

Speaker: Prof. Dr. Rüdiger Simon
Institute for Developmental Genetics
Heinrich Heine University Düsseldorf, Germany



Title: Plant Stem Cell Niches

Time: Tuesday, March 19, 2024, 2 pm

Place: IPK Lecture Hall and via Zoom (Hybrid Meeting)

VCS Zoom: <https://ipk-gatersleben->

[de.zoom.us/j/63552005318?pwd=NllybHlzS1ZYVnB1amd0dmRudHpFZz09](https://ipk-gatersleben-de.zoom.us/j/63552005318?pwd=NllybHlzS1ZYVnB1amd0dmRudHpFZz09)

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Abstract:

Plant growth and development strongly depends on the activities of meristems, which can generate flowers, leaves or new branches. The number, size, position and identity of meristems ultimately determines how many seeds a plant can generate, or the size of its fruits. The last decades have allowed immense progress in our understanding of basic meristem activities, mostly with lab model plants such as *Arabidopsis*. Grasses like barley are important crop plants, and we are now starting to employ knowledge on meristems to investigate how barley architecture is determined. We study signalling networks that act in meristems and control the expression of master regulatory transcription factors. More recently, we started to study gene regulatory networks at cellular resolution, using combinations of single cell and spatial transcriptomic approaches.

CV:

Rüdiger Simon's lab is interested in understanding how plants control their growth and differentiation through intrinsic programmes and in response to environmental signals. Rüdiger studied biology at the University of Cologne, Germany, where he received his PhD in 1990 for research on transposable elements in maize and meristem development in tomato.

He joined the John Innes Centre in Norwich, UK as a postdoctoral researcher to work with Enrico Coen on flower development in *Antirrhinum*. He spent a period at the IPK in Gatersleben to study nematode resistance genes in tomato, before moving to the John Innes Centre to work with George Coupland on the control of flowering time in *Arabidopsis*.

In 1996, he started his own lab at the University of Cologne with a focus on stem cell regulation in plant meristems. In 2002, he accepted a call for a professorship in plant developmental genetics at the Heinrich Heine University in Düsseldorf, Germany. The Simon Lab's research focusses on the activities of meristems, their initiation and organisation and principles of intercellular signalling pathways. Such signalling pathways are mediated by secreted peptides, but also involve transport through plasmodesmata. The lab uses a wide range of different tools to unravel these processes: molecular biology, biochemistry, genetics and genomics, and very detailed imaging (microscopy) approaches that allow to investigate signal transduction processes, assembly and disassembly of protein complexes and protein-protein interaction with subcellular resolution in the living plant. Recent focus points are studies on meristem development in barley, and structural and functional analysis of plasmodesmata in a variety of different organisms.