

The precise role of seminal proteins in sustaining post-mating responses in fruit flies

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Successful reproduction is critical to pass genes to the next generation. In sexually reproducing organisms, sperm enter the female with seminal proteins that are vital for fertility. In a new study published on Friday, December 14, 2007 in *PLoS Genetics*, researchers at Cornell University knocked down the levels of 25 seminal proteins individually in male fruit flies, testing the males' abilities to modulate egg production, sperm storage and release, and the females' post-mating behavior and physiology.

Ram and Wolfner found five seminal proteins that are necessary to elevate offspring production in mated females. CG33943 is required for full stimulation of egg production on the first day after mating.

Four other individual accessory gland proteins (CG1652, CG1656, CG17575, and CG9997) appear to modulate the long-term response, namely the maintenance of post-mating behavior and physiological changes. These four are in biochemical classes that are conserved in seminal fluid from insects to humans, suggesting they may play similar sperm-related roles in other animals.

Better understanding the action of seminal proteins and the part they play in optimal reproductive output could lead to progress in insect pest control and the diagnosis of certain human infertilities.

Citation: Ram KR, Wolfner MF (2007) Sustained Post-Mating Response in *Drosophila melanogaster* Requires Multiple Seminal Fluid Proteins. PLoS Genet 3(12): e238 doi:10.1371/journal.pgen.0030238 (www.plosgenetics.org)

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