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# Reproductive mode and genomic conflict in auto-pseudogamous nematodes

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## Résumé

One of the most intriguing questions in evolutionary biology concerns the widespread occurrence of sexual reproduction in metazoans. Asexuality offers clear advantages by accelerating growth rates and avoiding mating risks, yet asexual lineages tend to be short-lived in evolutionary terms. The prevailing explanation for this paradox is the loss of genetic diversity, leading to the accumulation of harmful mutations. However, this explanation is insufficient to explain the rarity of facultative asexuals, who should theoretically enjoy the benefits of asexuality while minimising its disadvantages. Two non-exclusive processes could prevent the emergence of asexuality. First, the low likelihood that all the biological innovations needed to achieve asexual reproduction would occur. Second, sexual conflict, where males may resist the evolution of asexuality to avoid their extinction in case of sexual reproduction loss. These hypotheses have received limited attention, particularly for the sexual conflict hypothesis that have been only explored from a theoretical point of view. Recently, we have discovered the appearance of a Y chromosome and mitochondrial genome rearrangements associated with autopseudogamy in *Mesorhabditis* nematodes. In this mode of reproduction, eggs require sperm for fertilisation and activation. Most eggs develop into females without utilizing male DNA, with only 9% of eggs utilizing male DNA to produce males. Our results suggest that the allocation of meiotic contributions between males and females renders females entirely dependant on sperm for reproduction. The male function seems to be reduced to that of sperm producer but the elimination of the male function appears to be very challenging, as specific biological innovations are unlikely to occur.

**Mots-Clés:** asexuality, genomic conflict, nematodes

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