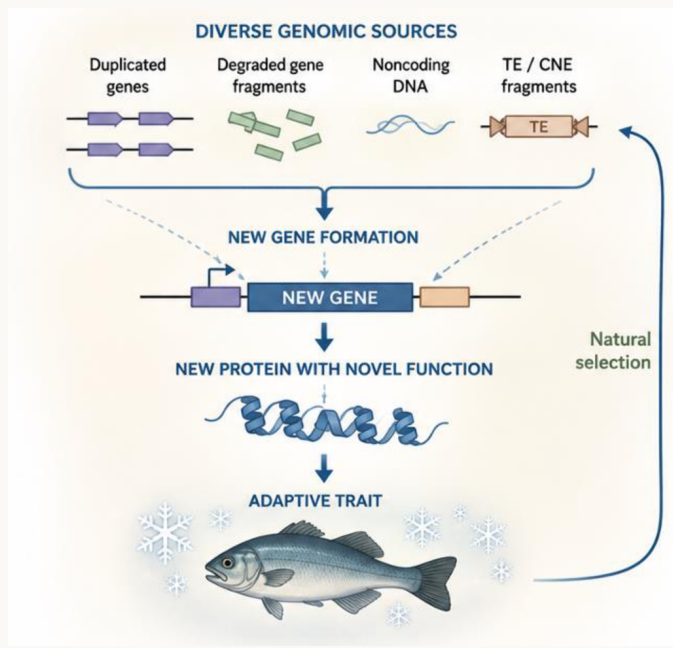




— EVOLUTIONARY & QUANTITATIVE GENOMICS

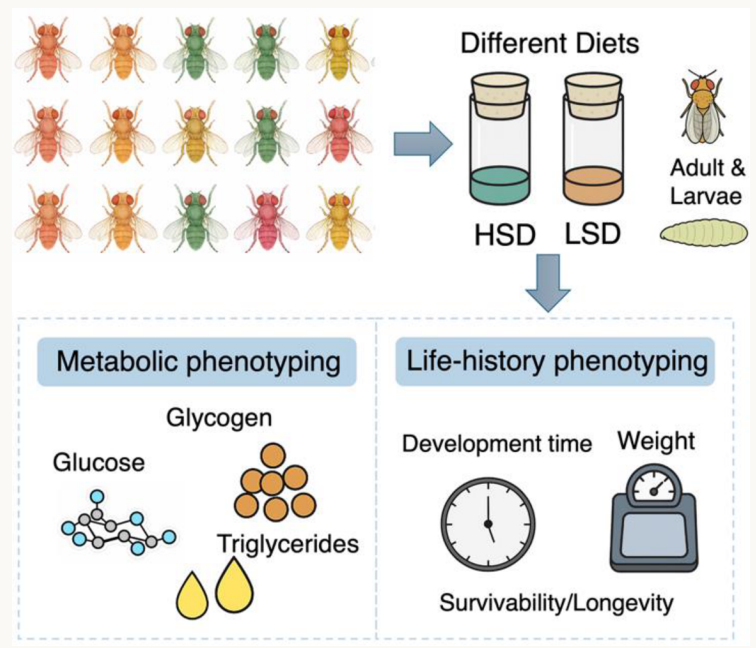
Genetic Mechanisms of Adaptation and Complex Trait Variation

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OVER EVOLUTIONARY TIME

Polar fishes invent new genes



WITHIN LIVING POPULATIONS

Diet reveals hidden variation

How does the environment shape the genetic basis of traits?

Environments do more than select among traits, they decide which genetic variation matters at all. This seminar follows that idea across two timescales: over millions of years, polar fishes assembled entirely new antifreeze genes from noncoding DNA, transposable elements, and the debris of duplicated genes; over a handful of generations, a high-sugar diet uncovers cryptic variation in fruit flies that rewires development and metabolism.

01 EVOLUTIONARY GENOMICS OF NEW GENES

One protein, four origins: near-identical antifreeze proteins in four distant fish lineages.

New genes from old parts: transposons, pseudogenes, noncoding DNA, and gene fission as raw material.

02 GENETIC ARCHITECTURE OF COMPLEX TRAITS

Hidden variation: a high-sugar diet uncovers cryptic genetic variation in development.

“Thrifty” alleles: faster development on low sugar, slower on high sugar, with human counterparts.

THURSDAY

Sept. 10, 2026

PRE-SEMINAR SOCIAL

3:00 PM · SCEN 502

SEMINAR

3:30 PM · SCEN 604