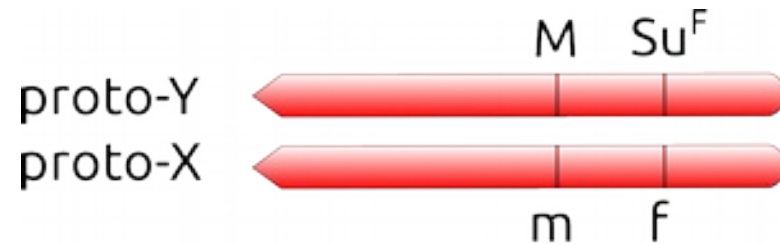


Replacement of a sex chromosome system in *Podisma pedestris*?

Hannes Becher
Queen Mary University of London
Nichols Group

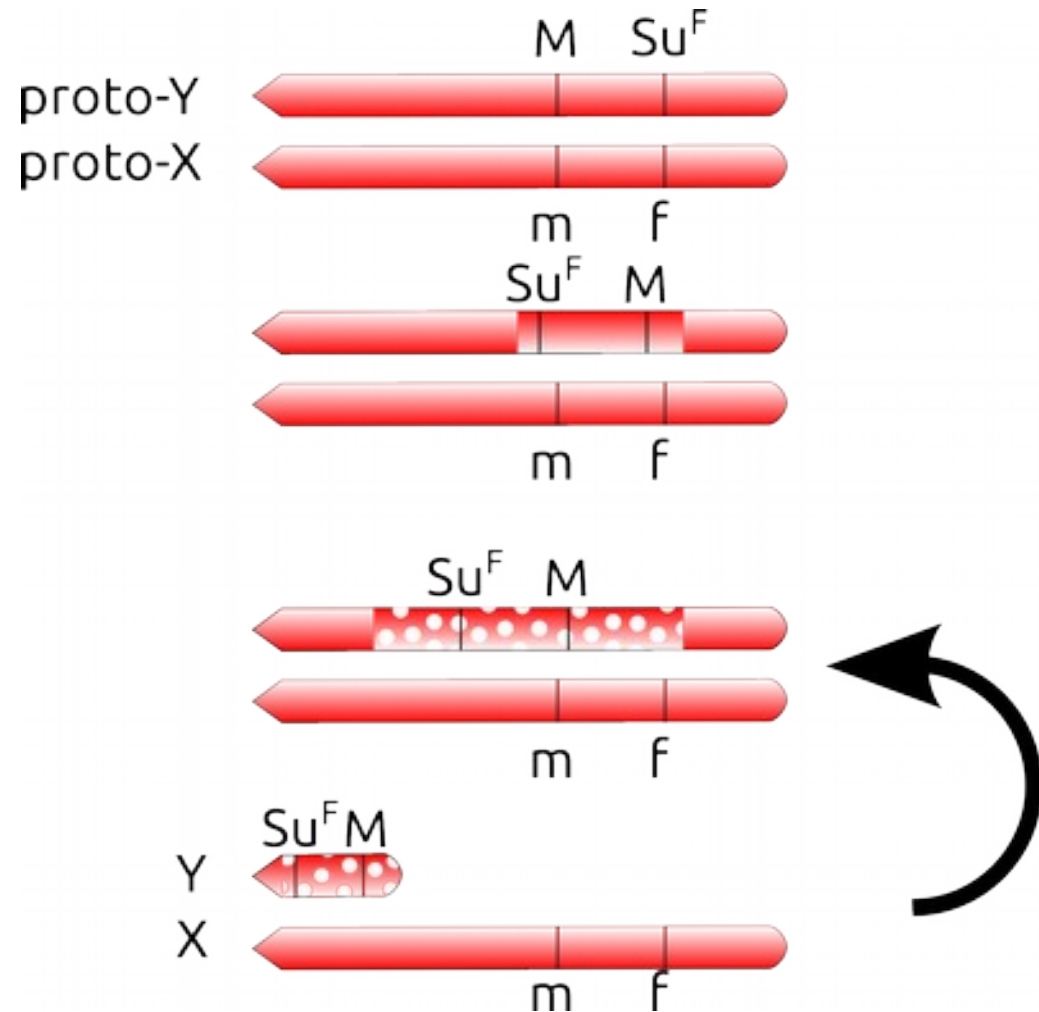
Sex chromosome evolution – Theory

- Sex-determining loci and
- Acquisition of sexually antagonistic alleles
→ facilitate cessation of recombination
- Loss of recombination leads to degeneration



