTGTAATCCTAGTAGGG

Scer_chr16 GCATGACGGAACCACGATTTCCAGATATAGATACTTAAAAGCACTAAAAG
Sb16_Sc16 GCATGACGGAACCACGATTTCCAGATATAGATACTTAAAAGCACTAAAAG
Sbay_c654 TCTCAGCTGA-----CGGCA---ACACATCCACAAA--TACAAACAC

Scer_chr16 GTCTATACATAAAAACGCAGACTTACGTAAGATACATAGCAACTGCCGATA
Sb16_Sc16 GTCTATACATAAAAACGCAGACTTACGTAAGATACATAGCAACTGCCGATA
Sbay_c654 GTCT-----G----CTAATA-CAA-----

Scer_chr16 TGGACGCCGCCATGCCGAATGACAAAGGGAGAAATGTAGTACTAATTGATA
Sb16_Sc16 TGGACGCCGCCATGCCGAATGACAAAGGGAGAAATGTAGTACTAATTGATA
Sbay_c654 --GACGCACAGTACC-----A-TGTAG--CCGAT-----

Scer_chr16 TCGTCTTATCCTCTCAGGAATGCAAACCTAAAACATACTTTCTCCCGTCC
Sb16_Sc16 TCGTCTTATCCTCTCAGGAATGCAAACCTAAAACATACTTTCTCCCGTCC
Sbay_c654 --GTCT--CCTTTCGGATAGGAAGCCAAAAAGAACTTCTTCCGTG

Scer_chr16 TAACAACGCCGGTTGTCGACGATAAATACCCCAAGAAATGCCGCACAGA
Sb16_Sc16 TAACAACGCCGGTTGTCGACGATAAATACCCCAAGAAATGCCGCACAGA
Sbay_c654 CAGCAACGACA-TTGGCATCG-TGCGGCCCCCAAGAAATGCCGCACCGC

Scer_chr16 ATCTCCT--CCGTTAGGTGGTCATGCCCGAGGGTGCAGGTTGTTTCCT
Sb16_Sc16 ATCTCCT--CCGTTAGGTGGTCATGCCCGAGGGTGCAGGTTGTTTCCT
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Scer_chr16 GCACGGTAAATCGGGATGCCATGAAAGCGGGCCTCCCCACGGGTCCCCT
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Scer_chr16 GATAAGCTTGCCTTAACTCATTATTGCCGTGTTTTATCCCTCAAAGCTT
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Scer_chr16 TATGCTGATGTCCTTCCACCCTTTACACAGTAGGATTAGTCTAGAAGT
Sb16_Sc16 TATGCTGATGTCCTTCCACCCTTTACACAGTAGGATTAGTCTAGAAGT
Sbay_c654 TCTTC-TGAT-----TCCAGTCTCTAA-----TCTGGTT-----T

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Sbay_c654 GGTGTAATACAGAACAGGAATTT-----AAGGAAA-AAAAAAGGAGTG

Scer_chr16 ATATTTTACGTCGGAAATTGTGTGATATGCCGTTTGAATTCGAGGTATAT
Sb16_Sc16 ATATTTTACGTCGGAAATTGTGTGATATGCCGTTTGAATTCGAGGTATAT
Sbay_c654 CCCTTTCATTGGCACA---GTTTTCTCTATTTTAATTCG-GCTATAT

Scer_chr16 TAAGCGCAGTGCTTTTCCCTGCATCGCATTCTGTCTGTCTTCCGAGTGT
Sb16_Sc16 TAAGCGCAGTGCTTTTCCCTGCATCGCATTCTGTCTGTCTTCCGAGTGT
Sbay_c654 TAAT---AAAGCTG--CCCTTCAAC-----CAGCG--TCTTCCCGTGT

Scer_chr16 CGATTCCACAAATTCGTCTTGTCTTTTGGATATTTGTTTTTTT-TTTCC
Sb16_Sc16 CAATTCACAAATTCGTCTTGTCTTTTGGATATTTGTTTTCTT-TTTCC
Sbay_c654 C--TTGCGACATCAATGTTGTCTTTCTCTTGTCTTGCCTTCCGAATTTCC

Scer_chr16 TTCTCTTTTTTTATTCTTTGTATTTGGTGTCTGTCTGTCAATACGGCACAT
Sb16_Sc16 TTCTCTTTTTTTATTCTTTGTATTTGGTGTCTGTCTGTCAATACGGCACAT
Sbay_c654 TTCTCGTAT-----C-TT-----CTCTC-GTGGATA---CAAAC

