G3 Genes | Genomes | Genetics

# Widespread genomic incompatibilities in *Caenorhabditis elegans*

L. Basten Snoek[*,1], Helen E. Orbidans[§,1], Jana J. Stastna[§], Aafke Aartse[*], Miriam Rodriguez[*], Joost A.G. Riksen[*], Jan E. Kammenga[*,2] and Simon C. Harvey[§,2]

[*] Laboratory of Nematology, Wageningen University, 6708 PB Wageningen, The Netherlands.
[§] Biomolecular Research Group, School of Human and Life Sciences, Canterbury Christ Church University, North Holmes Road, Canterbury, CT1 1QU, UK.

[1] These authors contributed equally to this work.
[2]Corresponding authors: Laboratory of Nematology, Wageningen University, 6708 PB Wageningen, The Netherlands. Email: Jan.Kammenga@wur.nl; Biomolecular Research Group, School of Human and Life Sciences, Canterbury Christ Church University, North Holmes Road, Canterbury, CT1 1QU, UK. Email: Simon.Harvey@canterbury.ac.uk.

Data is archived in WormQTL (http://www.wormqtl.org).

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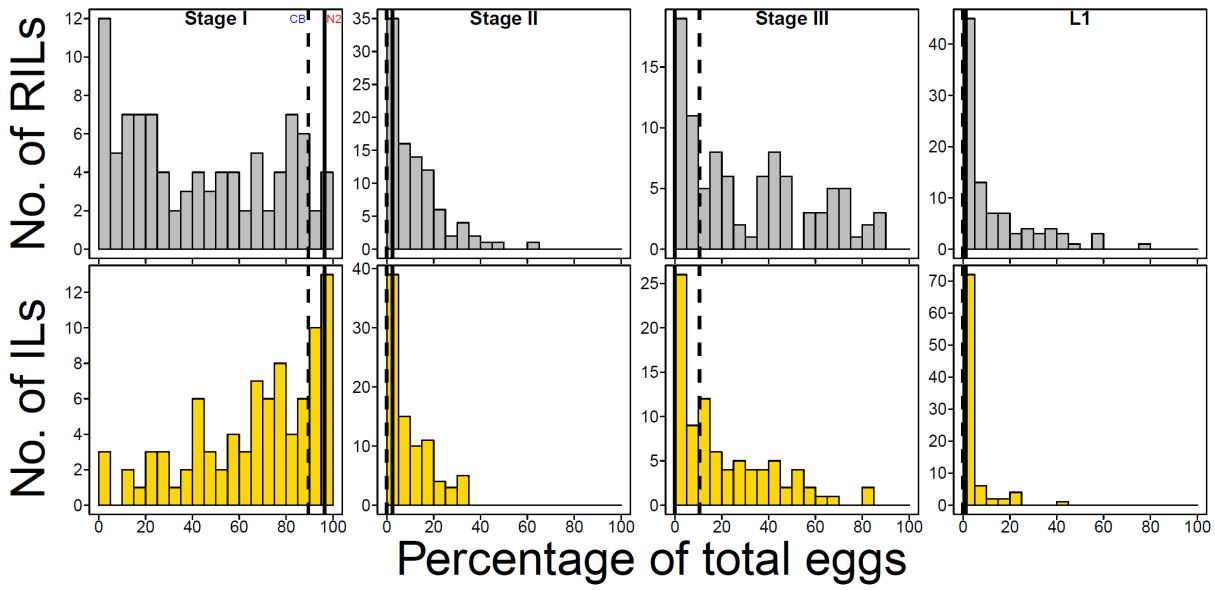



**Figure S1** Progeny stage distribution across the RILs and ILs. The frequency distribution of progeny laid at a certain stage as a percentage of all progeny per genotype in the RILs (A) in grey and ILs (B) in yellow. The parental phenotypes are indicated by the vertical lines, N2 solid, CB4856 dashed. Progeny stage is indicated above each panel.

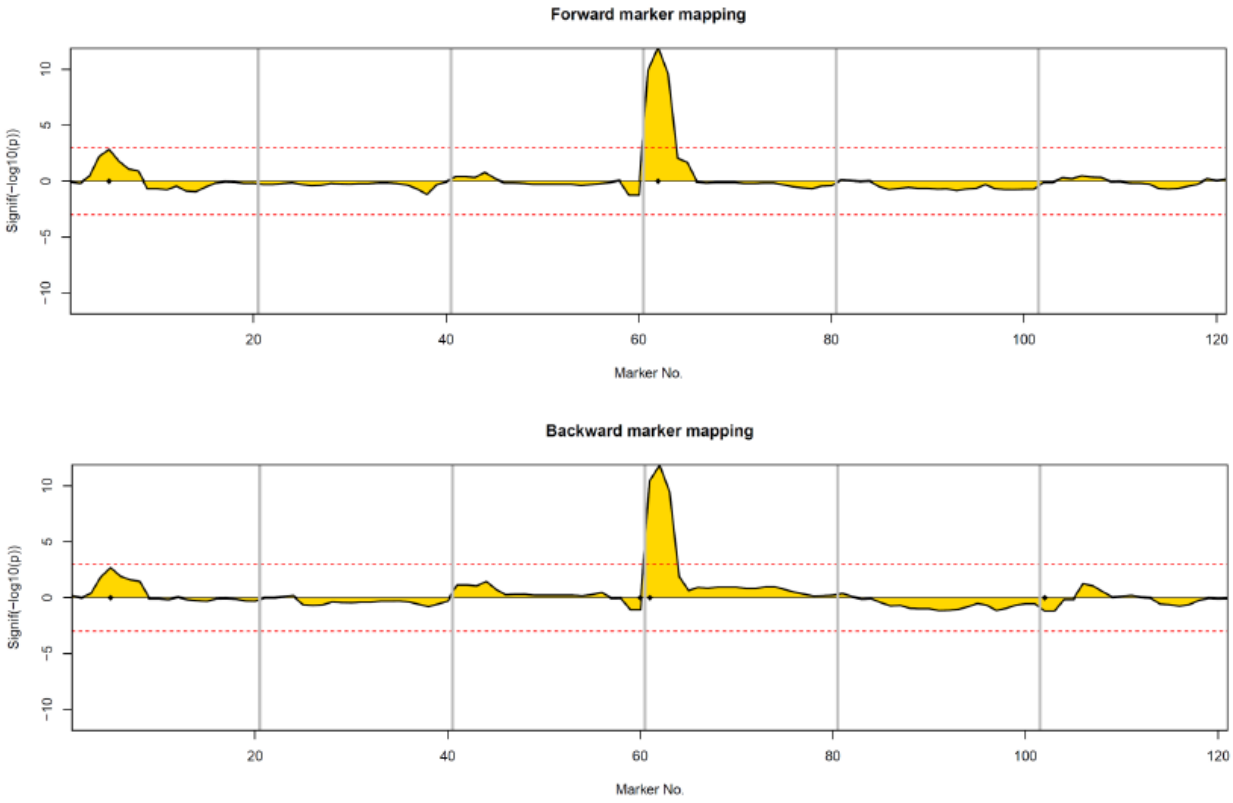



**Figure S2** MQM analysis of the RILs. Percentage of stage I and II eggs per RIL was used as input for MQM QTL mapping. We used both forward mapping and backward mapping indicated in the figure titles. For forward mapping cofactor markers were added until no significant new QTL were found, for backward mapping 5 equally spaced co-factor marker were used in the starting model and each round the least significant co-factor was removed until no co-factors with $p > 0.1$ remained. For both forward and backward MQM mapping a window-size of 5 markers was used in calculating the final QTL profiles. We also fixed the major QTL at the top of chromosome IV to observe the QTL profiles of a N2 or CB fixed major QTL.