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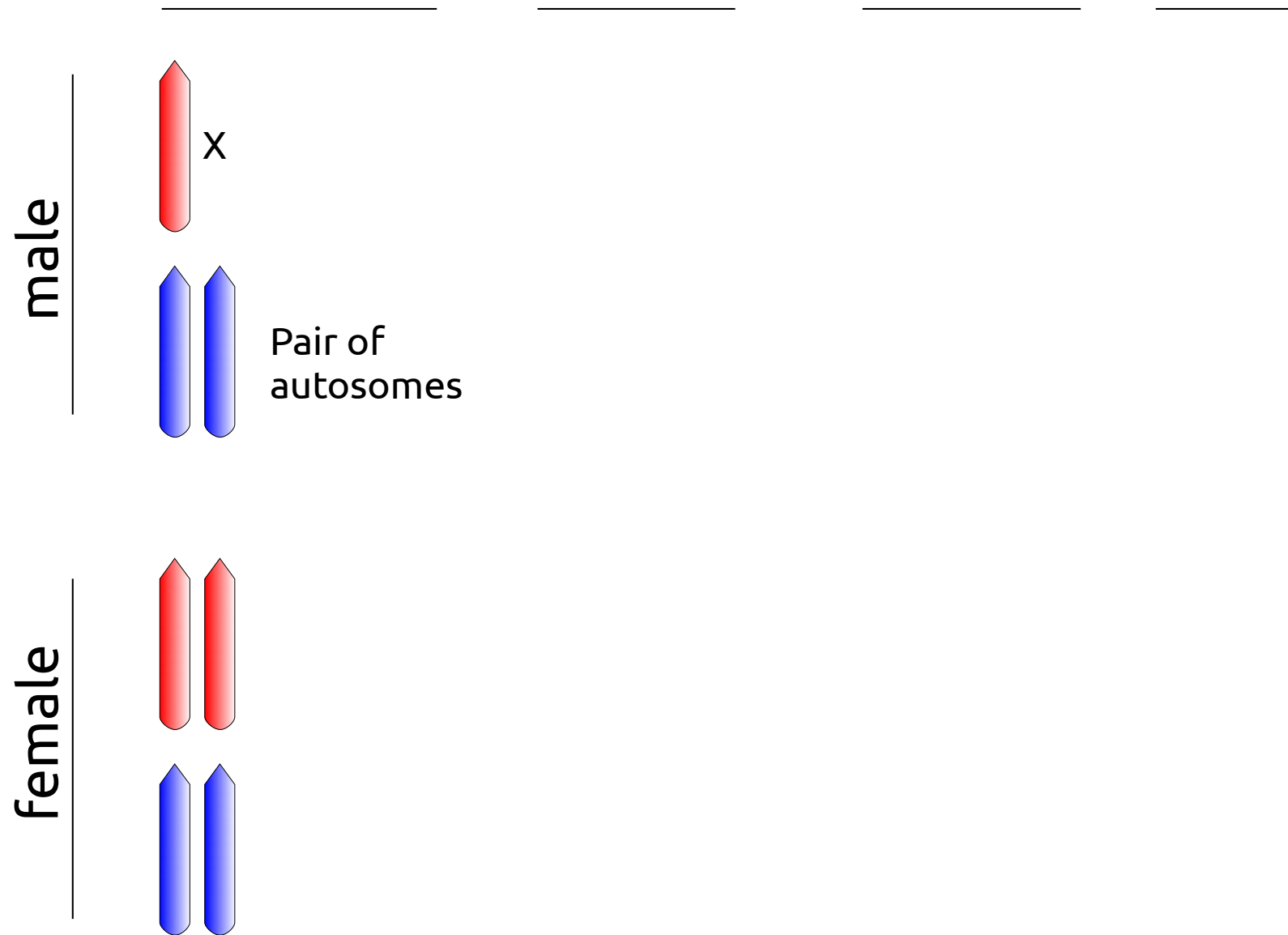
Podisma pedestris