Scer_chr16 AAAGTAACATGTAATTAACATAAATGCTTTCGAACGATTTCGAACGATA
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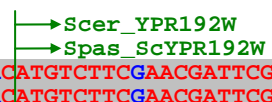
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Scer_chr16 ATCCCTCCGGAGCAGCCGAAACAAAGCACCATCGCTTTAAATCTCTAG
Sb16_Sc16 ATCCCTCCGGAGCAGCCGAAACAAAGCACCATCGCTTTAAATCTCTAG
Sbay_c654 -----CGGAACAGCCGAAACTAAGCACACGCGTTTCCACATCACTAA

Scer_chr16 GGACACCTGAGAGACCACTTTATCGTGCGGTGGTGGTGTGAGTTCTGCGGCA
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Sbay_c654 GGATACCTTGAGAAACCACTTTATCGCCGCGCTGGCGGAGTTTGTGGTA

Scer_chr16 CATTTCATGTTTTTATGGTGCCTTACGTTATCTGCAATGTCGCTAACCAT
Sb16_Sc16 CATTTCATGTTTTTATGGTGCCTTACGTTATCTGCAATGTCGCTAACCAT
Sbay_c654 CCTTCATGTTTTTATGGTGCCTTACGTTATCTGTAACGTCGCAACCAT

Scer_chr16 GATGTCGCACTCGTTGCAGCGCTGACGGTTCCTCCATCCGGGTCAATTGAT
Sb16_Sc16 GATGTCGCACTCGTTGCAGCGCTGACGGTTCCTCCATCCGGGTCAATTGAT
Sbay_c654 GATGTCGCACTGACTGCGCAGCGCTGACGGTTCCTCCATCCGGGTCAATTGAT



Scer_chr16 **TATGATTGCCATCGGTTTCGGATTTCCGTCATGTTTTCTATCTGGTGT**
 Sb16_Sc16 **TATGATTGCCATCGGTTTCGGATTTCCGTCATGTTTTCTATCTGGTGT**
 Sbay_c654 **CATGATCGCTATCGGTTTCGGGTTCTCCCTCATGTTTGCCGTCTGGTGCT**

Scer_chr16 **TGCCGGTGTCTCTGGTGGGGCTTTGAATCCTGCTATGTCGCTTTCGCTG**
 Sb16_Sc16 **TGCCGGTGTCTCTGGTGGGGCTTTGAATCCTGCTATGTCGCTTTCGCTG**
 Sbay_c654 **TCGCTGGTGTTCCTGGTGGTGTCTTTGAATCCTGCGTCTCGCTTTCCTG**

Scer_chr16 **TGCTTGCCGAGAGCCGTCCTCCTACAAGATGTGTCGTTATGTGGGTTTC**
 Sb16_Sc16 **TGCTTGCCGAGAGCCGTCCTCCTACAAGATGTGTCGTTATGTGGGTTTC**
 Sbay_c654 **TGCTTGCCGAGAGCCATCACTCCAACAAGATGCTTGTGATGTGGTCTC**

Scer_chr16 **GCAGATTGTTGCTGGAATGGCCGCTGGAGGCGCTGCAAGCGCCATGACAC**
 Sb16_Sc16 **GCAGATTGTTGCCGGAATGGCCGCTGGAGGCGCTGCAAGCGCCATGACAC**
 Sbay_c654 **CCAGATCATAGCCGGGATGGCCCGAGGTGGTGGCTAGTGCTATGACTC**

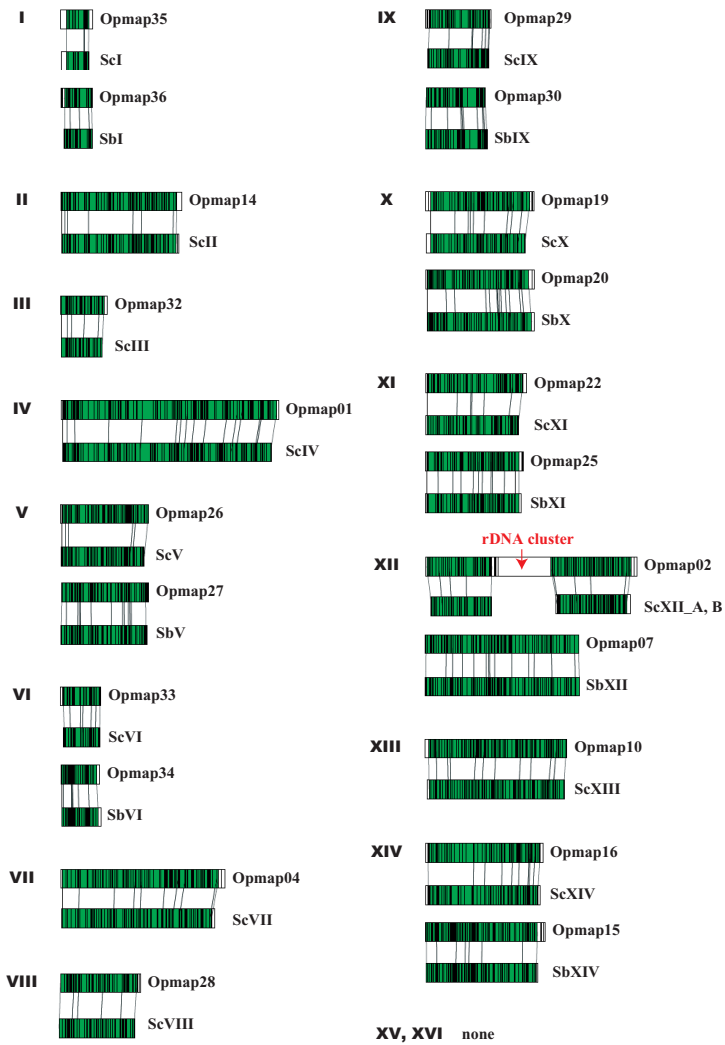
Scer_chr16 **CTGGTGAAGTCCTCTTTGCCAATTCTTTGGGCCTGGGCTGCTCTAGGACG**
 Sb16_Sc16 **CTGGTGAAGTCCTCTTTGCCAATTCTTTGGGCCTGGGCTGCTCTAGGACG**
 Sbay_c654 **CCGGTAAGGTCTTTTCGCCAAGCCCTGGGCCTGGGCTGCTCTAGATCA**

