Universität Basel

Publication

Analysis of neural stem cell self-renewal and differentiation by transgenic RNAi in Drosophila

The fruit fly, Drosophila melanogaster, has proved to be a useful model organism for studying the biology of neural stem cells. Notably, significant progress has been made in identifying the molecular mechanisms that regulate the asymmetric cell divisions of the neural stem cell-like neuroblasts during brain development. Recently, the emerging technology of genome-wide transgenic RNA interference (RNAi), which makes it possible to analyze complicated developmental processes in a targeted, tissue-specific way, has been used for the analysis of gene function in Drosophila neuroblasts. Here, we review the key molecular mechanisms that regulate the asymmetric cell divisions of neuroblasts during brain development in Drosophila. We then summarize recent genome-wide transgenic RNAi screens in Drosophila and report on the identification of new regulators and gene networks that are required in balancing neuroblast self-renewal and differentiation.