



Seminar/Talk

Defining profilin function in mammalian actin dynamics and cell behaviour

Klemens Rottner

Helmholtz Centre for Infection Research, Braunschweig

Host: Florian Schur

Cell migration and proliferation as well as communication and trafficking, all depend on the fine-tuned and continuous remodeling of actin filaments, which are nucleated and elongated by addition of monomers, regulated in turn by several monomer-binding factors. The most prominent of those certainly constitute profilin 1, the largely ubiquitous family member in mammals, and profilin 2 more enriched in the nervous system. Profilins are well established as both inhibiting spontaneous actin filament nucleation and promoting formin-dependent actin filament elongation, but their precise cell biological roles are less clear. In this seminar, I will provide evidence establishing that the presence of any profilin is obligatory for cell growth in both mammals and amoeba, although minute amounts of the protein are sufficient for mediating migration and actin turnover. I will also show that aside from being essential for formin-dependent filopodia and microspike formation, profilin is also crucial for Arp2/3 complex-dependent processes. Mathematical modeling reveals how this can be explained. Our data thus also refute previous suggestions of antagonistic connections between profilin and Arp2/3 complex. Instead, profilin emerges as master regulator of both formin- and Arp2/3 complex-dependent actin assembly pathways operating directly and indirectly, respectively.

Thursday, August 13, 2026 04:00pm - 05:00pm

Office Bldg West / Ground floor / Heinzel Seminar Room (I21.EG.101)



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

Please find a schedule of the ISTA Shuttle on our webpage:

<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.