

Japan-US Brain Research Cooperation Program  
The Dispatch of Joint Researcher Report in 2005 fiscal year

[field: 3 ]

1. Affiliation/ Title/ Name:

Cognitive and Behavioral Sciences Group, Neuroscience Research Institute  
National Institute of Advanced Industrial Science and Technology  
Research Scientist  
Takashi Tsukiura, Ph.D.

2. The Project Title:

Contribution of the hippocampus and amygdala to human memory:  
Non-invasive neuroimaging approach

3. U.S. Investigator's Name, Title, and Affiliation:

Roberto Cabeza, Ph.D.  
Associate Professor  
Center for Cognitive Neuroscience, Duke University

4. The Term of Research: From 2004. Aug. 1. To 2004.Aug.30 ( 1 Month)

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

The purpose of this study is to investigate neural activations related to the human memory process by using fMRI technique. In the period when I stayed in Duke University, we had the discussion of the future projects, and analyzed fMRI data acquired in memory encoding.

In the discussion, the future projects was possibly decided in the following lines. The first project we discussed was to investigate the neural activation related to the temporal context during autobiographical memory processes. As the second project, we employed the study of face-name association learning and the effect of aging on the face-name associations.

In the study, we analyzed activation patterns decided by the two factors of relational process (related or unrelated process) and successful delayed memory (DM) retrieval (remember or forgot). The significant effect of the relational process was identified in the left ventral prefrontal area, whereas the effect of the DM was in the left anterior left prefrontal area and the left hippocampus area. The results suggest that the different memory processes during memory encoding may be dissociated within the left prefrontal cortices. In addition, the dissociation was found between the left prefrontal and medial temporal lobe areas.

During my staying in Duke University, I could actually participate in the scanning of fMRI experiments. At there, 4T MRI machine is employed to detect significant activations related to the complicated memory process. The experience during staying in Duke University was very important for me to develop our coordinated projects in the field of human memory research.

6. The Others (Other Comments):

Duke University is located in Durham, NC. For Japanese people, it is difficult to acquire the information of this region in Japan. If someone have the plan of trip to this area, I would like to recommend them to get information of this region carefully on the web pages and to buy the road map before leaving Japan. Because we need to drive to live around there without any problems including the safety.