

第211回 原医研セミナーのご案内

下記のとおりセミナーを開催致します。多数ご参集下さい。

記

日時：平成30年 5月31日（木）午後5時～

場所：霞総合研究棟 7階 701セミナー室

演題：Signaling specificity of G-protein-coupled receptor (GPCR):
Lessons from melanin-concentrating hormone receptor 1

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The signaling and trafficking of most GPCRs involves receptor interactions with G proteins, GRKs, arrestins and other receptors. In addition to these widespread GPCR associations, there are many other types of GPCR-interacting proteins that can interact with particular receptors to fine-tune receptor activity. Melanin-concentrating hormone (MCH) is a cyclic neuropeptide exerting its action through two GPCRs, MCHR1 and MCHR2. The extensive progress using genetic and pharmacological approaches has confirmed that the MCH-MCHR1 system is involved in feeding, energy homeostasis, sleep and emotional processing. In mammalian cells transfected with MCHR1, MCH is able to activate multiple signaling pathways including calcium mobilization, p-ERK activation, and inhibition of cyclic AMP generation through Gi/o- and Gq-coupled pathways. In this seminar, I review the current knowledge regarding: i) the common and distinguishing structural features of MCHR1 for receptor activation and G protein selectivity and ii) the mechanism controlling the fine-tuning of MCHR1 signaling by receptor-selective partners and their possible physiological significance. Lastly, we will discuss our very recent works on functional and physiological roles of MCHR1 selectively located in neuronal primary cilia.

Reference:

Basic findings

Saito Y et al. Nature 400, 265, 1999

Saito Y et al. J. Comp. Neurology. 435, 26, 2001

Structure-Function relationship, GPCR fine-tuning

Tetsuka M et al. Endocrinology 145, 3712, 2004

Saito Y et al. Endocrinology 146, 3452, 2005

Miyamoto-Matsubara M et al. Cellular Signaling, 20, 2084, 2008

Miyamoto-Matsubara M et al. Ann NY Acad Science. 1200, 112, 2010

Hamamoto A et al. Cellular Signaling, 27, 818, 2015

GPCR localized in primary cilia

Hamamoto A et al. Cellular Signaling, 28, 572-584, 2016

Kobayashi et al. in press