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**REINHARD FÄSSLER, M.D.**

CELL ADHESION: FUNCTIONS AND FAILURES

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NOVEMBER 10, 2016

4:00 P.M.

208 LIGHT HALL



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DEPARTMENT OF MEDICINE

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Upcoming Discovery Lecture:

**JOSEP DALMAU, M.D., PH.D.**

*Research Professor ICREA-IDIBAPS*

*Service of Neurology, Hospital Clínic, University of Barcelona*

*Adjunct Professor Neurology, University of Pennsylvania*

*Member, National Academy of Medicine*

*Feb. 23, 2017*

*208 Light Hall / 4:00 P.M.*

VANDERBILT  UNIVERSITY  
MEDICAL CENTER

## CELL ADHESION: FUNCTIONS AND FAILURES

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Integrins are cell surface adhesion molecules that are essential for a wide range of cellular functions including cell migration, proliferation and survival. Hence, it is not surprising that this superfamily of cell adhesion molecules plays important roles during all stages of embryonic development and, if their functions are compromised, give rise to and influence the course of numerous diseases. Integrins have several unique features; they undergo striking conformational changes to control the affinity for their ligands, cluster and form gigantic signalling hubs called focal adhesions, translate mechanical cues into chemical signalling, and continuously internalize and recycle back to distinct cell surface compartments. Although these remarkable properties depend on a dynamic association with the actin cytoskeleton and the coordinated activation of numerous signalling pathways, integrin cytoplasmic domains are short and lack actin binding sites and enzymatic activities. In order to control actin dynamics and association and to induce signalling, integrins recruit a multitude of adaptor and signalling molecules with which they accomplish their large repertoire of functions. In my lecture I will discuss how we identify novel integrin-binding proteins, and how these new proteins regulate integrin activity, force transduction across integrins and cell migration speed.

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### **REINHARD FÄSSLER, M.D.**

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Reinhard Fässler studied medicine at the Medical School of the University of Innsbruck, Austria, worked as an MD in Zimbabwe and Austria, and as a postdoctoral fellow at the Whitehead Institute in Cambridge, USA. In 1993 he joined the Max Planck Institute of Biochemistry as a junior group leader; in 1998 he became Professor and Chair of the Department of Experimental Pathology, Lund University, Sweden; and in 2001 was named Director and Scientific Member at the Max Planck Institute of Biochemistry. He is a member of EMBO, the Austrian Academy of Science and the German Academy of Science. Reinhard Fässler's research aims at defining the functions of integrin-mediated cell adhesion at the organismic, cellular and molecular levels. Specifically, he investigates how integrins are turned on and off, how they assemble their signalling nodes, how they sense and transduce biophysical information, and how and why they internalize and reappear on the cell surface over and over again.

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