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| --- | --- | --- | --- | --- | --- |
| Model | **Broad Scale**  **Landscape**  Male telomere bias, Female uniform | **Within mouse variance for CO number**  Eggs more variable than sperm for crossovers | **Chromatin Organization**  Female, longer axis  Male, shorter axis | **Reverse heterochiasmy direction**  Male > Female  genome-wide recombination rate | **Positive correlation interference strength and CO number** |
| Haploid selection  (Lenormand, 2003; Lenormand and Dutheil, 2005) | ?  No prediction for broad scale recombination landscape. | Yes  Strong selection in males reduces between cell variance. | ?  No prediction for chromosome axis. | No  Generally males should evolve lower gwRR. | No  Predictions don’t apply to single meiotic events or recombination landscape. |
| Two locus modifier  (Brandvain and Coop, 2012) | Yes  Females will evolve higher RR and COs closer to centromeres to break up MI drive systems. | Yes/Maybe  More variance between oocytes to reduce effectiveness of centromere drive.  No  Females should evolve consistent manner to limit drivers. | ?  No prediction for chromosome axis. | Yes / (maybe)  Depends on the stage driver acts (MI or MII). | No  Predictions don’t apply to single meiotic events or recombination landscape. |
| S.A.C.E.  (Sardell and Kirkpatrick, 2020) | Yes  Maintaining larger blocks of chromosomes positions crossovers to telomeres. | Yes/Maybe  Maintaining regulatory and coding regions together lowers between cell variance in males. | ?  No prediction for chromosome axis. | No  Males should evolve to be lower gwRR. | Yes/(maybe)  Stronger interference is equivalent to larger blocks of chromosomes segregation together. |
| Spindle based selection at Reduction phase  (Altendorfer et al., 2020; Dernburg, 2001; Lee, 2019; van Veen and Hawley, 2003) | Yes  Telomere position of single crossover chromosomes maximizes  sister cohesion with tension and may synchronize division of bivalents. | Yes  Relaxed selection on SAC would increases variance across oocytes relative to spermatocytes. | ?  No prediction for chromosome axis. | Yes  More effective checkpoint (SAC) will cause faster evolution in males relative to females. | Yes  Unknown mechanism, but amount of sister cohesion could:  i) stabilize tetrads for SAC to detect tension  or  ii) regulate the timing of entry into anaphase (reduction separation) via modulating the rate of degradation of the sister cohesion. |
| Pairing based selection,  C.O.M.  (Hultén, 2011) | Yes / (maybe)  Difference of interference in sexes is due to axis length differences. | ?  No prediction for between gamete variance. | Yes  Longer female axis driven by larger cell volume. | No  No evolution predictions. | No  No prediction for reduction phase. |

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