CDB SEMINAR

Speaker: **Markus Affolter**

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Title: " Nuclear interpretation of the Dpp-morphogen in *Drosophila melanogaster* "

Date: Thursday, November 20

Time: 14:30 P.M.～15:30 P.M.

Place: 6th floor Conference Room of Building C, CDB

Summary

The Decapentaplegic (Dpp) morphogen is produced in a stripe of cells along the anterior-posterior compartment boundary in *Drosophila* wing imaginal discs and exerts a long-range organizing influence on both compartments. Recent studies suggest that a primary read out of the Dpp gradient is the establishment of an inverse gradient of expression of brinker (brk), a direct transcriptional repressor of Dpp-target genes. We have shown that the general Dpp signal mediators, the Smad homologues Mad and Medea, and the large zinc finger protein Schnurri (Shn) converge genetically and physically on defined silencer elements in the regulatory region of brk. We will report on the analysis of the molecular architecture of this novel morphogen-induced silencing complex with emphasis on the recruitment and function of Shn as a novel Smad cofactor. A combination of biochemical, cell culture and in vivo approaches led to the identification of domains in Shn that are essential and sufficient for complex formation and for silencing activity. Analysis of the brk silencer elements revealed a minimal sequence motif for the Dpp-triggered assembly of the Mad/Medea/Shn complex. A Drosophila genome-wide search resulted in the identification of such "silencer motifs" in the putative regulatory regions of several genes suggesting that Dpp- and Shn-mediated regulation of gene activity may not be limited to the downregulation of brk.

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