- Neo-X/neo-Y system
- Originated from X0/XX
- Hybrid zone

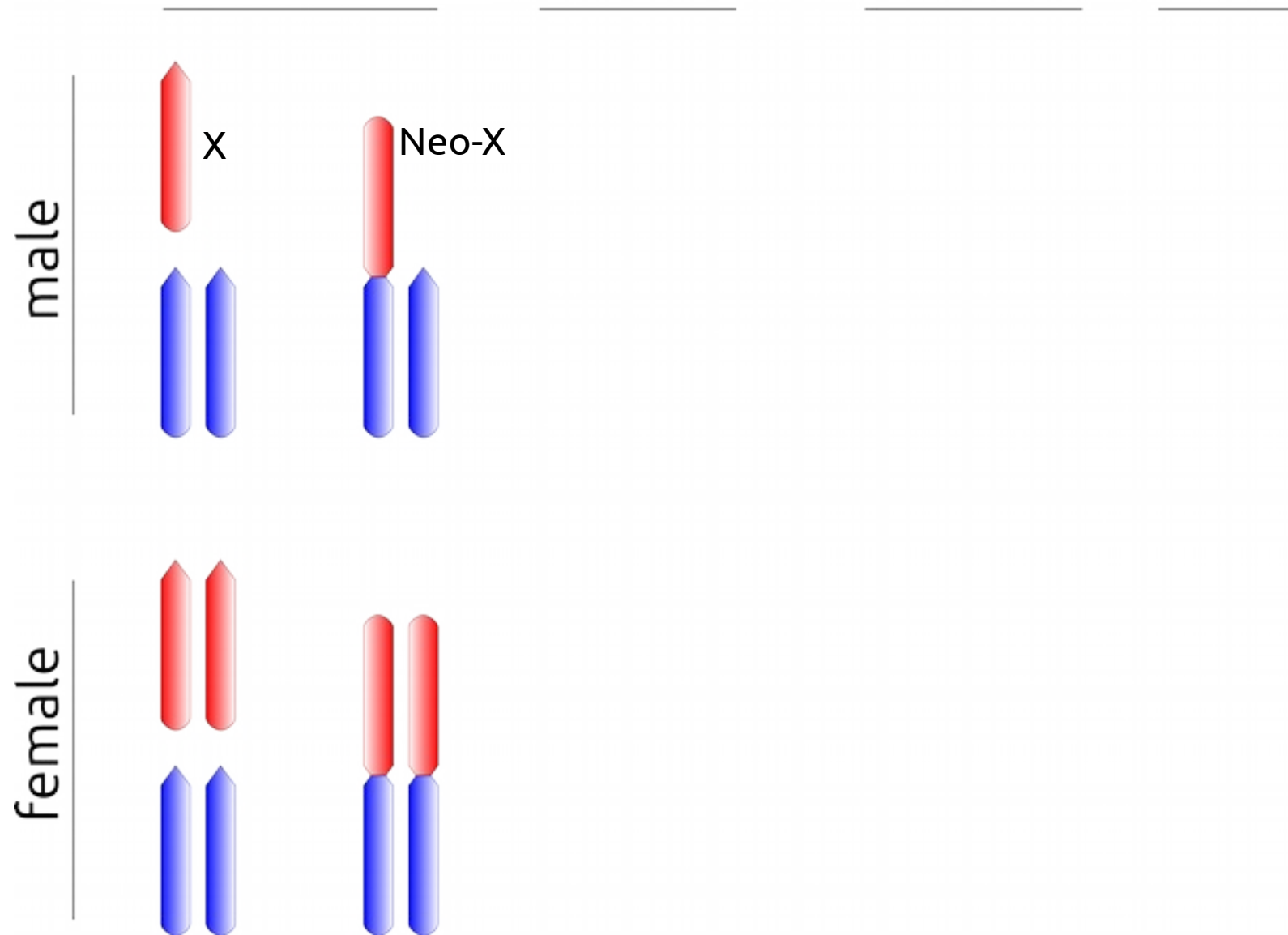


John, B. and Hewitt, G.M. (1970) *Chromosoma*, **31**, 291–308. (re-drawn)

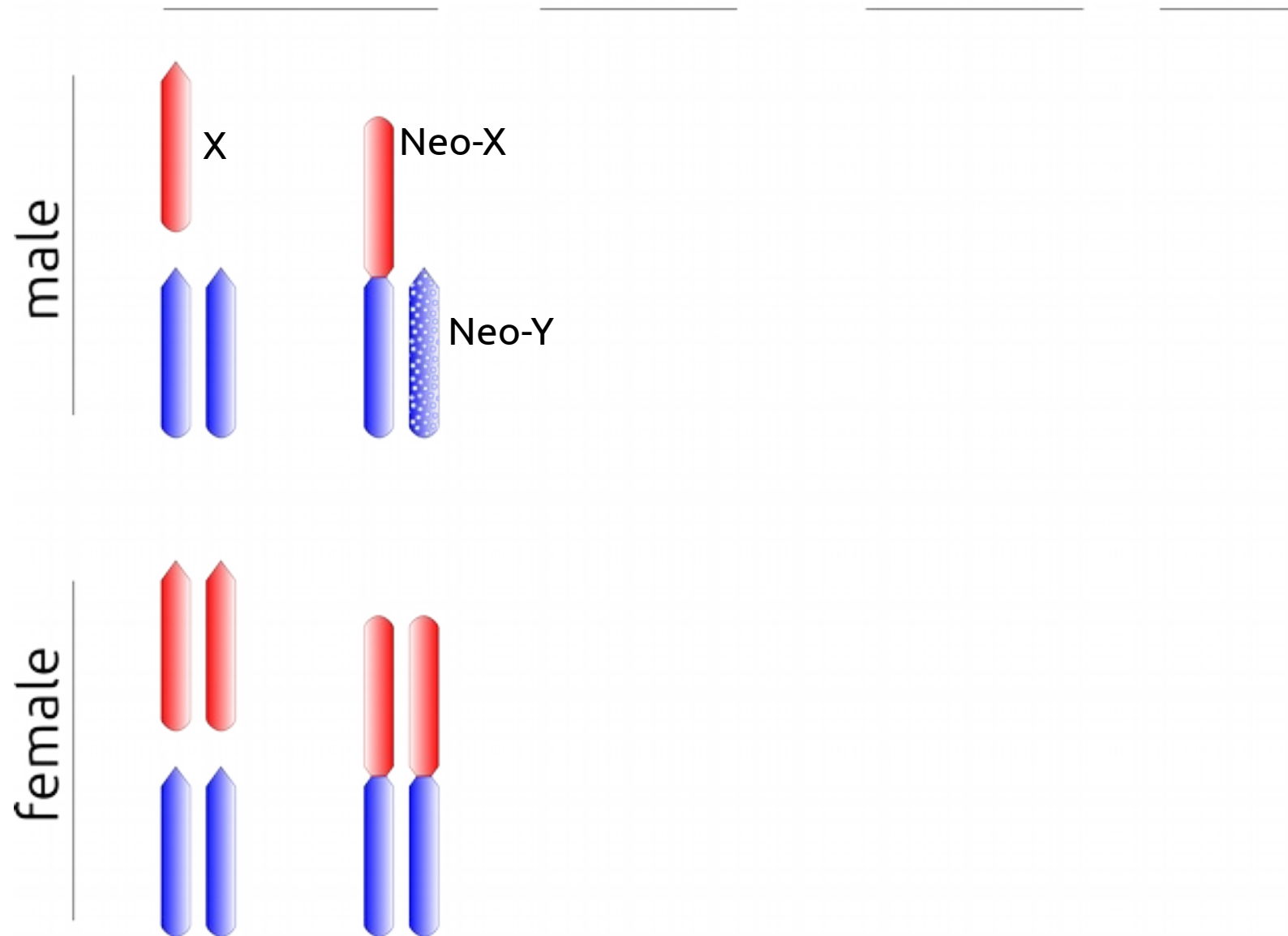
Evolution of a neo-X/neo-Y sex chromosome system