**Figure S2** (Continued)

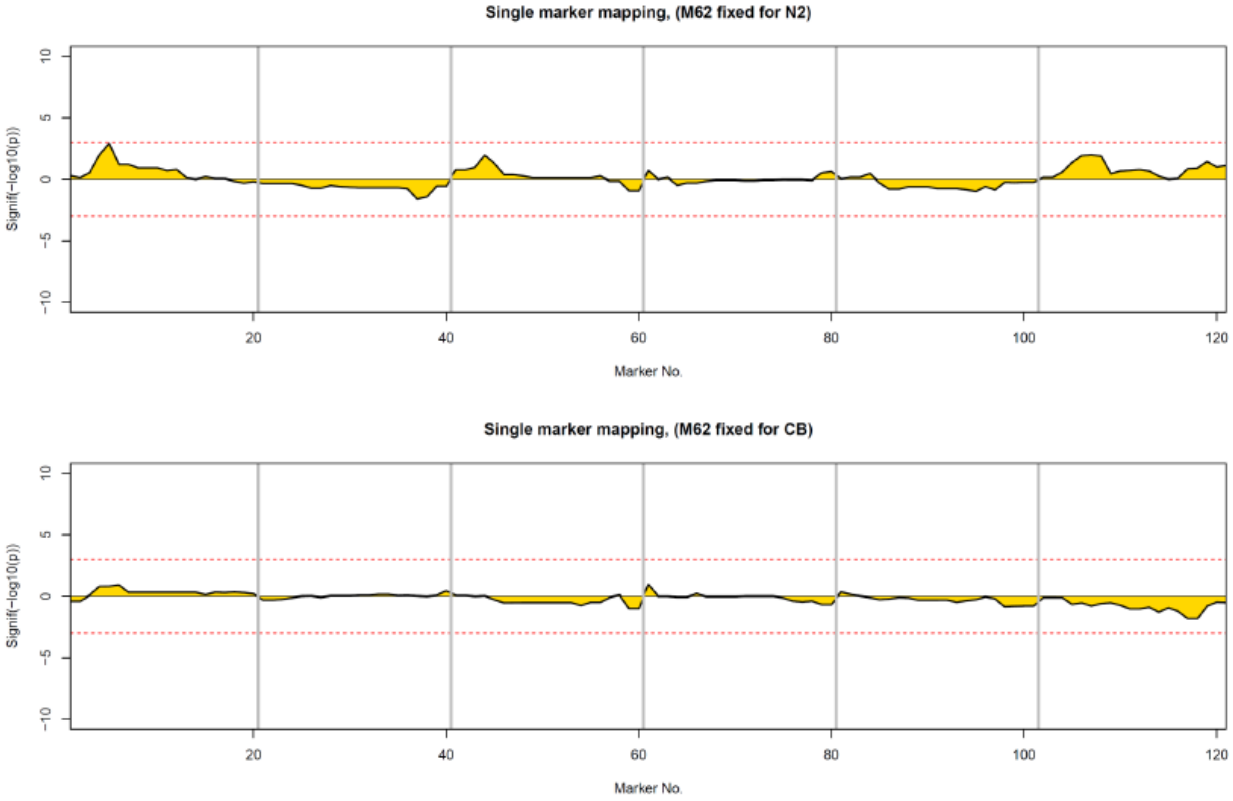
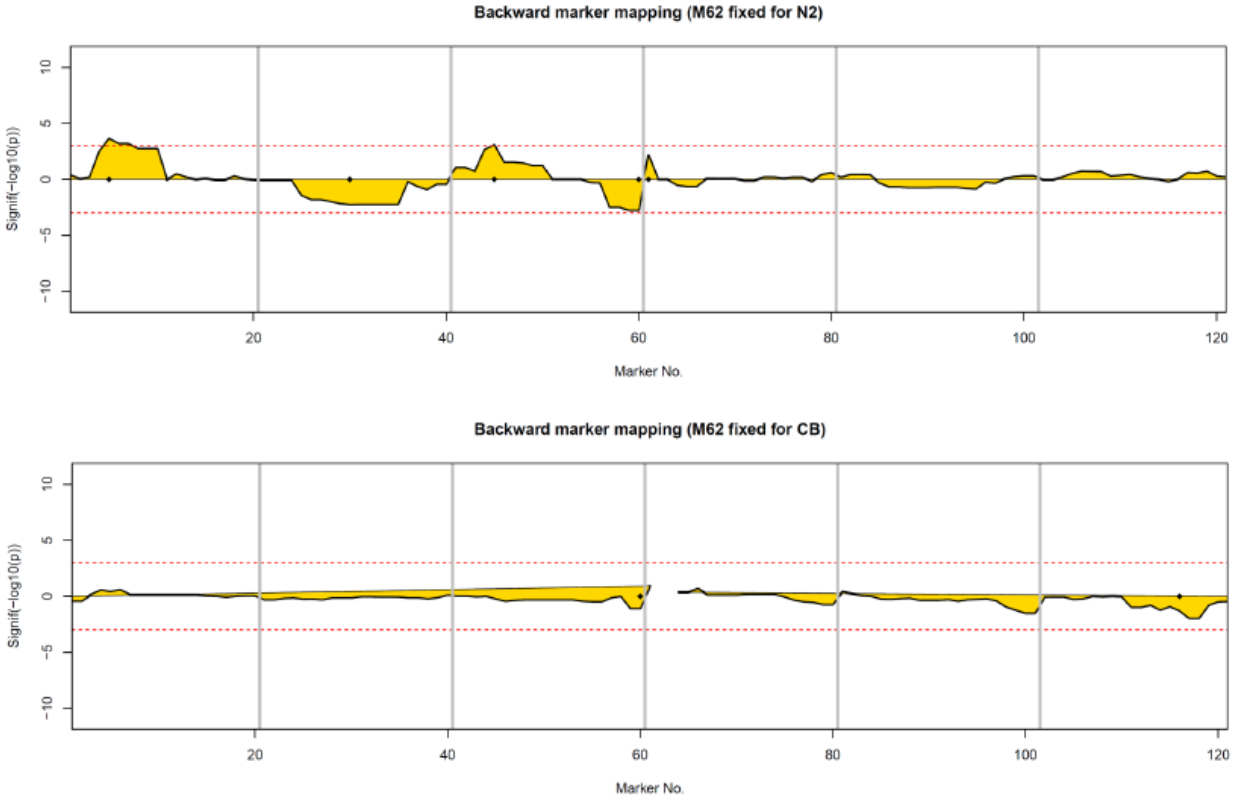


