

Japan-U.S. Brain Research Cooperation Program
Researchers Dispatched to the U.S. Program FY2016: Report

Field: 3_____

1. Researcher

Name: Megumi Kobayashi

Title: Research Fellow

Affiliation: National Institute for Physiological Sciences, Department of Integrative Physiology
(I am now Researcher at Department of Functioning Science, Institute for Developmental Research, Aichi Human Service Center)

2. Research Title:

Development of person recognition: fMRI study

3. U.S. Joint Researchers/Institutes

Please give the name, title and affiliation.

Professor Alice J. O'Toole, University of Texas at Dallas, School of Behavioral and Brain Sciences

4. Research Period, from/to (mm/dd/yyyy):

05/02/2016 – 08/26/2016

5. Abstract, Results, and Research Significance (300 Words):

When we recognize people in their daily life, we rely not only on the face but also on body and gait (e.g., Burton et al., 1999). When someone is at a distance, we rely on information from the body for person recognition. In contrast, contribution of face increases with proximity (Hahn et al., 2015). Additionally, the previous fMRI study with adults measured brain activity of face selective regions (OFA, FFA, STS) and body selective regions (EBA, FBA) during recognition of approaching person, and revealed the stronger activation to body selective regions activated stronger than face selective regions (Hahn & O'Toole, 2017). This project addressed 1) developmental change in contribution of face and body for person recognition, and 2) neural basis of person recognition. Studies with infants were conducted with the cooperation of Chuo University.

First, we conducted the behavioral experiment with infants to examine whether infants recognize face of approaching person. Infants were familiarized with a face from talking video, and were tested their recognition memory with approaching videos. As a result, 7-month-olds, but not 5-6-month-olds, showed successful recognition. Based on this result, we are investigating the contribution of face and body in infants' person recognition. As for neuroimaging study, we measured brain activity of infants' bilateral temporal areas by using near-infrared spectroscopy while infants observed only face or only body of approaching person. So far, anterior region of temporal area show higher activation to body than to face, while posterior region of temporal area show activation both to face and body. This data imply that faces and bodies are processed in the different region of infants' temporal area. In addition, for children's fMRI experiment, we prepared the stimuli and I learned pre-processing of fMRI data and method to analyze data by GLM and cross-validation pattern classifier procedure.

6. Other (Research concerns, particular points of note):