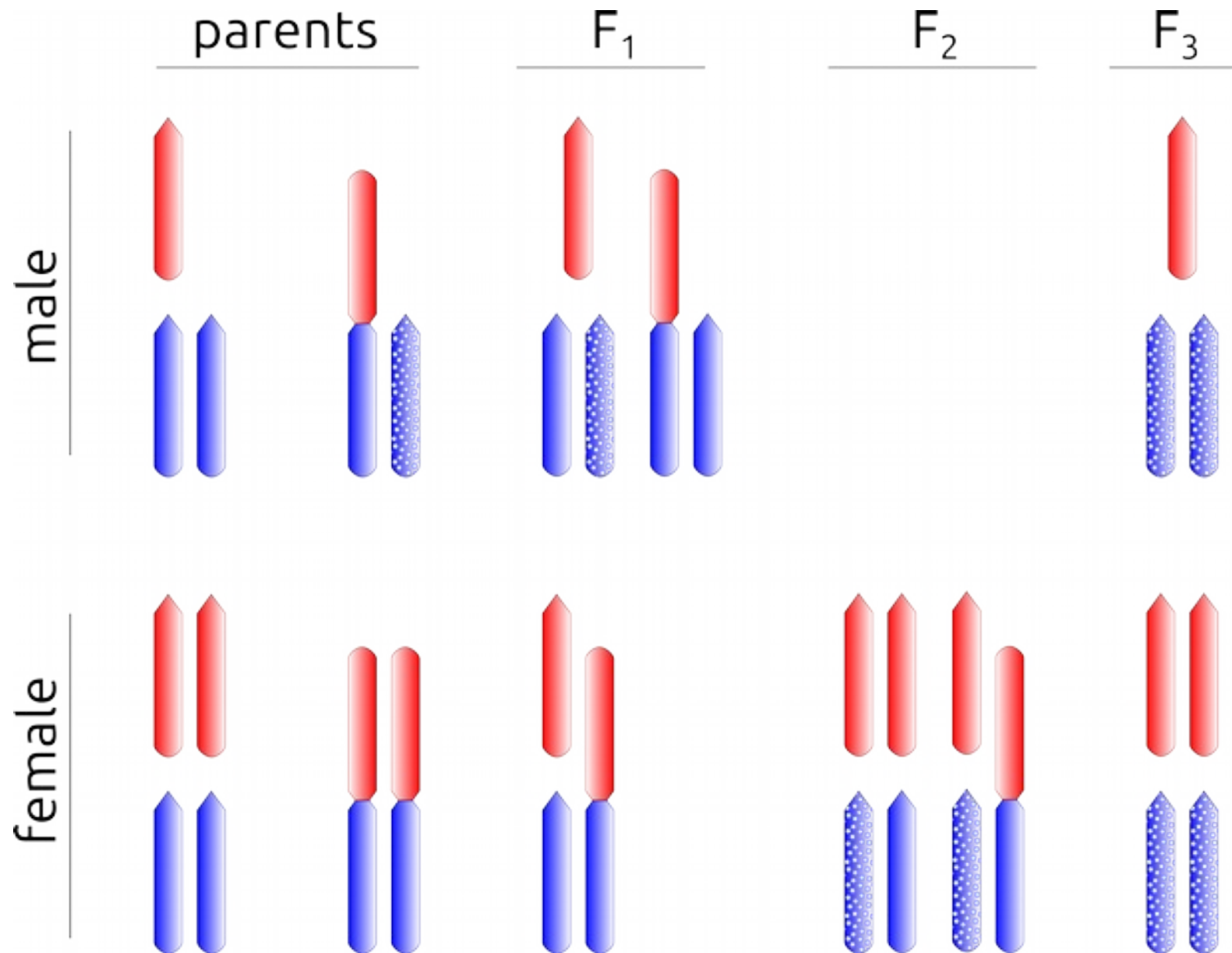
Evolution of a neo-X/neo-Y sex chromosome system



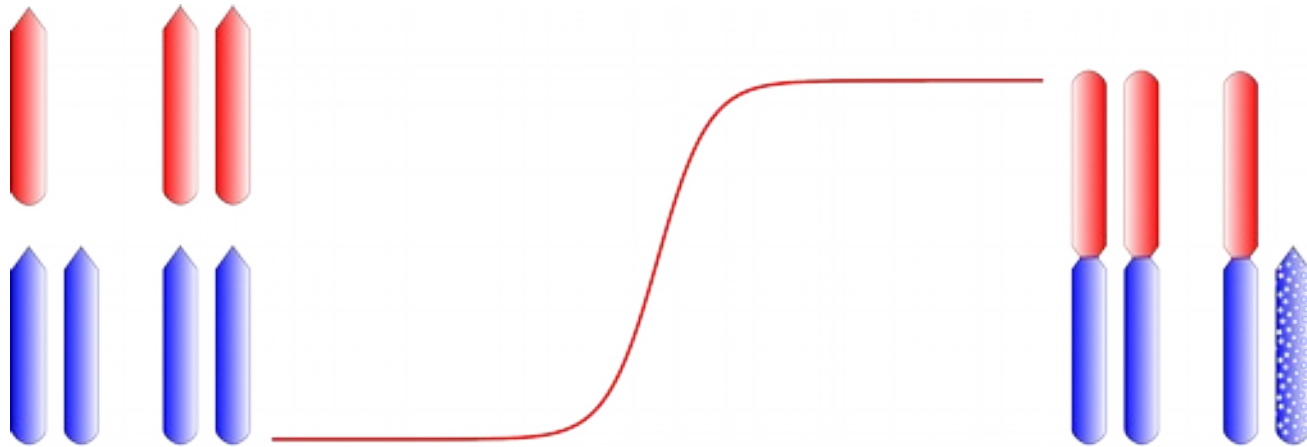
Evolution of a neo-X/neo-Y sex chromosome system



