

第3回 忍路セミナー合宿

2011年7月15日(金)~16日(土)

北海道大学忍路臨海実験所(小樽市忍路町)

7月15日 15:00~16:00

青木 一洋 博士 / Kazuhiro Aoki Ph.D.

京都大学大学院生命科学研究院 生体制御学分野 講師

科学技術振興機構 さきがけ「生命現象の革新モデルと展開」

Laboratory of Bioimaging and Cell Signaling, Graduate

School of Biostudies, Kyoto University, and PREST, JST

Quantitative analysis of intracellular signal transduction.

The Ras/Raf/MEK/ERK signaling pathway plays an important role in proliferation, differentiation and oncogenesis. Several kinetic analyses in silico have demonstrated versatile features of this pathway, including feedback regulations, hypersensitivity, bistability, and robustness. However, the often contrasting results obtained in different models confound a realistic understanding of this very well-studied cascade. We believe at least some of the reason is attributed to a lack of parameters that are necessary for simulations. Here, we attempted to experimentally determine such parameters required for the modeling of the MEK/ERK signaling module; *i.e.*, protein concentrations, protein-protein interactions, enzymatic kinetics, and nucleocytoplasmic shuttling rates. These parameters were determined by fluorescent imaging techniques such as FRET or by biochemical assays. I will demonstrate how this approach can be used to gain new insights into the regulation of ERK MAP kinase signaling network.

18:00~ 懇親会および自由討論 (宿泊)

主催/大学院先端生命科学研究院 細胞機能科学 (金城研)

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