

Webinar

Origins of novel forms in evolving polymorphisms in *Papilio swallowtail* butterflies

Krushnamegh Kunte

TIFR-NCBS, Bengaluru

Evolution of novel phenotypes in balanced polymorphisms poses a challenge: maintaining the existing diversity in a canalized form while accommodating the evolution of novel phenotypes. This may be achieved with a supergene-like architecture that suppresses recombination. In *Papilio polytes* swallowtail butterfly, we show that allelic variants of a single gene, *doublesex*, are responsible for a complex adaptive mimetic polymorphism. Novel mimetic forms have evolved following Haldane's sieve, i.e., new adaptive forms are dominant over existing ones. An inversion flanking *doublesex* protects mimetic forms from recombining with the non-mimetic form. However, rare recombinants within *doublesex* mimetic alleles produce novel intermediate wing patterns, challenging the concept of mimicry supergenes. This shows how simple genetic mechanisms may facilitate evolution of complex polymorphic phenotypes.

Friday, Dec 18th 2020

2:00 PM