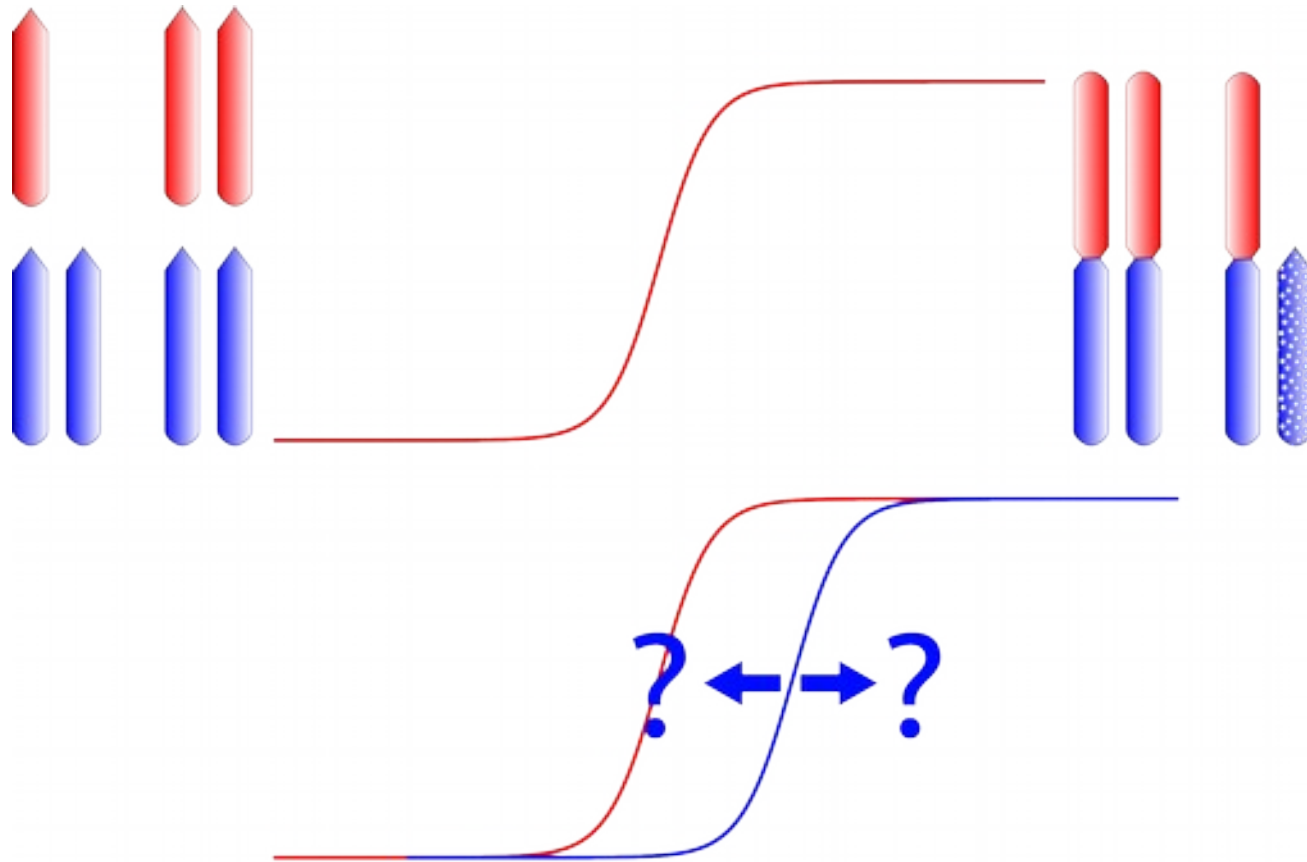
Hybrid genotypes



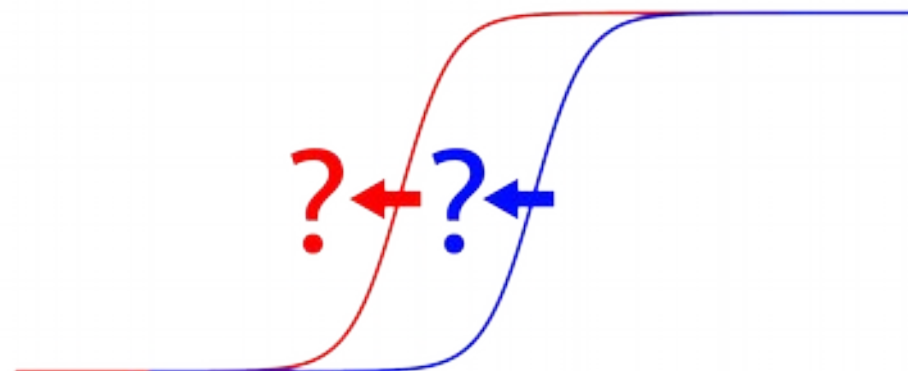
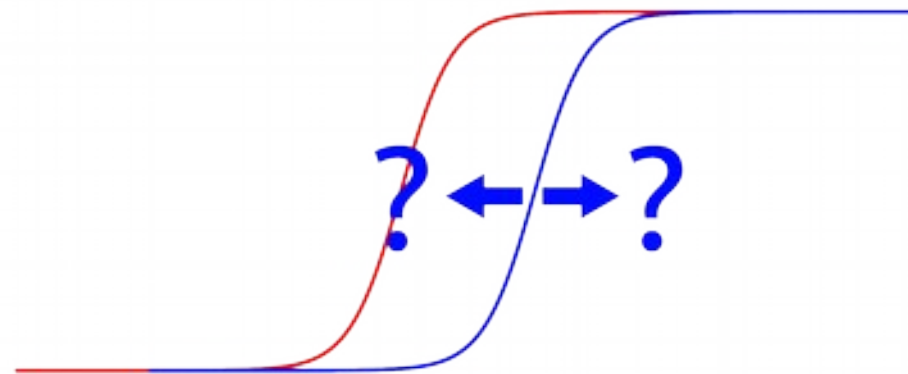
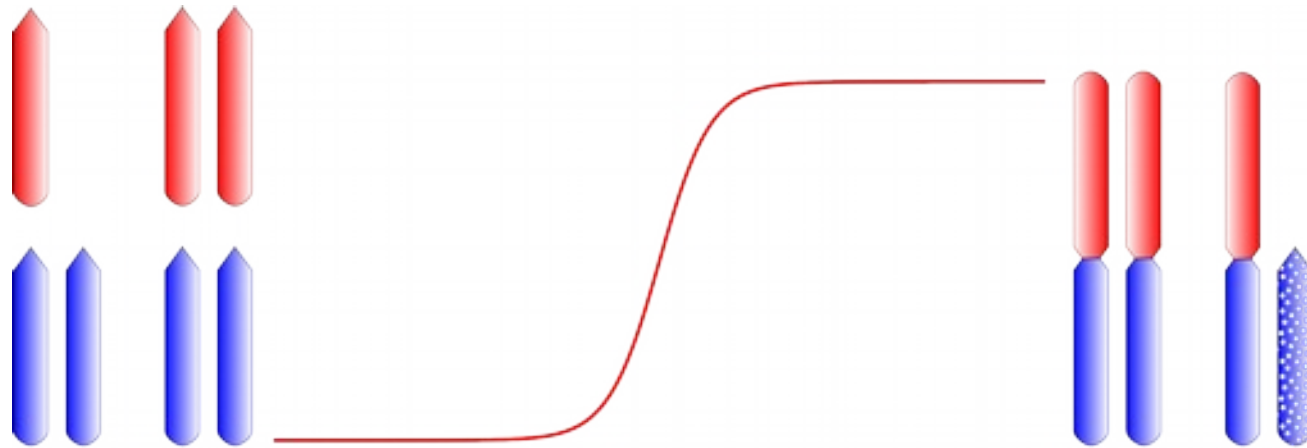
Chromosomal distributions



