

Planarian flatworms: Dynamic self-organisation at the organismal scale

Prof. Dr. Jochen Rink

*Director of the Department of Tissue
Dynamics and Regeneration
Max Planck Institute for Biophysical Chemistry
Göttingen, Germany*



My department at MPI-BPC studies planarian flatworms for their ability to regenerate complete animals from tiny tissue pieces. The regenerative powers of the animals derive from their intrinsically dynamic tissue architecture, whereby a single adult stem cell type continuously replaces all organismal cell types. The dynamics of cell turn-over in turn depend on the feeding state of the animal, such that planarians grow when fed and literally shrink when starving. Many hundred planarian species exist worldwide that collectively represent a diversity of regenerative abilities, tissue turn-over dynamics and body sizes. These features make planarians a fascinating model system for the exploration of biological systems dynamics. My talk will showcase some of our quantitative research lines on tissue self-organisation, cilia polarisation and scaling phenomena during growth/degrowth, hopefully as a primer for future theory/experiment collaborations on the underlying systems dynamics.

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**MPIDS, Prandtl Lecture Hall,
Building AI, Am Faßberg 11, Göttingen**

**Max Planck Institute for Dynamics and Self-Organization
Living Matter Physics
Prof. Dr. Ramin Golestanian**

Email: ramin.golestanian@ds.mpg.de, Phone: +49-(0)551/5176-101
Am Faßberg 17, 37077 Göttingen, Germany