**Figure S2** (Continued)



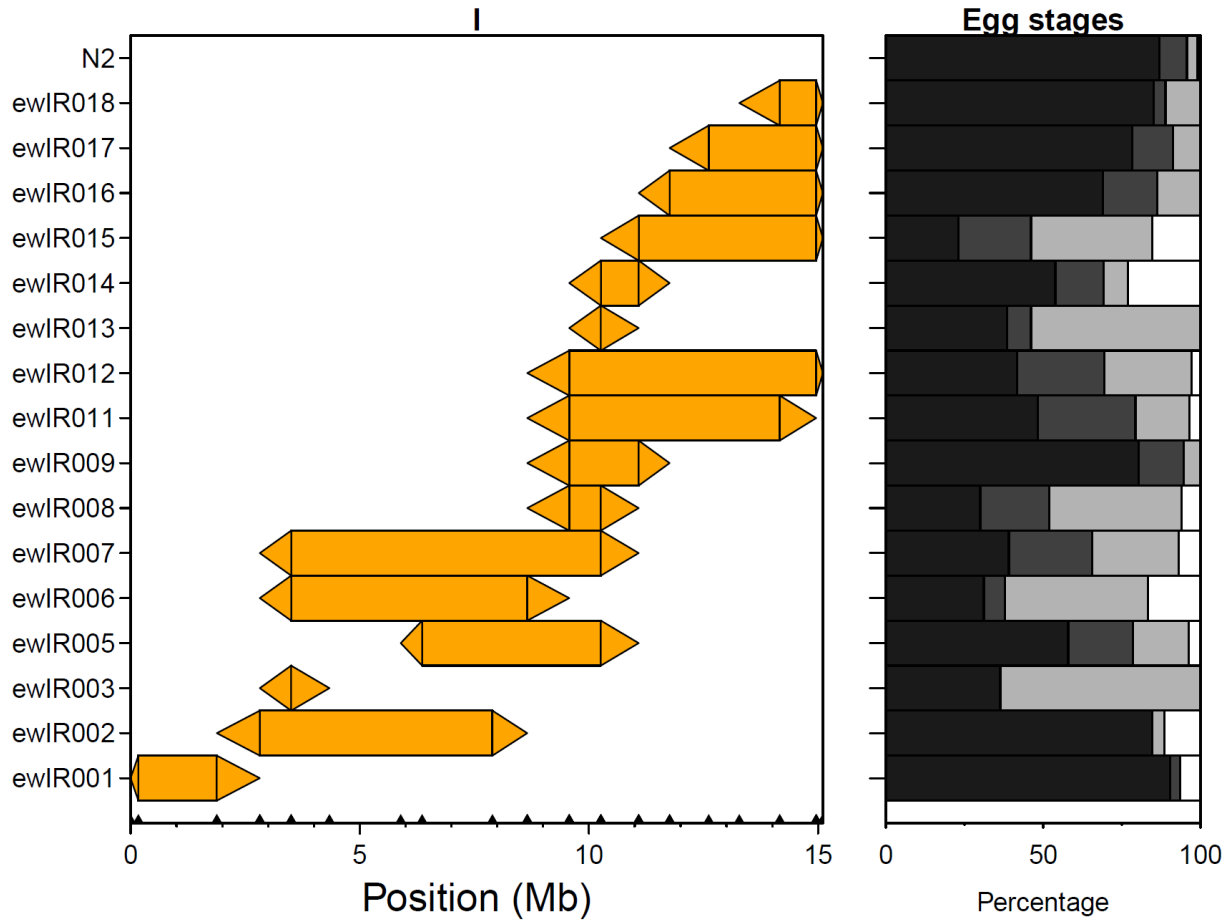



**Figure S3** Comparison between ILs in the genomewide screen. The CB4856 introgression per IL is shown by the coloured rectangle. Triangles join adjacent CB4856 and N2 markers. Progeny stage distribution is shown as cumulative percentage of total progeny. From dark to light: Stage I, II, III and L1 (in white).