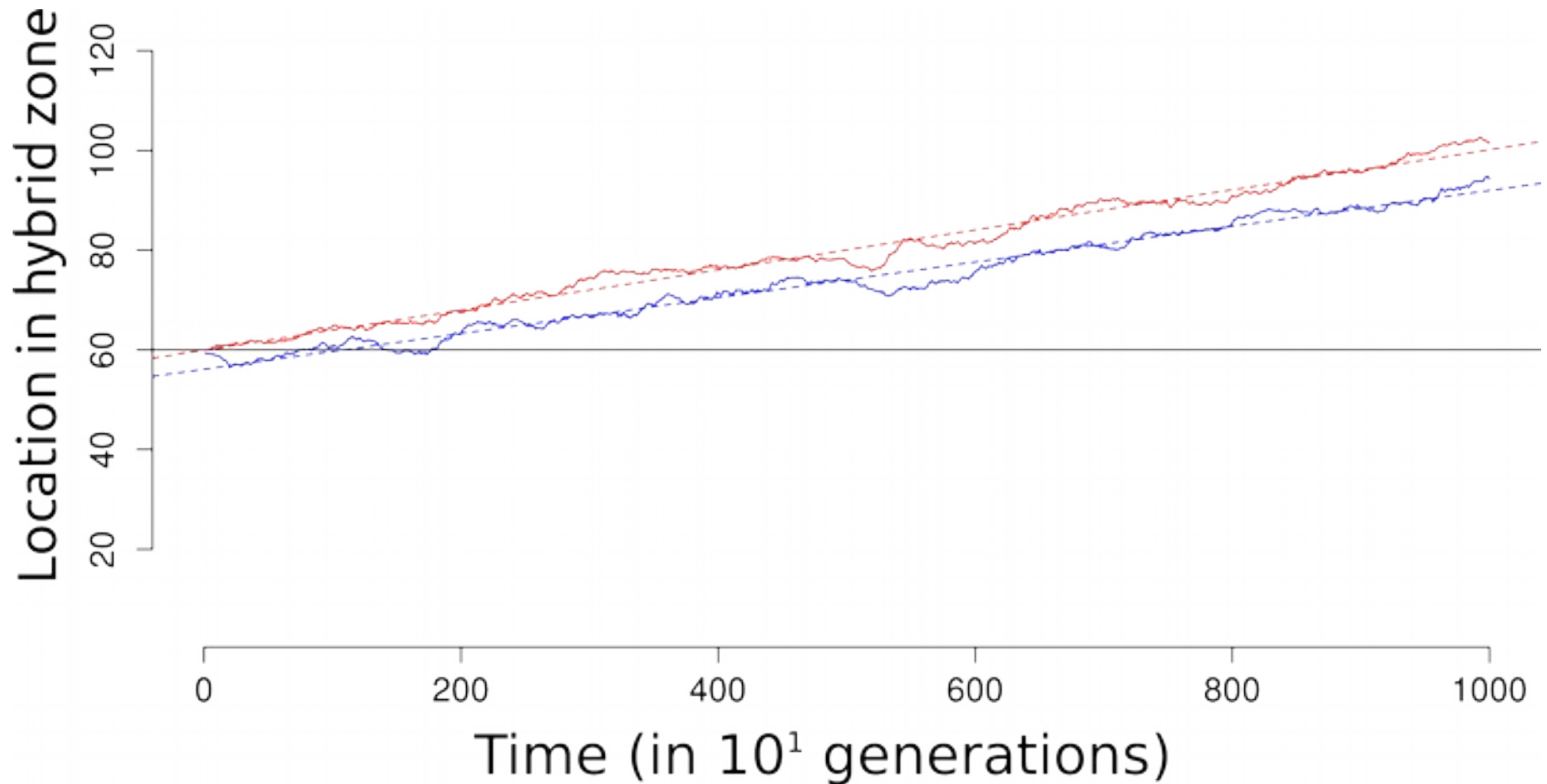
Chromosomal distributions



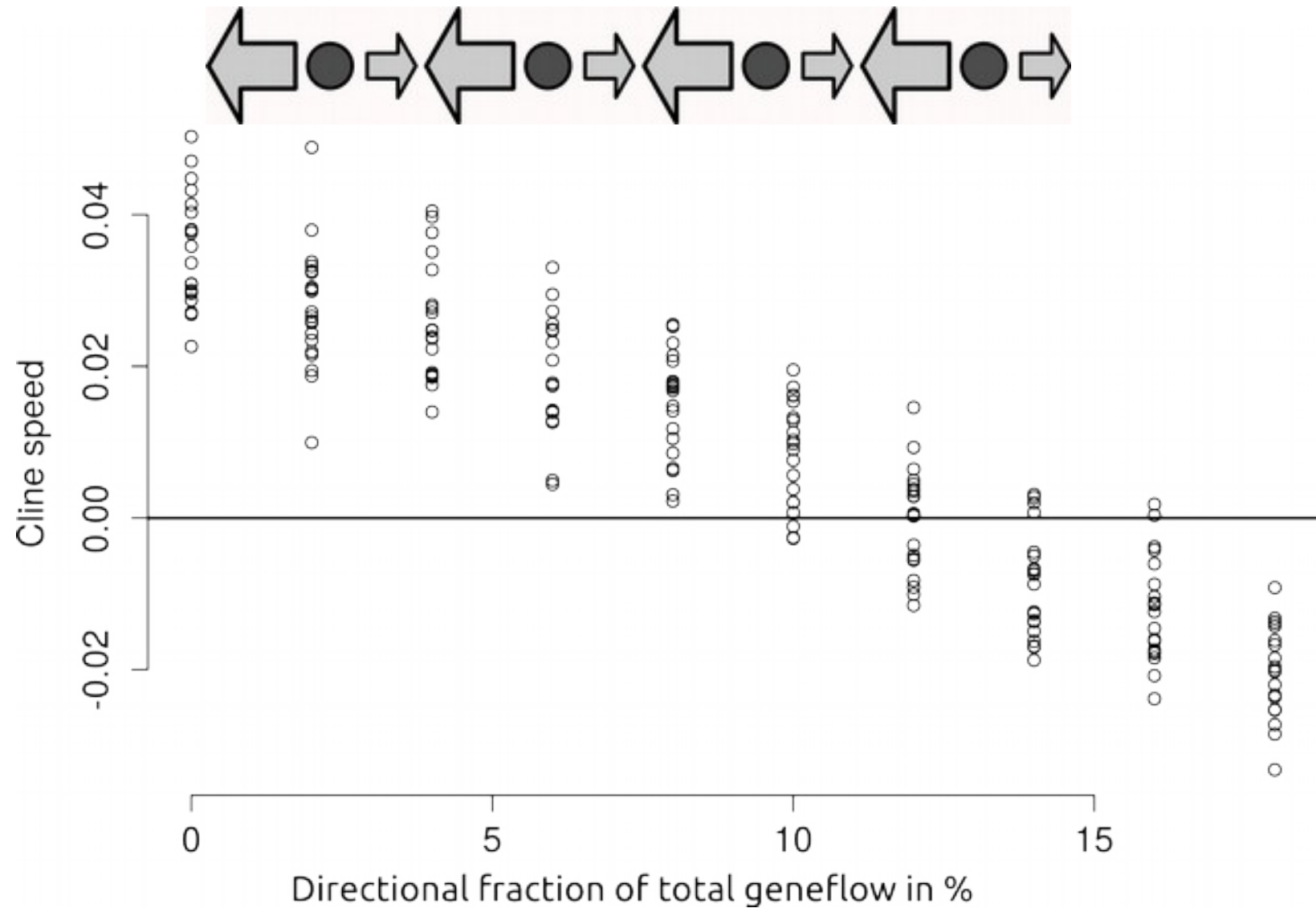
Chromosomal distributions



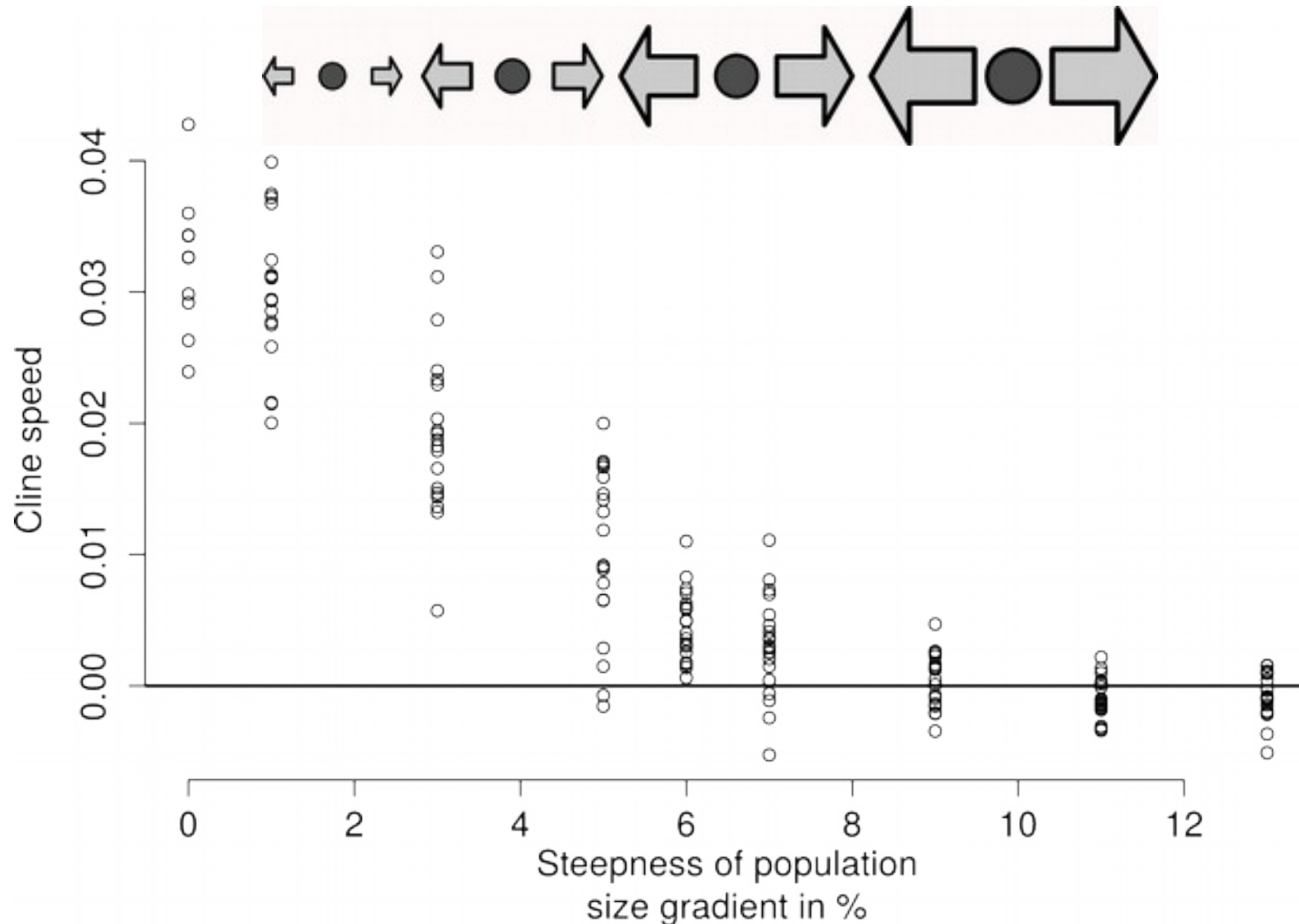
Moving clines (modelled) – Fuelled by antagonistic selection



