Form 1-5-2

Japan-US Brain Research Cooperative Program The Dispatch of Joint Researcher Report in 2007 fiscal year

[field: 2

1

 Affiliation/ Title/ Name: Affiliation: National Institute of Natural Sciences, National Institute for Physiological Sciences, Department of Integrative Physiology Title: Post-doctoral researcher Name: Tetsuo Kida

2. The Project Title: Functions of human posterior parietal cortex in somatosensory-motor regulation

3. U.S. Investigator's Name, Title, and Affiliation:
Name: Dr. Mark Hallett
Title: Principle Investigator
Affiliation: National Institute of Health, National Institute of Neurological Disorders and
Stroke, Human Motor Control Section, Medical Neurology Branch (NIH/NINDS/HMCS/MNB)

4. The Term of Research: From 2007.8.1. To 2008.3.31. (8 Months)

5. The Abstract, the Result and the Significance of Research(300 Words):

For about 8 months from the early of August 2007 to the end of March 2008, I worked in Dr. Mark Hallett's laboratory in National Institute of Health. There are many clinical and research fellows from all over the U.S. and the world in Dr. Hallett's laboratory, which aims to elucidate the mechanism of normal voluntary movement and abnormal involuntary movement (movement disorders). The purpose of this research was to reveal the function of human somatosensory cortex and posterior parietal cortex (PPC) in somatosensory-motor regulation by the integrative use of electroencephalogrphy (EEG), magnetoencephalography (MEG) and transcranial magnetic stimulation (TMS).

First of all, I began learning the technique of TMS. Especially, to learn the repetitive TMS (rTMS), a technique which modulates cortical excitability by presenting repetitively TMS, I participated into an rTMS study in patients with Parkinson's disease patients. I also participated into an agency study using coherence analysis of EEG (corticocortical functional connectivity).

At the same time, I made the program for presentation of stimulus used for this project. Next, using MEG, I performed a preliminary experiment to examine neural activity in the primary and secondary somatosensory cortices, posterior parietal cortex, and high-frequency oscillations (HFOs) in patients and healthy subjects. However, I could not recruit the enough number of participants by the end of this corporative program.

During this stay, I have discussed with Dr. Hallett and then we decided to apply my experimental paradigm to examination for patients with movement disorders. Therefore, I will also continue corporative work with Dr. Hallett after termination of this program.