Scer_chr16 **AGGGGTCGTTTCCTGGAGATGTTCCGGCACCGCTATCCT**
 Sb16_Sc16 **AGGGGTCGTTTCCTGGAGATGTTCCGGCACCGCTATCCT**
 Sbay_c654 **AGAGGCCTGTTTCCTGGAAATGTTCCGGCACCTTCATCTT**

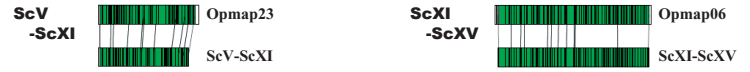
Scer_YPR192W →
 Spas_ScYPR192W →

Supplementary Figure 1, Nakao *et al.*

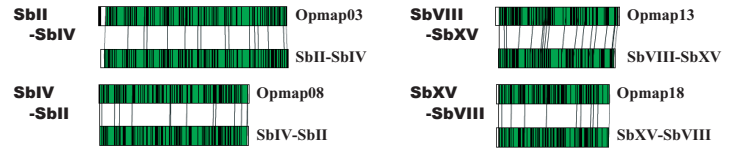
(A) Chromosomes without translocations



(B) Chromosomes with translocations between Sc-type chromosomes



(C) Chromosomes with translocations between Sb-type chromosomes



(D) Chromosomes with translocations between Sc- and Sb-type chromosomes

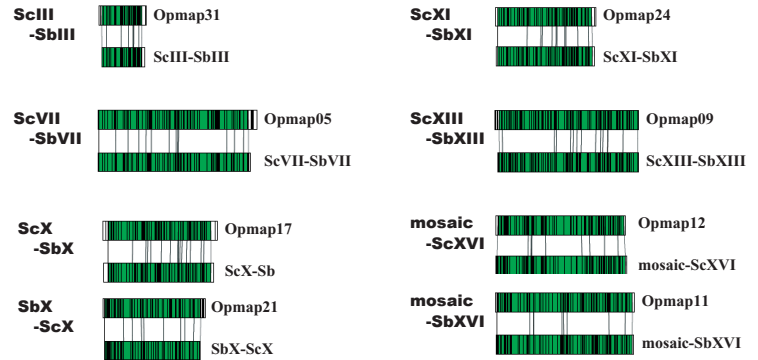


Figure S2, Nakao *et al.*

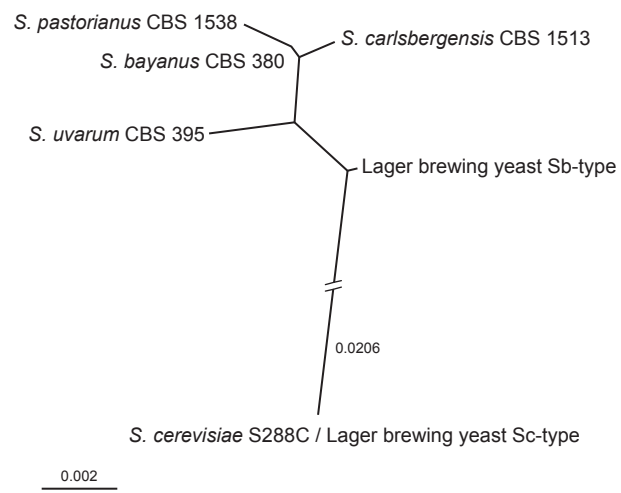


Figure S3, Nakao *et al.*