**Figure S3** (Continued)

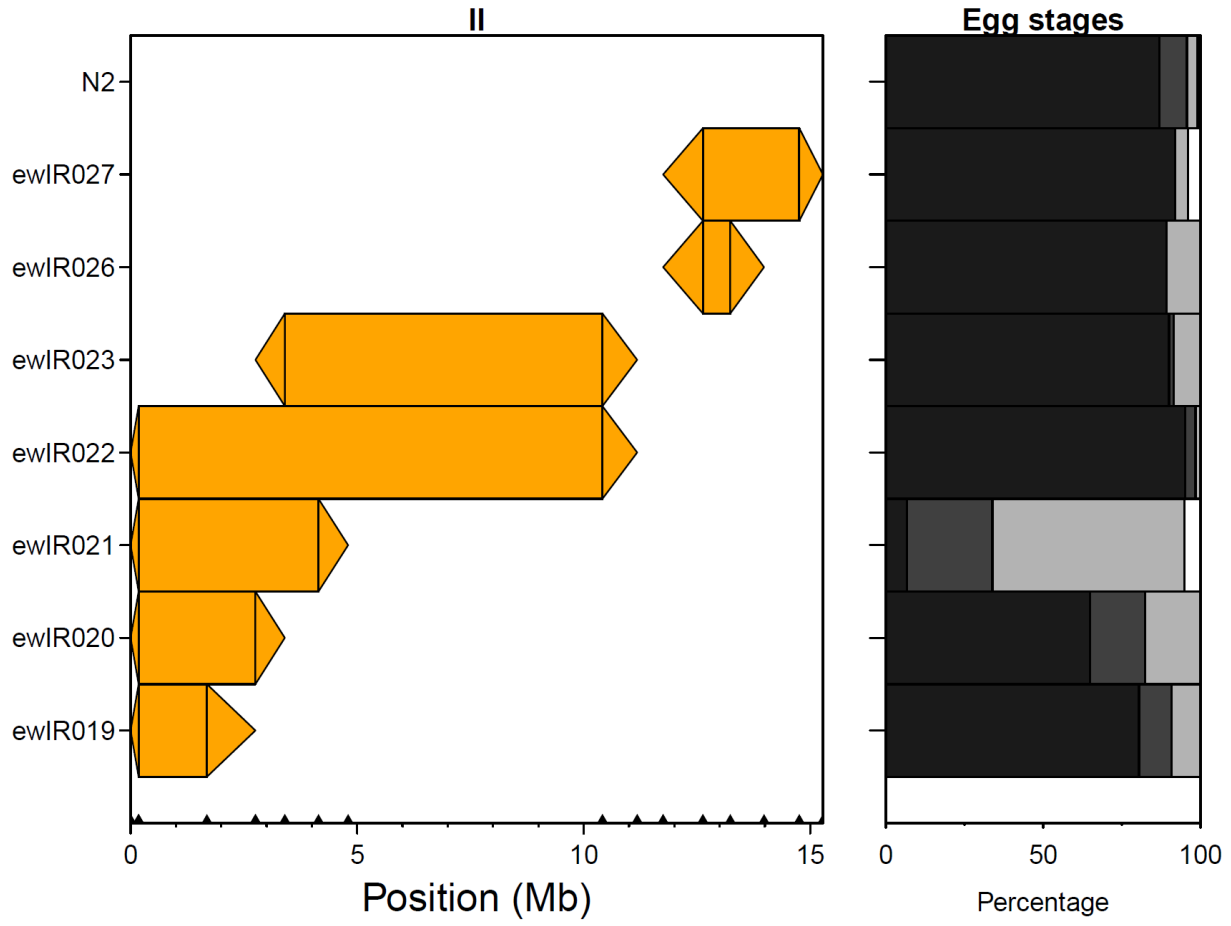


**Figure S3** (Continued)

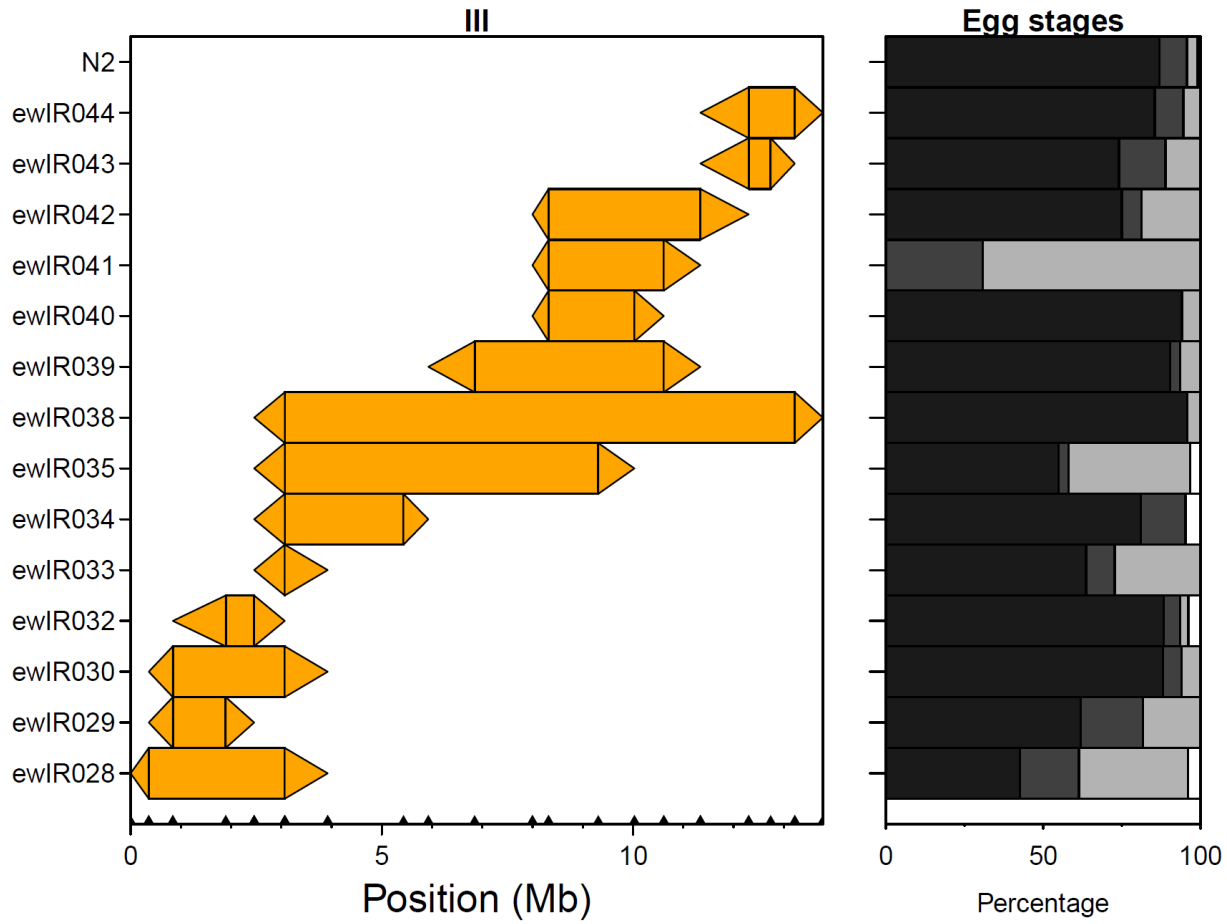


