

2014 TIGP-INS Electrophysiology Summer Workshop

Registration:

1. Please go to <http://goo.gl/O4lLo6> for online registration.
2. Submit the consent form.

Above processes are essential for successful registration.

Course coordinators: Drs. Huai-hu Chuang, Chih-Cheng Chen, Ru-Chi Shieh

Teaching assistants: Dr. Sin-Jhong Cheng, Ms. Huei-Fang Wu, Ms. I-Ching Wang

Time: June 23 to July 7, 2014

Credit: 2

(NOTICE: The credits you gained will not be summer credits. After you passed this course, the credits will be transferred to Fall semester, 2014. Please confirm with us about this issue before you apply.)

Students: 6-9 (Priority order of the slots: TIGP-INS students-> NPAS PI's students)

Place:

- <Lecture> 1F-B100R, Interdisciplinary Research Building for Science and Technology
- <Exp. I> Room 120, Institute of Molecular Biology
- <Exp. II & II> Room 350 and 205B, Institute of Biomedical Science

Objectives:

The summer workshop is an intensive hands-on lab course. This course will take 6-9 graduate students from TIGP-INS or from students of NPAS PIs' lab. The course will be about 11 days and >8 hr a day, such that by the end of the course, the students will not only know their fellow students very well, but also get to know the available electrophysiology and calcium imaging techniques on campus by hearts. At the first day, basic knowledge of electrophysiology techniques, such as extracellular recording on brain slices, whole-cell patch clamp recording on dissociated single cells, and calcium imaging will be taught in lecture. The following days will be divided into rotations in 3-day blocks. There will be 3 stations. In each station, one teaching assistant will be in charge. In these stations, there will be technique training for calcium imaging, brain slice recording, and whole-cell patch clamp recording. Hands-on experiment is emphasized. The students are encouraged to try out their own thinking.

Evaluation:

45% Rotation (15% each); 30% Oral Presentation; 25% Written Report

Schedule:**(1) Lecture: 09:00-17:00, June 23 (Monday)**

- 09:00-12:00 General introduction of electrophysiology and calcium imaging (Dr. Huai-hu Chuang)
 14:00-15:00 Research into ion channels (Dr. Ru-Chi Shieh)
 15:00-16:00 Synaptic plasticity of hippocampal circuitry (Dr. Sin-Jhong Cheng)
 16:00-17:00 Discussion

(2) Rotation: 09:00-18:00, June 24 to July 4 (daily during Monday-Friday)

Students will be divided into three groups (2-3 students per group). Experiments are in 3-day blocks, denoted as rotation 1 to 3. The sequence of rotations are shown in the following tables. All three rotations took place in individual room of NPAS core facilities.

Exp. I: Calcium imaging (TA: Ms. HF Wu, Room 120, IMB)

Exp. II: Field recordings on hippocampus slices (TA: Ms. IC Wang, Room 205B, IBMS)

Exp. III: Whole-cell patch clamp recordings on HEK293 cells (TA: Dr. SJ Cheng, Room 350, IBMS)

	Rotation Experiments		
	Exp. I. (R120, IMB)	Exp. II. (R205B, IBMS)	Exp. III. (R350, IBMS)
Rotation 1	Group A	Group B	Group C
Rotation 2	Group C	Group A	Group B
Rotation 3	Group B	Group C	Group A

(3) Oral presentation: 09:00-12:00, July 7 (Monday)

Each student should present results from one of the experiments for 15 minutes.

(4) Written report:

Each student should write experimental results of all three rotation and a summary of the assigned reading in each rotation.

Overview of the schedule

Mon	Tue	Wed	Thu	Fri
6/23	6/24	6/25	6/26	6/27
Lecture	Rotation 1			Rotation 2
6/30	7/1	7/2	7/3	7/4
Rotation 2		Rotation 3		
7/7				
Oral Presentation				