

(For JSPS Fellow)

Form B-5

Date (日付)

11 / 7 / 2013 (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) : Dr. Georgia Rose Kafer  
(ID No. P12079)

- Participating school (学校名): Takafu Super Science High School

- Date (実施日時): 10 / 7 / 2013 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Differentiation: From 1 cell type to 300 cell types!

(in Japanese)

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

The lecture started with an introduction to my home country, Australia. Then I began to explain how everyone starts as a single cell. Then, as the embryo develops, this cell is able to make 300 different cell types – a process we call "differentiation". I then explained the principles of DNA and genes and talked about how all of the cells in one person have the exact same DNA code, it is how the code is "read" (i.e. gene expression) that enables cells to be different. Then I started talking about what embryonic stem cells are and how I use embryonic stem cells to study differentiation. In particular, I introduced the students to the concept of "epigenetics" – which I explained as a system of "signs" that sit in and around the DNA to change how the code can be read. I ended the lecture by explaining the major differences in the epigenetic "signs" between stem cells and differentiated cells, and introduced the microscopy and computer analysis that I perform to compare the different epigenetic "signs" between cells.

- 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))

Used a projector to show a powerpoint presentation and I also wrote on the blackboard.

◆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))

My laboratory colleague (who is Japanese) joined me and translated my presentation and

the student questions and my answers.

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

Dr. Aya Sato. JSPS Postdoctoral Fellow.

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

I was very surprised that the students had many questions – and very good questions! – to ask me. It made me feel that the students did not understand what my lecture was about. I also think that it helped that before my lecture I was communicating with the science and English teachers at the school. I was able to give them a list of terms that I would be using, so the students before I arrived had done some background work. Their science teacher had also spent some time teaching the students about "iPS" cells before I came, so I had many interesting questions from the students about these types of stem cells. I would highly recommend that people who are giving lectures communicate with the teachers about what the lecture will be about so that the students can – if possible – prepare questions before the talk and make the most out of meeting an "expert" in the topic.

- 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。): Sato-san very much enjoyed accompanying me and interacting with the students. It was also nice that the students asked Sato-san about how she got to be a scientist, so she could tell them from a Japanese citizen perspective how students can become scientists too.