**Figure S3** (Continued)

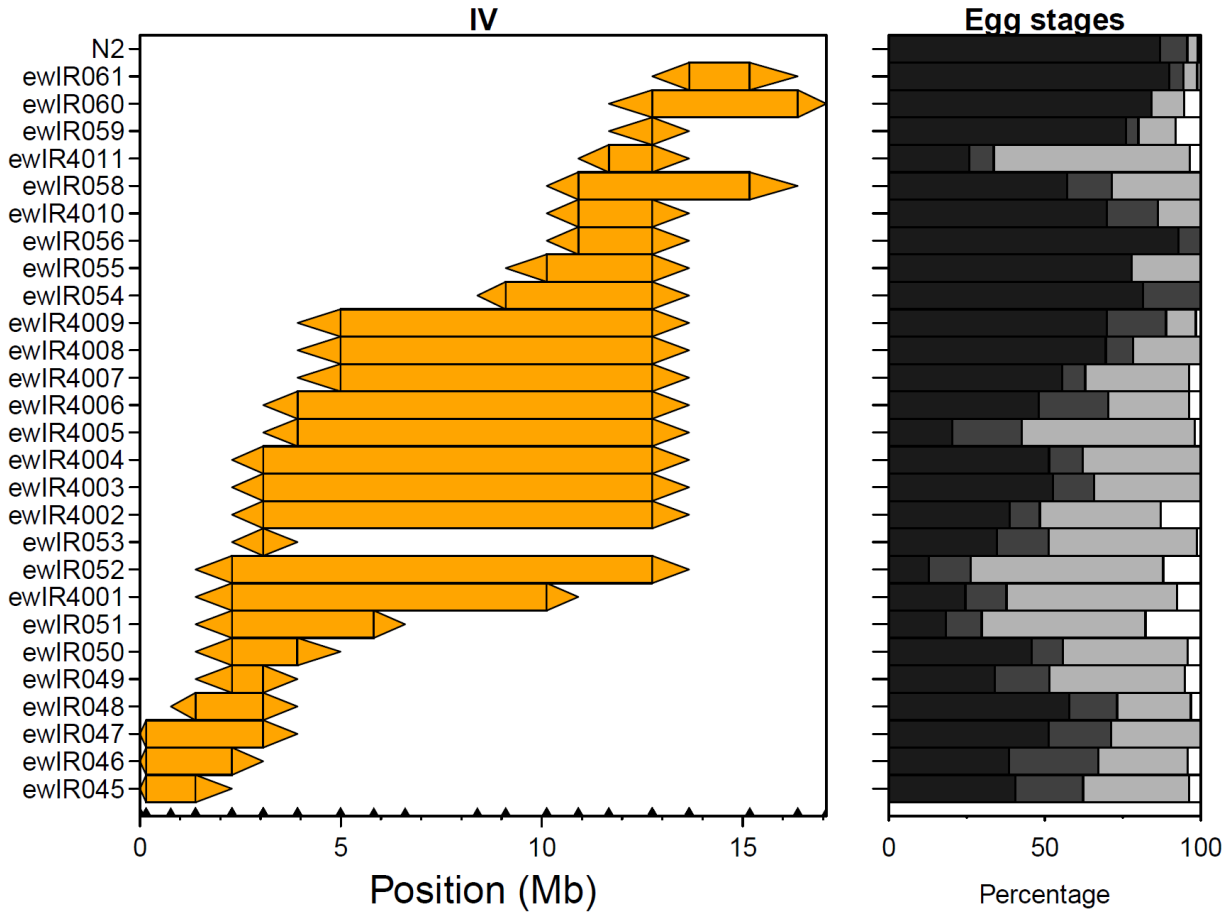


**Figure S3** (Continued)

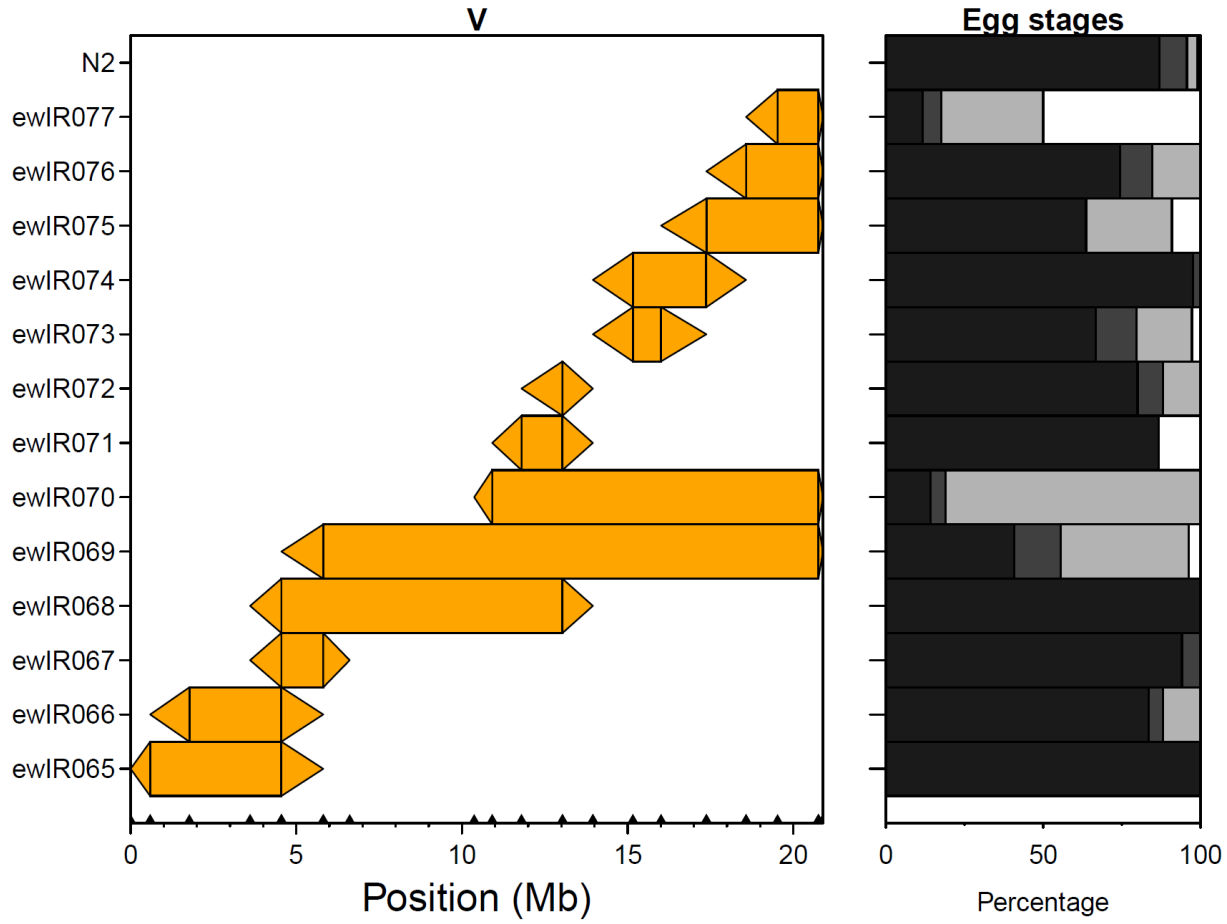
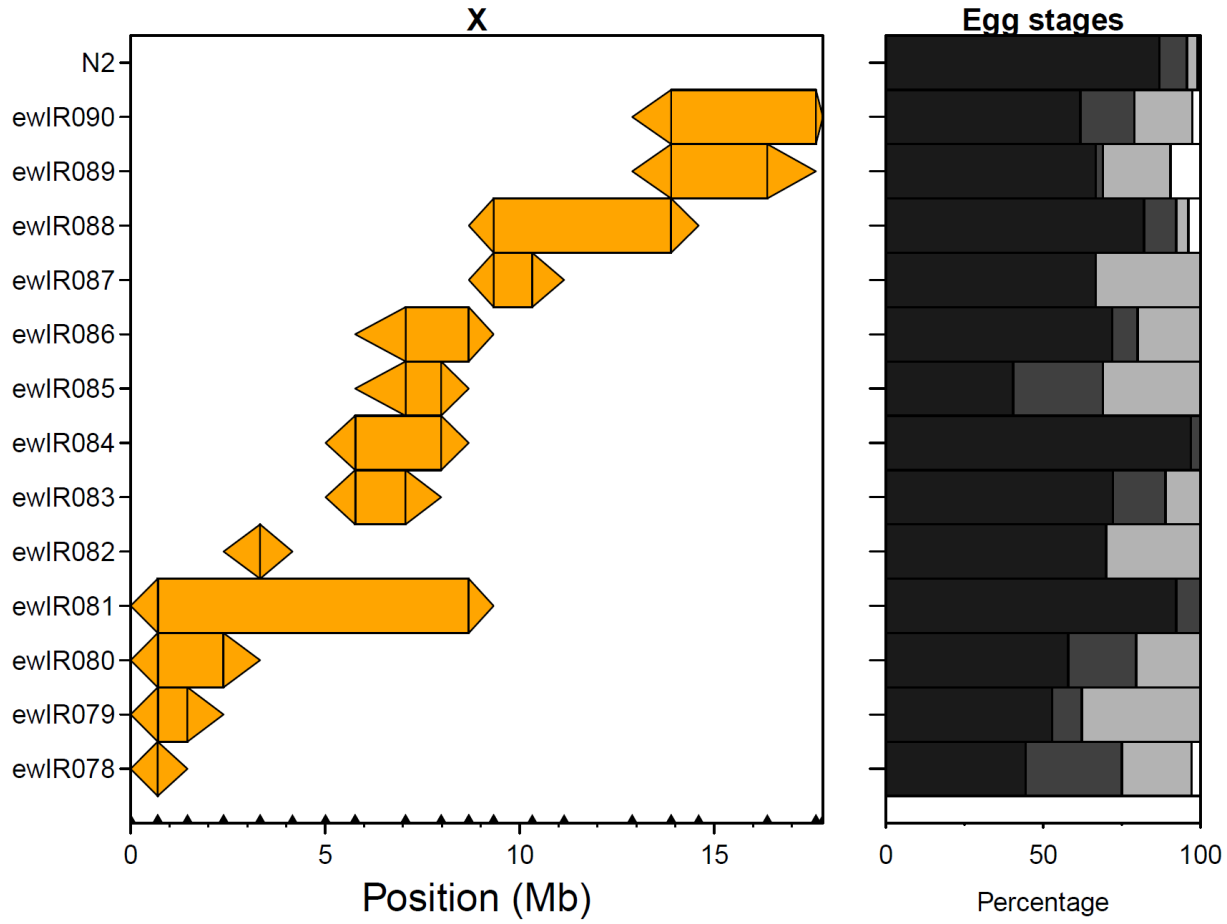


