

Cologne Evolution Colloquium

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Genomic approaches in chelicerates and insects: from evolution of complex developmental programs to biotechnology and new bio nano materials

Genomic approaches are crucial in understanding basic biological processes and development of living organisms providing whole genome insights to gene regulation and responses to external environment. Using the genome of chelicerate, Two Spotted Spider Mite, *Tetranychus urticae* (Koch), a major polyphagous agricultural pest that feeds on over 1,100 plant species and rapidly develops resistance to pesticide, we will discuss genomic approaches to: a) understand the basis of evolution of polyphagy and mite's ability to develop resistance to pesticides; b) support development of new biotechnological tools for pest control; c) develop novel bio-nano-materials based on spider mite silk. In addition, I will discuss one of most dramatic examples of evolution of developmental novelty, the evolution of polyembryony. Polyembryonic wasp *Copidosoma floridanum* evolved complex developmental programs to regulate alternative morphologies in its reproductive and soldier castes. This tiny wasp oviposits a single egg into the egg of its host caterpillar *Trichoplusia ni* to clonally produce up to 2000 larvae (reminiscent to science fiction movie *Alien*). Using *Copidosoma* genome sequence and genomic tools we are starting to understand the regulation of this complex development.

Wednesday, April 26, 2017, 17:00

University of Cologne, Institute for Genetics

Small Seminar Room, Ground Floor

Hosted by Siegfried Roth