

Pharmacology and Neurobiology

1. Staffs and Students (April, 2010)

Professor	Tsutomu TANABE	
Assistant Professor	Hironao SAEGUSA,	Shuqin ZONG
Graduate Student	Kasumi KOUCHI	

2. Purpose of Education

2-1

Undergraduate course: Pharmacology course provides the principle of pharmacological basis of therapeutics. Several representative therapeutic drugs in each disease will be picked up and systematic lectures -from basic pharmacology to mechanism of action, drug metabolism, clinical application and side effects- will be provided. Students are projected to acquire self-learning skills during the course and expected to be ready for handling clinical cases by pharmacological means.

We consider education through the pharmacology lab work is important. Students are given opportunity to dissect out several tissues (heart, skeletal muscle, ileum and vas deferens) from living animals by themselves and test the effect of a number of drugs including specific agonist, antagonist and non-selective drugs. Lab work course is divided into two parts. In the first part, students were given several known drugs for testing the known effect on these tissues. In the second part, students are given two unknown drugs and requested to identify the name and concentration of each drug using the tissues they prepare by themselves.

2-2

Graduate course: During the first couple of months, students are requested to acquire basic techniques of biochemistry, molecular biology, pharmacology and electrophysiology that are routinely used in our laboratory. Then students will be given a small project to do using the techniques they have learned during the initial training. Students are also required to read relevant scientific papers and conduct seminar style lectures to other lab members monthly. After completion of the initial phase, students start their own project under the supervision of the faculties in the lab.

3. Research Subject

1. Molecular basis of calcium channelopathy
2. Molecular mechanism of neurodegenerative disease
3. Mechanism of modal shift of cell sensor: from touch perception to pain sensation
4. Molecular mechanism of neuropathic pain
5. Molecular mechanism of drug tolerance
6. Hormonal modulation of stem cell development

4. Publications

Meetings:

1. Tsutomu Tanabe, Eri Sakurai, Takashi Kurihara, Kasumi Kouchi, Hironao Saegusa and Shuqin Zong: Upregulation of casein kinase 1 epsilon after spinal nerve injury contributes to neuropathic pain, The Third International Congress on Neuropathic Pain Athens, Greece 5.27-30, 2010.
2. Tsutomu Tanabe, Eri Sakurai, Takashi Kurihara, Kasumi Kouchi, Hironao Saegusa and Shuqin Zong: Searching for downstream molecules of N-type voltage-dependent calcium channels (Cav2.2) contributing to the neuropathic pain, 16th World Congress of Basic and Clinical Pharmacology, Copenhagen, Denmark 7.17-23, 2010.
3. Tsutomu Tanabe, Eri Sakurai, Takashi Kurihara, Kasumi Kouchi, Hironao Saegusa and Shuqin Zong: Inhibitors of casein kinase 1 epsilon are effective in blocking pain in neuropathic mice without showing any appreciable side effect in normal mice, The 40th Annual Meeting of the Society for Neuroscience, San Diego, USA 11.13-17, 2010.
4. Tsutomu Tanabe, Eri Sakurai, Takashi Kurihara, Kasumi Kouchi, Hironao Saegusa and Shuqin Zong: Specific blockade of synaptic transmission and behavioral pain responses by casein kinase 1 epsilon inhibitors in neuropathic mice, The 50th Annual Meeting of the American Society for Cell Biology Philadelphia, USA, 12.11-15, 2010.