**Figure S3** (Continued)



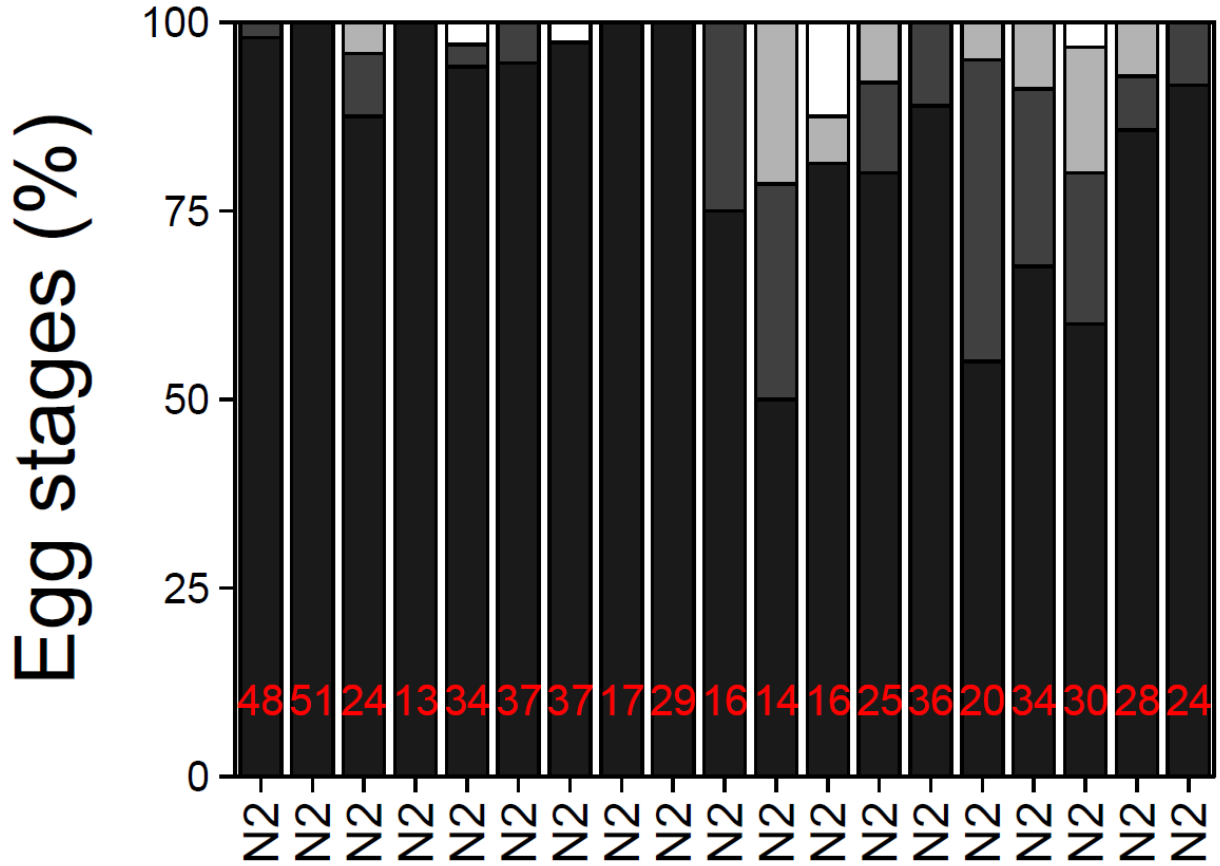



**Figure S4** Egg-stages in single N2 dishes used in this paper. The number of eggs measured is indicated in red. Progeny stage distribution is shown as cumulative percentage of total progeny. From dark to light: Stage I, II, III and L1 (in white).

