

How do you know whether you are male or female?

December 27 2007

New research published online this week in the open-access journal *PLoS Biology* investigates this basic and much-studied question in the fruit fly, and comes to a surprising new conclusion.

In mammals, male or female development depends on the presence of the Y chromosome, which is only found in males because it includes masculinizing genes. But other animal groups have evolved different systems. James Erickson and Jerome Quintero at Texas A&M University studied the mechanism of sex determination in the fruit fly, *Drosophila melanogaster*.

Previous studies in the fly suggested that it was the ratio of X chromosomes (the “female” chromosome, of which there are two copies in a female fly, and just one in a male) to the non-sex chromosomes (the autosomes) that determined the sex of a fly embryo.

However, this new paper indicates that rather than being dependent on the ratio, it is the number of X chromosomes that is important. Sex is determined during a very specific and short stage in embryo development, and only two X chromosomes can produce enough of a signal to feminize the embryo during this window of opportunity.

Citation: Erickson JW, Quintero JJ (2007) Indirect effects of ploidy suggest X chromosome dose, not the X:A ratio, signals sex in *Drosophila*. *PLoS Biol* 5(12): e332. doi:10.1371/journal.pbio.0050332 (www.plosbiology.org)

Source: Public Library of Science

Citation: How do you know whether you are male or female? (2007, December 27) retrieved 23 April 2024 from <https://phys.org/news/2007-12-male-female.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.