グローバル COE 特別セミナー

演者：**Andres Barria, Ph. D.**

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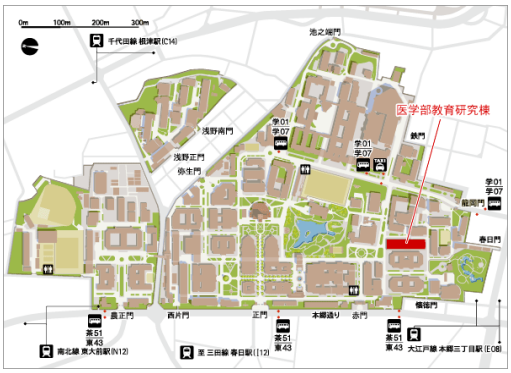
演題：**Trafficking and Function of NMDA Receptors. A Tale of Two Receptors.**

要旨：

In rat hippocampus, during the two weeks following birth a large number of synaptic connections are assembled and some subsets of these are stabilized, while others are lost. During the same period, NMDA-type glutamate receptors (NMDARs) undergo a developmental switch from containing the NR2B subunit to containing the NR2A subunit. This switch accelerates the kinetics of NMDAR mediated excitatory postsynaptic currents (EPSCs) and decreases the ability of the synapse to undergo potentiation. Recent evidence also indicates that NMDARs play a structural role in the long-term stabilization of synapses and spines; however it is not known whether NR2 subunit composition influences the processes of synaptogenesis, synaptic pruning, and synapse stabilization.
We investigated the role of NR2 subunits in synaptogenesis during the period in which expression and synaptic incorporation of the NR2A protein begins through the time when it reaches adult levels. We found that early expression of NR2A in organotypic hippocampal slices reduces the number of synapses and the volume and dynamics of spines. In contrast, overexpression of NR2B does not affect the normal number and growth of synapses; however it does increase spine motility, adding and retracting spines at a higher rate. The C-terminus of NR2B, and specifically its ability to bind CaMKII, is sufficient to allow proper synapse formation and maturation. Conversely, the C-terminus of NR2A was sufficient to stop the development of number of synapses and spine growth. Our results indicate that the ratio of synaptic NR2B over NR2A controls spine motility and synaptogenesis and suggest a structural role for the intracellular carboxyl-terminus of NR2 in recruiting the signaling and scaffolding molecules necessary for proper synaptogenesis.

日時：平成２３年１２月１２日（月）１３：００～１４：００

場所：東京大学医学部教育研究棟２階　第１・第２セミナー室



多数の皆様のご来聴をお待ちしております

主催：大学院医学系研究科
分子神経生物学教室
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