**Table S1 IL vs IL Egg-stages. Significance scores in –log10(p)**

| ID | Test order | Scores (chi-square test) | N2L | CBL | CBR | N2R | CB_late_stage |
|---|---|---|---|---|---|---|---|
| 1 | N2 → 1 | 1.76 | | | | | |
| 2 | N2 → 2 | 3.33 | | | | | |
| 3 | N2 → 3 | 17.51 | 2818974 | 3502476 | 3502476 | 4338254 | + |
| 3 | 3 → 6 | 5.17 | | | | | |
| 3 | 6 → 7 | 4.01 | | | | | |
| 4 | N2 → 13 | 13.13 | 9569913 | 10259909 | 10259909 | 11085295 | + |
| 4 | 13 → 8 | 2.82 | | | | | |
| 4 | 8 → 5 | 3.62 | | | | | |
| 4 | 5 → 7 | 1.23 | | | | | |
| 5 | N2 → 6 | 15.88 | 2818974 | 3502476 | 8654361 | 9569913 | + |
| 6 | N2 → 13 | 13.13 | 9569913 | 10259909 | 10259909 | 11085295 | + |
| 6 | 13 → 14 | 12.83 | 11085295 | 11085295 | 11085295 | 11760179 | - |
| 7 | N2 → 8 | 14.34 | 8654361 | 9569913 | 10259909 | 11085295 | + |
| 7 | 8 → 9 | 12.02 | 11085295 | 11085295 | 11085295 | 11760179 | - |
| 7 | 9 → 11 | 4.56 | | | | | |
| 7 | 11 → 12 | 0.44 | | | | | |
| 8 | N2 → 18 | 1.18 | | | | | |
| 8 | 18 → 17 | 1.26 | | | | | |
| 8 | 17 → 16 | 0.5 | | | | | |
| 8 | 16 → 15 | 10.26 | 10259909 | 11085295 | 11085295 | 11760179 | + |
| 8 | 15 → 12 | 3.0 | | | | | |
| | | | | | | | |
| 9 | N2 → 19 | 0.58 | | | | | |
| 9 | 19 → 20 | 1.33 | | | | | |
| 9 | 20 → 21 | 16.16 | 2755074 | 3403575 | 4147051 | 4800868 | + |
| 9 | 21 → 22 | 33.06 | 4147051 | 4800868 | 10414073 | 11180836 | - |
| 10 | N2 → 23 | 1.45 | | | | | |
| 10 | 23 → 22 | 1.21 | | | | | |
| 11 | N2 → 26 | 2.46 | | | | | |
| 11 | 26 → 27 | 1.54 | | | | | |
| | | | | | | | |
| 12 | N2 → 33 | 4.43 | | | | | |
| 12 | 33 → 30 | 3.94 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12 | 30 → 28 | 9.34 | | | | | |
| 13 | N2 → 29 | 3.68 | | | | | |
| 13 | 29 → 30 | 3.92 | | | | | |
| 14 | N2 → 32 | 0.38 | | | | | |
| 15 | N2 → 33 | 4.43 | | | | | |
| 15 | 33 → 34 | 6.97 | | | | | |
| 15 | 34 → 35 | 10.31 | 5431252 | 5925983 | 9308858 | 1002749 6 | - |
| 15 | 35 → 38 | 9.13 | | | | | |
| 16 | N2 → 41 | 33.67 | 7998164 | 8318553 | 1061311 9 | 1134112 0 | + |
| 16 | 41 → 39 | 35.77 | 5925983 | 6847169 | 7998164 | 8318553 | - |
| 17 | N2 → 40 | 1.88 | | | | | |
| 17 | 40 → 41 | 38.72 | 1002749 6 | 1061311 9 | 1061311 9 | 1134112 0 | + |
| 17 | 41 → 42 | 26.10 | 1061311 9 | 1134112 0 | 1134112 0 | 1230172 5 | - |
| 18 | N2 → 43 | 1.26 | | | | | |
| 18 | 43 → 44 | 0.89 | | | | | |
| 19 | N2 → 44 | 0.16 | | | | | |
| 20 | 44 → 38 | 2.14 | | | | | |
| | | | | | | | |
| 21 | N2 → 45 | 9.89 | 0 | 151889 | 1381409 | 2288742 | + |
| 21 | 45 → 46 | 0.16 | | | | | |
| 21 | 46 → 47 | 1.26 | | | | | |
| 22 | N2 → 53 | 12.90 | 2288742 | 3067374 | 3067374 | 3920366 | + |
| 22 | 53 → 49 | 0.32 | | | | | |
| 22 | 49 → 48 | 2.25 | | | | | |
| 22 | 48 → 47 | 0.71 | | | | | |
| 2 | N2 → 49 | 12.88 | 1381409 | 2288742 | 3067374 | 3920366 | + |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | | | | | | | |
| 23 | 49 → 50 | 0.58 | | | | | |
| 23 | 50 → 51 | 4.17 | | | | | |
| 23 | 51 → 4001 | 0.80 | | | | | |
| 23 | 4001 → 52 | 0.80 | | | | | |
| 24 | N2 → 53 | 12.90 | 2288742 | 3067374 | 3067374 | 3920366 | + |
| 24 | 53 → 4002,4003,4004 | 2.23,1.25,1.12 | | | | | |
| 25 | N2 → 59 | 2.32 | | | | | |
| 25 | 59 → 4011 | 12.72 | 10909560 | 11668242 | 11668242 | 12748880 | + |
| 25 | 4011 → 4010,56 | 11.89,21.71 | 10122930 | 10909560 | 10909560 | 11668242 | - |
| 25 | 4010,56 → 55 | 6.67,4.10 | | | | | |
| 25 | 55 → 54 | 8.87 | | | | | |
| 25 | 54 → 4009,4008,4007 | 2.13,5.69,9.40 | | | | | |
| 25 | 4009,4008,4007 → 4006,4005 | 4005 vs 4009 12.22 | | | | | |
| 25 | 4006,4005 → 4004,4003,4002 | NS | | | | | |
| 25 | 4004,4003,4002 → 52 | NS | | | | | |
| 26 | N2 → 56,4010 | 0.71,2.00 | | | | | |
| 26 | 56,4010 → 58 | 8.57,1.45 | | | | | |
| 27 | N2 → 59 | 2.32 | | | | | |
| 27 | 59 → 60 | 0.78 | | | | | |
| 28 | N2 → 61 | 0.19 | | | | | |
| | | | | | | | |
| 29 | N2 → 66 | 2.55 | | | | | |
| 29 | 66 → 65 | 3.88 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 30 | N2 → 67 | 0.80 | | | | | |
| 30 | 67 → 68 | 1.39 | | | | | |
| 31 | N2 → 72 | 0.97 | | | | | |
| 31 | 72 → 71 | 6.62 | | | | | |
| 31 | 71 → 68 | 3.33 | | | | | |
| 32 | N2 →77 | 26.95 | 18574593 | 19525561 | 20758352 | 20893784 | + |
| 32 | 77 → 76 | 21.39 | 17377158 | 18574593 | 18574593 | 19525561 | - |
| 32 | 76 → 75 | 4.50 | | | | | |
| 32 | 75 → 70 | 14.74 | 10368660 | 10912994 | 16008404 | 17377158 | + |
| 32 | 70 → 69 | 6.89 | | | | | |
| 33 | N2 → 73 | 2.54 | | | | | |
| 33 | 73 → 74 | 6.60 | | | | | |
| | | | | | | | |
| 34 | N2 → 78 | 8.08 | | | | | |
| 34 | 78 → 79 | 3.50 | | | | | |
| 34 | 79 → 80 | 2.20 | | | | | |
| 34 | 80 → 81 | 7.58 | | | | | |
| 35 | N2 → 83 | 1.50 | | | | | |
| 35 | 83 → 84 | 5.25 | | | | | |
| 36 | N2 → 85 | 10.19 | 5770179 | 7067019 | 7982354 | 8691677 | + |
| 36 | 85 → 84 | 16.25 | 5010049 | 5770179 | 5770179 | 7067019 | - |
| 37 | N2 → 87 | 7.31 | | | | | |
| 37 | 87 → 88 | 7.78 | | | | | |
| 38 | N2 → 89 | 5.13 | | | | | |
| 38 | 89 → 90 | 2.83 | | | | | |
| | | | | | | | |

