The 68th iCeMS SEMINAR

CeMI Seminar Series 20

Wed 2 Mar 2011
11:30-12:50

Venue: 2nd floor Seminar Room (#A207)
Main Building, iCeMS Complex 1
Kyoto University

<Part 1: 11:30–12:10>

"Non-classical action of estrogen in the brain: from neurons to single molecules"

Dr. István Ábrahám
Centre for Neuroendocrinology & Department of Physiology,
University of Otago, New Zealand

<Part 2: 12:10–12:50>

"ErbB receptor tyrosine kinase interactions: from the microscopic data to clinical relevance"

Assoc. Prof. György Vereb
Department of Biophysics and Cell Biology, Faculty of Medicine
Medical and Health Science Center, University of Debrecen

Contact: iCeMS Kusumi Lab at akusumi@frontier.kyoto-u.ac.jp
Hosted by:iCeMS (Institute for Integrated Cell-Material Sciences), Kyoto University

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Abstracts for Mar 2nd iCeMS Seminar

Dr. István Ábrahám

Estrogen secreted from the ovary alters the function of several neuronal phenotypes. Cholinergic neurons degenerate in Alzheimer's disease and estrogen plays a role in determining the vulnerability of cholinergic neurons in this condition. The estrogen also acts a feedback manner to alter the function of gonadotropin releasing hormone (GnRH) neurons, the central "processor unit" of the fertility. Although estrogen primarily alters the neuronal activity by modulating gene expression directly it also exerts "non-classical" effects on neurons by altering signal transduction pathways. Using immunohistochemistry, transgenic technology, calcium imaging, single cell electrophysiology and single molecule detection, we demonstrate the mechanism and role of estrogen-induced "non-classical" effect on signalling molecules in cholinergic and GnRH neurons.

Assoc. Prof. György Vereb

Deregulated proliferation leading to tumors is often based on signaling by receptor tyrosine kinases including those of the ErbB (EGFR) family. Quantitative microscopic techniques including FRET and fluctuation spectroscopy (FCS) have offered the possibility to learn about molecular interactions of ErbB1 and ErbB2 with each other, integrins, and other ECM constituents that explain membrane organization of these entities, some aspects of their (trans)activation, and possible roles in the therapy resistance of various tumors, as well as provide clues for alternative therapeutic and predictive diagnostic approaches.

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