

Form 3

Date (日付)

\_\_\_\_\_ (日 10/月 11/年 2009)

**Activity Report -Science Dialogue Program-**  
**(サイエンス・ダイアログ事業 実施報告書)**

Fellow's name (参加外国人研究者氏名): Douglas Bakkum (ID No. P08061 )

Participating school (参加機関(受入学校名)): Ichikawa High School

Date (実施日時): \_\_\_\_\_ (日 6/月 10/年 2009) Time: from 15:40 to 16:50

Lecture title (講演題目): The science and art of cultured neurons: learning, memory, and creativity.

培養神経細胞の科学とアート: 学習・記憶・創造力

Lecture summary (講演概要): The brain's unique mental abilities are thought to emerge from the processing of information by networks of neurons. To study this, isolated neurons were grown over glass dishes embedded with multiple electrodes (multi-electrode arrays, or MEA). Neurons use electricity as one method to communicate with each, and an MEA can be used to both record and stimulate nearby neurons, thus providing 2-way access for a researcher. Using these tools, we look for answers as to how can cognition arise from the activity of neurons in a network: learning, memory, creativity, etc. By providing the neurons with an artificial body (embodiment), we see if the neurons can learn anything about their new body and/or the environment with which they now interact. A special example will be presented: neurons and an MEA were combined with a robotic drawing machine developed in collaboration with two Australian artists. The system was termed MEART (MEA + aRT) and provided a foundation from which to address both scientific and artistic inquiries.

Language used (使用言語): English

Lecture format (講演形式):

- Lecture time (講演時間) 50 (分), Q&A time (質疑応答時間) 20 (分)
- Lecture style powerpoint on projector
- Interpreter had an interpreter for the powerpoint text and for Q&A

Name and title of assistant (協力者 職・氏名)

酒井秀夫 東京大学の院生 (labmate)

- Other note worthy information (その他特筆すべき事項):

Impressions and opinions of assistant (協力者から本事業に対する意見・感想等がございましたら、お願いいたします。):