1. **HetC causes distinct Evo trajectories --- (the table)**

--it all comes down to gametogenesis (focus on universal aspects of how gamtogenesis types differ)

**2. Evo in the male specific rates**

**a. DSB –SC / before**

**b. 2CO higher interference**

**3. NEXT STEPS!! (what y’all should do)**

**1. Heterochiasmy driven by fundamental aspects of gametogenesis**

Logic of RR not needing to be different / rec landscape not needing to be different…

-indirect vs direct (define these differences)

Indirect review:

-Reductional hypothesis (equilibrium) / haploid selection

Direct selection forces

-Review cell biology background,

-(mostly) fundamental gametogenesis differences

- Division/Size (asymmetrical (Big) vs symmetrical (small) )

- centrosome contribution (+sperm, -egg)

-(timing?)

-

-differences in constraints

- SAC, Spindle assembly checkpoint

Review the models –

Indirect selection, prophase based models, metaphase based models

-can I merge these tables?

-can I clean up the tables / make them punchier / connect them more closely to my results?

**2.A** the DSB differences have proportional CO differences – this suggests that the changes (evolution) happened before the DMC1 foci are laid down.

This evidence shifts the support away from evolution at the point of CO:NCO decision to earlier, when the str of meiotic chromosomes is build (the programming of the // the initial restructuring of the meiotic chromosomes )

**2.B** WHAT’s up with the stronger interference ?

- Evolution of interference (how expectations for evolution of gwRR translate)

Otto Payseur – present empirical measures of interference and gwRR for a bunch of species and find a negative correlation (this is also a logical prediction)

--- but when the 2CO (when the number of crossovers is constrained – maybe we should alter/adjust our expectations ….

-caveats on the chromosome size and chromosome specific effects -- (independent of chromosome identity) (haenel et al 2018)

**Discussion Outline**

Heterochiasmy take away pattern

* Distinct recombination landscapes between sexes – suggest distinct evolutionary trajectories (relaxed vs directional)

**Recombination rate evolution (males)**

-Strain evolution – traits that change in both females and males (

-- is it polymorphism (standing variation) and 3 independent instances of evolution in gwRR

OR

shared standing variation // incomplete lineage sorting, // the same history

- (distinct evolutionary trajectories – males have more directional pattern;

Within male

- evolvability, less effective in females due to the increased (within animal variance

- (what would have driven the rapid 30% drive gwRR (enrichment of 2CO bivalents)…?

-are their gene candidates (signatures of selection (CAST / WSB/DOM vs PWD + MSM ?)

- CONSTRAINTS on gwRR

House mouse – (close to the minimum) –

Most species close to minm (1-3 CO per cell )

Consequences

- linked sites (indirect)

- change in the cohesin landscape