Directional gene flow – Biased dispersal



Directional gene flow – Population size gradient



Cline movement due to sexually antagonistic alleles

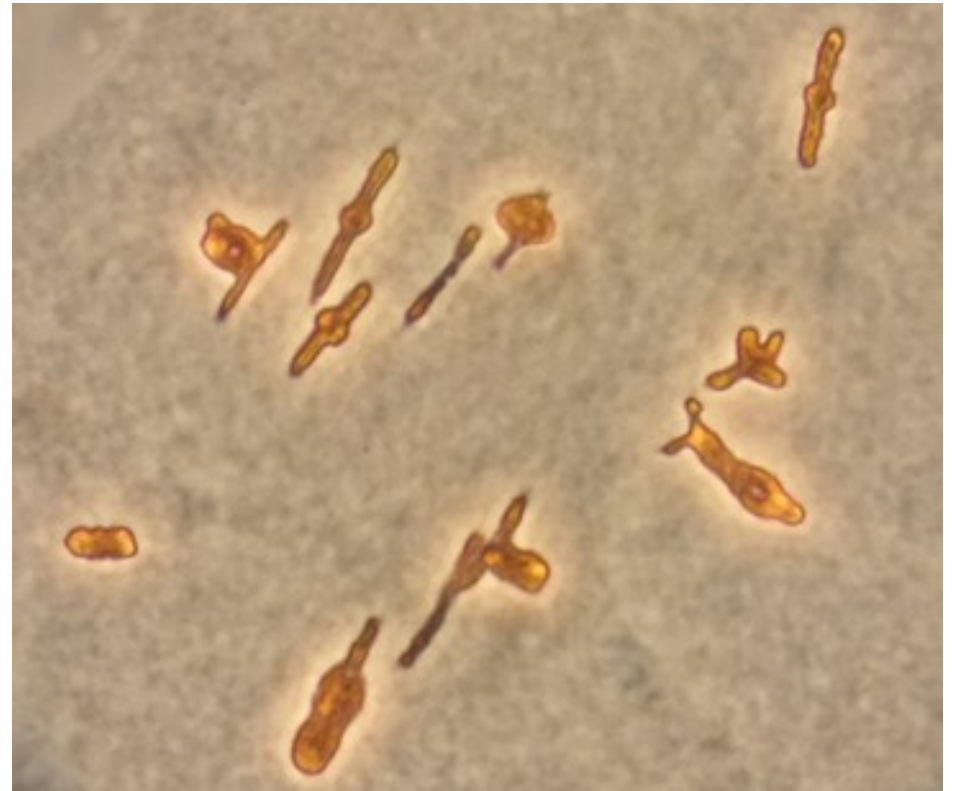
- ...is likely to occur.
- ...but can be easily superseded by directional gene flow as found in natural habitats.
- ...is no comprehensive explanation for the *Podisma* races' distribution.
- ...likely to have a net influence.

<https://hannesbecher.github.io>

Thank you!



fused



un-fused

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