IL vs IL Size

| ID | Test order | Scores (t-test) | N2L | CBL | CBR | N2R | CB_Size |
|---|---|---|---|---|---|---|---|
| 9 | N2 → 19 | 0.27 | | | | | |
| 9 | 19 → 20 | 0.67 | | | | | |
| 9 | 20 → 21 | 0.29 | | | | | |
| 9 | 21 → 22 | 0.40 | | | | | |
| 10 | N2 → 23 | 0.46 | | | | | |
| 10 | 23 → 22 | 0.01 | | | | | |
| 11 | N2 → 26 | 0.59 | | | | | |
| 11 | 26 → 27 | 0.52 | | | | | |
| | | | | | | | |
| 21 | N2 → 45 | 0.10 | | | | | |
| 21 | 45 → 46 | 0.68 | | | | | |
| 21 | 46 → 47 | 0.19 | | | | | |
| 22 | N2 → 53 | 0.29 | | | | | |
| 22 | 53 → 49 | 0.03 | | | | | |
| 22 | 49 → 48 | 1.11 | | | | | |
| 22 | 48 → 47 | 0.31 | | | | | |
| 23 | N2 → 49 | 0.42 | | | | | |
| 23 | 49 → 50 | 0.08 | | | | | |
| 23 | 50 → 51 | 0.26 | | | | | |
| 23 | 51 → 52 | 1.30 | 5819735 | 6599685 | 12748880 | 13667267 | - |
| 24 | N2 → 53 | 0.29 | | | | | |
| 25 | N2 → 59 | 1.45 | 11668242 | 12748880 | 12748880 | 13667267 | + |
| 25 | 59 → 56 | 1.08 | | | | | |
| 25 | 56 → 55 | 0.34 | | | | | |
| 25 | 55 → 54 | 1.37 | 8397264 | 9102404 | 9102404 | 10122930 | + |
| 25 | 54 → 52 | 1.01 | | | | | |
| 26 | N2 → 56 | 0.05 | | | | | |
| 26 | 56 → 58 | 1.18 | | | | | |
| 27 | N2 → 59 | 1.45 | 11668242 | 12748880 | 12748880 | 13667267 | + |
| 27 | 59 → 60 | 0.03 | | | | | |
| 28 | N2 → 62 | 1.64 | 12748880 | 13667267 | 16371991 | 17084259 | - |

IL vs IL Lifespan

| ID | Test order | Scores (t-test) | N2L | CBL | CBR | N2R | CB_Lifespan |
|---|---|---|---|---|---|---|---|
| 9 | N2 → 19 | 0.07 | | | | | |
| 9 | 19 → 20 | 0.17 | | | | | |
| 9 | 20 → 21 | 0.46 | | | | | |
| 9 | 21 → 22 | 2.69 | 4147051 | 4800868 | 10414073 | 11180836 | + |
| 10 | N2 → 23 | 0.09 | | | | | |
| 10 | 23 → 22 | 1.75 | 0 | 176721 | 2755074 | 3403575 | + |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11 | N2 → 26 | 0.96 | | | | | |
| 11 | 26 → 27 | 0.02 | | | | | |
| | | | | | | | |
| 21 | N2 → 45 | 0.20 | | | | | |
| 21 | 45 → 46 | 0.13 | | | | | |
| 21 | 46 → 47 | 0.16 | | | | | |
| 22 | N2 → 53 | 0.89 | | | | | |
| 22 | 53 → 49 | 0.50 | | | | | |
| 22 | 49 → 48 | 0.24 | | | | | |
| 22 | 48 → 47 | 0.55 | | | | | |
| 23 | N2 → 49 | 0.24 | | | | | |
| 23 | 49 → 50 | 0.09 | | | | | |
| 23 | 50 → 51 | 1.30 | 3920366 | 4991858 | 5819735 | 6599685 | - |
| 23 | 51 → 52 | 0.65 | | | | | |
| 24 | N2 → 53 | 0.89 | | | | | |
| 25 | N2 → 59 | 0.38 | | | | | |
| 25 | 59 → 56 | 0.17 | | | | | |
| 25 | 56 → 55 | 0.73 | | | | | |
| 25 | 55 → 54 | 0.26 | | | | | |
| 25 | 54 → 52 | 0.77 | | | | | |
| 26 | N2 → 56 | 0.54 | | | | | |
| 26 | 56 → 58 | 0.13 | | | | | |
| 27 | N2 → 59 | 0.38 | | | | | |
| 27 | 59 → 60 | 0.05 | | | | | |
| 28 | N2 → 62 | 0.54 | | | | | |

IL vs IL Fecundity

| ID | Test order | Scores (t-test) | N2L | CBL | CBR | N2R | CB_Fecundity |
|---|---|---|---|---|---|---|---|
| 9 | N2 → 19 | 0.11 | | | | | |
| 9 | 19 → 20 | 0.23 | | | | | |
| 9 | 20 → 21 | 0.53 | | | | | |
| 9 | 21 → 22 | 3.37 | 4147051 | 4800868 | 10414073 | 11180836 | + |
| 10 | N2 → 23 | 0.77 | | | | | |
| 10 | 23 → 22 | 2.87 | 0 | 176721 | 2755074 | 3403575 | + |
| 11 | N2 → 26 | 0.67 | | | | | |
| 11 | 26 → 27 | 0.98 | | | | | |
| | | | | | | | |
| 21 | N2 → 45 | 0.37 | | | | | |
| 21 | 45 → 46 | 0.31 | | | | | |
| 21 | 46 → 47 | 0.62 | | | | | |
| 22 | N2 → 53 | 0.36 | | | | | |
| 22 | 53 → 49 | 0.20 | | | | | |
| 22 | 49 → 48 | 0.77 | | | | | |
| 22 | 48 → 47 | 0.02 | | | | | |
| 23 | N2 → 49 | 0.72 | | | | | |
| 23 | 49 → 50 | 0.59 | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23 | 50 → 51 | 0.84 | | | | | |
| 23 | 51 → 52 | 0.99 | | | | | |
| 24 | N2 → 53 | 0.36 | | | | | |
| 25 | N2 → 59 | 0.14 | | | | | |
| 25 | 59 → 56 | 0.01 | | | | | |
| 25 | 56 → 55 | 1.14 | | | | | |
| 25 | 55 → 54 | 0.18 | | | | | |
| 25 | 54 → 52 | 0.58 | | | | | |
| 26 | N2 → 56 | 0.13 | | | | | |
| 26 | 56 → 58 | 0.95 | | | | | |
| 27 | N2 → 59 | 0.14 | | | | | |
| 27 | 59 → 60 | 1.34 | 12748880 | 13667267 | 16371991 | 17084259 | - |
| 28 | N2 → 62 | 2.13 | 12748880 | 13667267 | 16371991 | 17084259 | - |