

SFB 680

MOLECULAR BASIS OF
EVOLUTIONARY INNOVATIONS

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Role of Wnt and BMP signaling pathways in the regional specification of early blastoderm in the cricket *Gryllus bimaculatus*

The mode of insect embryogenesis varies among species reflecting adaptations to different life history strategies. Mechanisms of embryonic patterning have been extensively studied in *Drosophila melanogaster*, a holometabolous insect. However, the mode of embryogenesis in *Drosophila* is highly derived and recent studies on other insects have revealed that there exist new developmental paradigms. The cricket *Gryllus bimaculatus* is an emerging model species for studying developmental mechanisms in hemimetabolous insects. Recent studies with insects has been revealed that Wnt/Caudal and BMP signaling has a crucial role for AP and DV axes patterning, but how cell movement is coordinated with cell specification by inputs of these signaling pathways during the early blastoderm formation are poorly understood.

To understand how the Wnt and BMP signaling pathways contribute to establishment of the DV and AP axes in *Gryllus*, we analyze molecular functions and cell migration using RNAi technique with GFP-expressing transgenic cricket. In this talk, based on our recent progress, I will discuss evolution of AP patterning mechanisms in insects. Furthermore, I will introduce our recent studies on gene-target mutagenesis using zinc-finger nucleases (ZFNs) and transcription activator-like effector nucleases (TALENs) technologies.

July 6, 4:00pm

Biocenter, Zölpicher Str. 47b, Seminar room 3rd floor, 3.003

Host: Siegfried Roth

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