

SFB 680

MOLECULAR BASIS OF EVOLUTIONARY INNOVATIONS

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Evolution of the regulation of cellular morphology in *Drosophila*

A major challenge in evolutionary developmental biology is identifying the genetic changes underlying the evolution of animal morphology. Although great progress has been made in recent years in finding changes underlying differences in a number of traits, the contribution of standing genetic variation in natural populations to the evolution of differences between species remains poorly understood. To address this question we have investigated the genetic basis of leg trichome pattern differences within and between *Drosophila* species. *Drosophila simulans* displays a large portion of naked cuticle on the femur of the second leg called the 'naked valley'. However, in *D. melanogaster* the naked valley is extremely variable ranging from a small naked patch to approximately an area ten times larger like in *D. simulans*. It was previously shown that the Hox gene *Ultrabithorax* (*Ubx*) is involved in the 'naked valley' difference between these species. To determine if intra-specific differences in the 'naked valley' have a similar genetic basis we investigated the cause of variation in this trait in *D. melanogaster*. Our study has found a novel regulatory mechanism underlying variation in leg trichome patterns segregating in *D. melanogaster*, which provides new insights into the genetic regulatory network for trichome development, and the molecular basis of phenotypic evolution within and between species.

April 23, 2012 5:00 pm

Biocenter, Zülpicher Str. 47b, Room 3.003, 3rd Floor

Host: Siegfried Roth

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