

A Brief Report of My Three-Month Study in Japan

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I consider myself lucky to have a chance to study in the Human Brain Research Center (HBRC), Kyoto University Graduate School of Medicine for 3 months. The institute is a top-notch center for innovative research of high brain function. The whole study process inspired me so much that I could not describe it fully, but I will try to summarize in the following.

The HBRC, formerly the department of brain pathophysiology, was founded on April 1, 2000 under the leadership of professor Shibasaki, who is a pioneer researcher of movement and motor control. The center has two divisions. One is neurophysiologist and the other is neuroimage. The center is one of the few places in the world where information from clinical studies of patients with defined pathologies can be used to correlate with metabolic (PET, SPECT or fMRI) and electrophysiological (EEG, EMG, ERP-event related evoked potential, MEG) information of brain function in healthy subjects and in patients with neurological disease. In addition, the TMS (transcranial magnetic stimulation) could be used as either a treatment modality or an experimental



intervention to test the hypothesis. The subdural electroencephalography (EcoG) and intra-operation studies provide more direct and detailed messages of brain activities. As a psychiatrist in Taiwan, my prior experience was only limited to EEG, ERP and SPECT. Exposure to all new these high-end instruments, technology and experiments has broadened my field of vision. My original study plan to learn ERP had been met already.

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The center is, of course, not simply the sum of machinery. It is amazing to see how they integrate the information and how they cooperate. Professor Shibasaki as well as all the researchers and students strive hard to make the center international recognition and get more international collaboration. Meetings in the center are held in English. All the members are encouraged to think and talk in English. Visiting scholars from other countries with different specialties spun more research ideas. Regular discussion of experiment progress, frequent exchange of information and technique, serious working attitude, and enthusiastic supervision from experienced researchers contribute to the formation of an extraordinary strong team.

Since all the staff here devoted themselves in the development of new methods and the research of various hypotheses, I got a clear view of my research project and was able to carry out my study through frequent discussions, carefully observing the process of experiments and analyses. There is nothing more cherishable than establishing the relation and connection with the members in the laboratory. From

November 13 to 15, I attended the annual meeting of the Japanese Clinical Neurophysiology Society at Fukushima. In addition to learning various research ideas, I was impressed by the contributions made by the sub-societies like TMS, fMRI, etc. They helped to organize symposia, collect all research-related informations in Japan as diverse as new research, complications and future aims, and to promote the progression of research. The sub-societies unified the information and achievements. I think the strength of a group is greater than that of an individual.

The Chinese old saying, "百聞不如一見", means seeing once is better than a hundred hearsays. Living in Japan and working with Japanese is the best way to learn the Japanese spirit and culture. I am thankful for Takeda foundation's sponsor, National Cheng Kung University's permission for study abroad, my colleagues' support and understanding. I am very grateful to the supervision from Professor Shibasaki, Fukuyama, Banati, Associate Professor Nagamine, Hashigawa and Instructor Mima, and the acceptance and help from every member in HBRC. Especially, Mr. Kawasaki and

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Dr Lin helped me to find the best way of accommodation.

I had organized my concrete suggestions in three parts.

I: For the ERP study:

- (1) For the acquirement and analysis---this part has been presented in the ERP group of psychiatry.
- (2) The proposal for the next year
- (3) The working targets:
 - i. to consolidate the ERP experiment---finishing the experiment as the proposal
 - ii. to explore additional experimental projects---(1) to search and keep contact with visual, auditory and psychological assessment development, such as the bi-ocular depth reversion, gamma band oscillation. (2) to correlate different cognitive function, such as memory, attention and judgment. (3) to apply clinically and find out the clinical correlation.
 - iii. to expand the collaboration---(1) to integrate with other imaging studies, e.g. fMRI. (2) to integrate with pharmaceutical or molecular study (3) to integrate with intervention process (TMS or

neurosurgery), so we can get more direct information.

II: For the Department of Psychiatry, NCKU.

- (1) To encourage the doctors and staff to think and speak in English, I suggest that we conduct the journal club in English as the first step.
- (2) To encourage (with the support from the clinical practice) students and staff to publish papers and join international conference.
- (3) Make reporting findings and results of experiments as a routine.

III: For NCKU

- (1) To provide more chances for doctors to continue further study.
- (2) To promote the collaboration among different departments, like the fMRI study or during neurosurgery study.
- (3) TMS has not been proven to have therapeutic effect; but it has good potentials to provide more material for study. It is a worthy investment.

