CDB SEMINAR

Tomoya Matsumoto

Neurobiology, Biozentrum,

University of Basel, Switzerland

Wednesday, July 16, 2008

16:00~17:00 A7F Conference Room

Biosynthesis and processing of brain-derived neurotrophic factor (BDNF) in CNS neurons

BDNF is synthesized, exclusively by neurons, as a precursor (pro-BDNF) that is posttranslationally processed to mature BDNF. Recent studies suggest that pro-BDNF and BDNF activate different receptors (p75 neurotrophin receptor or TrkB), leading to neuronal death or survival, respectively (Lu et al., Nat Rev Neurosci 2005). It is therefore critical to know which form is secreted from CNS neurons. Here, we examined the biochemistry of endogenous BDNF using very sensitive reagents and found that pro-BDNF undergoes rapid intracellular conversion to form BDNF which is stored and then released by excitatory input. In addition, our immunohistochemical results indicate that BDNF is anterogradely transported to axonal terminals following intracellular cleavage. These findings are relevant in the context of the recently discovered Val/Met polymorphism in the human bdnf gene, since this amino acid substitution is located in the pro region of BDNF (Egan et al., Cell 2003).

Host:
Hideki Enomoto
Neuronal Differentiation and Regeneration, CDB
enomoto@cdb.riken.jp
Tel:078-306-3099 (ext:1301)