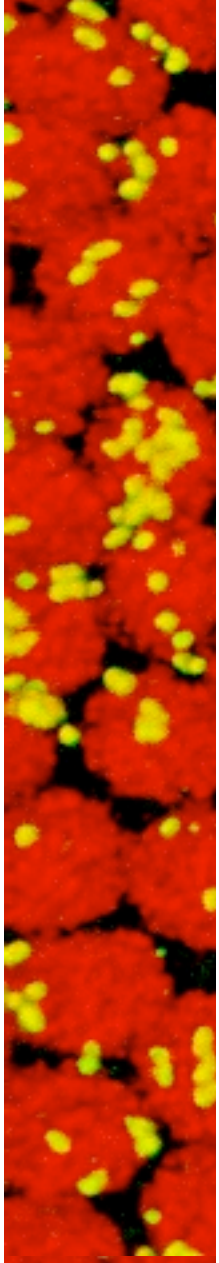

Wolbachia (yellow) within a Drosophila embryo. Nuclei are red.

WOLBACHIA**RESEARCH**NEWS

Butterflies fight back against *Wolbachia*

Wolbachia has been the cause of male killing in populations of the tropical butterfly, *Hypolimnas bolina,* for at least 100 years. This butterfly species, which lives in areas throughout Southeast Asia and the Pacific, has been of interest to biologists because of its extreme sex-ratio. In some butterfly populations, *Wolbachia* infection results in nearly 100 females for every male. It was only recently determined that *Wolbachia* was the cause of this female-biased sex-ratio. Newly published work has shown that through evolution, the butterflies are now fighting back against *Wolbachia*. In some island populations where male butterflies have been extremely rare for decades, males are suddenly making a comeback. Fortunately for science, researchers were studying these populations as the changes began to occur, and were able to observe evolution in action. They were able to document the return of 'normal' numbers of males back to *H. bolina*. What appears to have happen is, a new mutation occurred in a butterfly which prevents *Wolbachia*'s ability to kill males. Males with the *Wolbachia*-resistance mutation are more fit than those without it. With such a large benefit to the butterflies, this mutation is now spreading rapidly through different butterfly populations. Due to some excellent research, the rapid spread of the male-killing-resistance mutation is one of the fastest ever documented cases of evolution by natural selection in nature.

A male nymphalid tropical butterfly *Hypolimnas bolina*. (Photo: Sylvain Charlat)

So, now that *Wolbachia* cannot kill males in this species, will *Wolbachia*'s days in *H. bolina* come to an end anytime soon? Not likely. Although *Wolbachia* is no longer able to kill males, it does have some other tricks up its sleeve. *Wolbachia* is now causing cytoplasmic incompatibility in *H. bolina*.

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send questions or comments to Michael Clark - mclark11@mail.rochester.edu