SPERMIOGENESIS AND MEIOTIC DRIVE IN *AEDES AEGYPTI*

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Spermiogenesis describes the period in sperm development during which an ovoid and haploid secondary spermatocyte, with a centrally placed nucleus, is transformed into a spermatozoon with a bullet-shaped, highly condensed, nucleus capped anteriorly by a translucent acrosome. Connected posteriorly to the nucleus is the flagellum. The process of this transformation is typical for *Aedes aegypti* as it is for many other insects (Szollosi, 1975). The process involves the condensation of the nucleus, the aggregation of the mitochondria into a transient nebenkern and then into the definite pair of crystalline mitochondrial derivatives. The mitochondrial derivatives together with a set of microtubules, organised into an axoneme, form the flagellum.

In any strain of *Ae. aegypti* where the distorter gene **D** is present, the entire process may never be completed. There is loss of organelles and duplication of others. Senescence in the testes of the bearers starts early. The **D** gene, which is located on the Y chromosome, is thought to cause the break-up of the homologue X chromosome at the meiotic metaphase. This in turn leads to the production of more viable Y bearing spermatozoa in comparison to the X. As a result of this, the F2 generation of a cross between male bearers of **D** and females whose X chromosomes are sensitive to **D**, results in the production of excess non-blood engorging, "non-disease carrying" males at the expense of females which are responsible for both problems. The **D** gene may play an important role in developing an alternative means of mosquito control.

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