

Molecular and Cognitive Neuroscience (Molecular Neuroscience)

1. Staffs and Students (April, 2009)

Professor	Kohichi Tanaka	
Assistant Professor	Okiru Komine	
Assistant Professor	Tomomi Aida (~April)	
Secretary	Akiko Kusunoki (~July),	Emi Sunabori (July~)
Graduate Student	Tomoharu Nakamori,	Shuichi Maeda,
	Daiji Kanbe,	Yuri Hirota,
	Mio Ayusawa,	Sayaka Kato

2. Purpose of Education

The final goal of our research is to understand molecular, cellular, and neuronal ensemble mechanisms underlying higher order brain functions including learning and memory. For that purpose, we combine molecular genetics, physiological and behavioral methods. The laboratory also studies the mechanism that underlies neuronal cell death and regeneration

3. Research Subjects

- 1) Functions of glutamate transporters in the brain.
- 2) Role of Notch-dependent and -independent RBP-J signaling pathway in the cerebellar development.
- 3) Function of glutamate transporters in skeletal muscle development

4. Publications

Original Article

1. Karlsson, RM., Tanaka, K., Saksida, LM., Bussey, TJ., Heilig, M., Holmes, A. Assessment of glutamate transporter GLAST (EAAT1) deficient mice for phenotypes relevant to the negative and executive/cognitive symptoms of schizophrenia. *Neuropsychopharmacology* 34. 1578-1589, 2009.
2. Soma, M., Aizawa, H., Ito, Y., Maekawa, M., Osumi, N., Nakahira, E., Okamoto, H., Tanaka, K., Yuasa, S. Development of the mouse amygdala as revealed by enhanced green fluorescent protein gene transfer by means of in utero electroporation. *J Comp Neurol* 513. 113-128, 2009.
3. Omrani, A., Melone, M., Bellesi, M., Safiulina, V., Aida, T., Tanaka, K., Cherubini, E., Conti, F. Up-regulation of GLT-1 severely impairs LTD at mossy fibers-CA3 synapses. *J Physiol* 587. 4575-4588, 2009.
4. Namekata, K., Harada, C., Guo, X., Kikushima, K., Kimura, A., Fuse, N., Mitamura, Y., Kohyama, K., Matsumoto, Y., Tanaka, K., Harada, T. Interleukin-1 attenuates normal tension glaucoma-like retinal degeneration in EAAC1 deficient mice. *Neurosci Letters* 465. 160-164, 2009.