グローバル COE 特別セミナー
分子神経生物学セミナー

Mouse Genetic Dissection of Synapse Signaling Complexity

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In recent years it has become apparent that in addition to the proteins for neurotransmitter release and neurotransmitter receptors, synapses contain a plethora of signaling transduction, structural and other proteins. The postsynaptic terminal comprises ～1000 proteins organised into multiprotein complexes and networks of interacting proteins that transduce and compute the signals received by the receptors.

To study the function of the postsynaptic proteins we have begun a systematic program (Genes to Cognition or G2C, www.genes2cognition.org) using knockout mice, which are phenotyped in a range of biochemical, electrophysiological and behavioural assays. The scalability and robustness of these assays allow comparison of phenotypes and studies of the relationships between physiology and behaviour. The pipeline and data from a number of genes and the G2C database (G2Cdb) will be presented.

Detailed phenotyping integrating biochemical, physiological and behavioural data is scalable to sets of molecules and with an international coordinated consortium could tackle the function of all genes at the synapse. How this strategy could be integrated human genetics will be discussed.

後援：分子脳科学

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