CDB SEMINAR

Monday, October 16

15:00~16:30 C1F CDB Auditorium

Speaker 1: 15:00~15:45

Heikki Rauvala

Neuroscience Center, University of Helsinki, Finland

Molecular and Integrative Neuroscience Research in the University of Helsinki

Summary

The research program focuses on neuronal growth factors, adhesion molecules and ion-regulatory proteins in the development, plasticity and disorders of brain. The participating teams represent complementary expertises in different fields of molecular and cellular neurobiology, neurophysiology, neuropharmacology, and systems neuroscience. This enables synergistic efforts combining structural, molecular and cellular studies with modern transgenic, behavioural and imaging techniques. The following major topics of the research program will be discussed:

1. Developmental and neuroprotective roles of novel neurotrophic factors, MANFs, recently discovered in the research program. 2. Functions of GDNF family growth factors and their interactions with heparan sulfate proteoglycans, particularly with N-syndecan. 3. The cation-chloride cotransporter KCC2 that was shown to function as a developmental switch in GABAergic neurotransmission that is regulated by neurotrophic factors, including BDNF. 4. Functions of novel adhesion molecules, AMIGOs, recently discovered in the research program.

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Speaker 2: 15:45~16:30

Irma Thesleff

Developmental Biology Research Program, Institute of Biotechnology, University of Helsinki, Finland

The Finnish Academy Center of Excellence in Development and Evolution Research

Summary

This Research program includes 11 research groups focusing on the molecular regulation of morphogenesis, in particular on cell communication and signalling pathways (http://www.biocenter.helsinki.fi/dev_coe/). Two groups work on *Drosophila* and the rest use mouse as the model organism. The topics include inductive interactions in kidney (Hannu Sariola, Kirsi Sainio), early brain and inner ear development, in particular FGF signalling (Juha Partanen, Ulla Pirvola, Marjo Salminen, Kirmo Wartiovaara), TGFbeta signalling (Osamu Shimmi) and neurotrophins (Tapio Heino) in *Drosophila* development, RNA splicing (Mikko Frilander), and the development of ectodermal organs (Irma Thesleff), as well as tooth evolution (Jukka Jernvall).

The presentation will focus on the current findings on the signalling networks regulating the formation of ectodermal placodes, and the molecular regulation of tooth regeneration.