

(For JSPS Fellow)

Form B-5

Date (日付)

22/08/2016 (Date/Month/Year: 日/月/年)

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 (講師氏名): Tom Macpherson (ID No. P15107)

- Participating school (学校名): 香川県立観音寺第一高等学校

- Date (実施日時): 22/08/2016 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): (in English) How do we learn from our behavior?

(in Japanese) どうやって行動で学ぶ?

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

During my lecture i described the neural mechanisms underlying learnt behaviors and explained why it is essential for us to be able to learn from our past behavior in order to guide our future behavior. To give an example of this i spoke about how reward and aversion learning are necessary to remember which types of food we like and dislike, and well as how to find the loaction of food we desire. I then gave an explanation of neuronal signalling, including the mechanisms of synaptic transmission, within the striatum and how this is important for reward learning. I focussed on the role of dopamine in signalling rewards, and talked about the experimental techniques researchers have used to discover this. Then, i described neuropathologies related to maladaptive reward learning, such as schizophrenia, depression, obesity, and drug addiction. Following on from this, i described the neural mechanisms behind drug addiction, especially focussing on cocaine addiction, and discussed the similarities with natural forms of reward learning. As part of this i spoke about how Pavlovian conditioning processes can trigger relapse to drugs of abuse. This included an explanation of a commonly used behavioral test of Pavlovian conditioning known as conditioned place preference, and how researchers can use this test to model drug addiction in rodents. Finally i talked about how we can use our current knowledge of reward learning to create new medicines to treat drug addiction, and described some of my research within this field.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 60 min (分), Q&A time (質疑応答時間) 60 min (分)

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

_____ powerpoint presentation using a projector _____

- ◆ Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

_____ None _____

- ◆ Name and title of accompanied person (同行者 職・氏名)

_____ None _____

- ◆ Other noteworthy information (その他特筆すべき事項):

_____ None _____

- Impressions and opinions from accompanied person (同行者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。)