



Graduate School Event

Thesis Defense: Chasing the elusive: Investigating nucleotide cyclase activity in gibberellin and strigolactone signalling; Cellular mechanisms of gravity sensing and response in roots

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Host: Martin Loose

This thesis comprises two parts addressing distinct questions in plant signalling. Part I examines the proposed nucleotide-cyclase activities of proteins involved in plant hormone signalling. Part II investigates how plants sense gravity and how this information is translated into a directional growth response. In this thesis defense talk, I will focus on the second part and present my research on the molecular mechanisms underlying root gravitropism. Gravity is perceived in specialized cells called statocytes, where starch-filled amyloplasts sediment according to the direction of gravity. This leads to auxin redistribution, which drives differential growth and allows the root to bend towards gravity. LZY proteins provide an important molecular link between statolith sedimentation and the establishment of cell polarity. However, how LZY polarity is connected to the downstream regulation of auxin transport remains incompletely understood. My work investigates this connection, focusing on the dynamic localization and polarization of proteins in root statocytes following root reorientation. In particular, I examine the relationship between LZY proteins and two potentially interconnected systems: AGC kinases involved in regulating PIN auxin transporter activity, and the RLD-GNOM machinery involved in membrane trafficking and PIN polarity. I show that components of both systems dynamically redistribute during the gravitropic response and investigate their connections with LZY proteins and with each other. Together, these results contribute to understanding how gravity-induced cell polarity is connected to the regulation of auxin transport during root gravitropism.

Monday, August 31, 2026 10:00am - 11:00am

Sunstone Bldg / Ground floor / Big Seminar Room B (I23.EG.102) and Zoom



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.
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