【Seminar】Integrin transmembrane domains serve as an allosteric activator for ectodomain folding in the endoplasmic reticulum by Prof. Reinhard Fässler

Date-Time
Friday, September 19, 2025 - 15:00 to 16:00

Location Seminar room E48, Lab 4

Description

Title: Integrin transmembrane domains serve as an allosteric activator for ectodomain folding in the endoplasmic reticulum

Speaker: Prof. Reinhard Fässler
Max Planck Institute of Biochemistry Martinsried, Germany

www.biochem.mpg.de/faessler

Summary:

Integrins are α/β heterodimeric, type I transmembrane proteins that mediate cell-to-cell and cell-to-extracellular matrix interactions. A hallmark of integrins is that ligand binding requires an activation step that is associated with profound conformational changes that affect the entire molecule including the separation of the α/β transmembrane domains (TMDs). We discovered that the α/β-integrin TMDs have an additional key function: the TMD clasp in the endoplasmic reticulum acts as an allosteric activator assisting the distant α/β-ectodomain head association and folding. I will discuss how we discovered this essential integrin TMD function and how it links to disease.

Short Bio:

Reinhard Fässler studied Medicine at the University of Innsbruck, Austria. After MD graduation and internships in Zimbabwe and Austria he worked as postdoctoral fellow at the Whitehead Institute/Massachusetts Institute of Technology in Cambridge, USA. Afterwards he returned to Europe, established a junior research group at the Max Planck Institute of Biochemistry in Martinsried, Germany, moved as chair of the Department of Experimental Pathology to Lund University in Lund, Sweden and returned to the Max Planck Institute of Biochemistry as department director and member of the Max Planck Society. He retired in 2004 and is since spring 2025 Distinguished Affiliated Professor at the Technical University, Department of Biophysics.

The research interest comprises all aspects of integrin adhesion biology. The approach is interdisciplinary and ranges from studies with single molecules to multiprotein aggregates, cells and mouse models.