

Fertility of *Drosophila* offspring depends on the correct choice of bridegroom

The cause of offspring sterility of some pairs of *Drosophila melanogaster* fruit flies is the genetic incompatibility of the parents. The infertility of progeny (mainly of intraspecies hybrid daughters) in such cases occurs only in one cross-direction. If the M (maternal) females crossed with P (paternal) males, the daughter's ovarian hypoplasia observed especially if the hybrid progeny are grown at an elevated temperature.

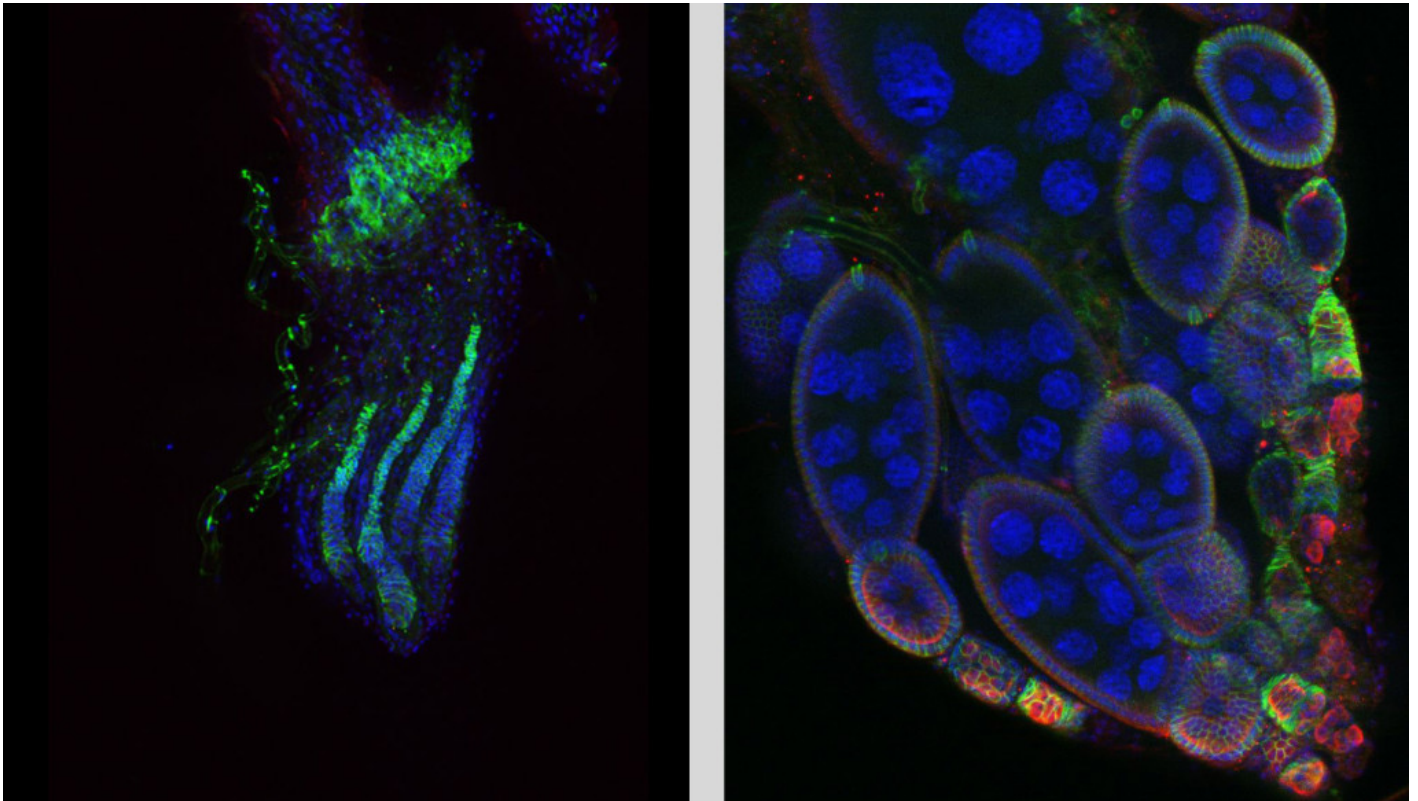


Fig. 1. Defective ovary of dysgenic flies. Germ cells and eggs absent. Cell nucleus are blue, green colored somatic cells (left). Normal ovary with developing eggs. Germ cells are red (right).

The problem does not occur if P females crossed with M males. The most popular explanation of such infertility is transposition of mobile P element that is active in the hybrids, if the mother's cytoplasm does not contain repressors prohibiting its movement. However, the rate of movement of the P element is typically less than one transposition per genome per generation, and is close to the spontaneous rate. We notice absence of germ stem cells in ovaries of dysgenic daughters (Fig. 1., left image) in comparison with control (Fig. 1., right image) and disorders in mitochondrial

structure. According to our data, the nature of hybrid dysgenesis is much more complex and may be related to the miss regulation (including hormonal) of genes responsible for the ovaries formation.

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[P elements and the determinants of hybrid dysgenesis have different dynamics of propagation in *Drosophila melanogaster* populations.](#)

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