

(For JSPS Fellow)

Form B-5

Date (日付) 19/ 01 / 2012  
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(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): Jocelyn Bedard (ID No. P10091 )
- Participating school (学校名): Ishikawa Prefectural Nanao High School
- Date (実施日時): 13/01/2012 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) The long road to the chloroplast!  
(in Japanese) 葉緑体への長い道のり
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

At first, a list of key words used in the lecture along with the Japanese translation was distributed to the students and the words were read out one by one so the students could hear how they are pronounced. The lecture started with an explanation of SDS-polyacrylamide gel electrophoresis (PAGE), a technique commonly used in molecular biology to separate proteins based on their size. The students were given a demonstration of SDS-PAGE during the lecture in which samples of total chloroplast proteins and a purified complex was analyzed. The remainder of the lecture consisted in 4 sections: 1) Introduction to Canada, my home country, with maps displaying its location and the different provinces. The size and population of Canada was compared to that of Japan. Some nature parks and the major Canadian cities, including the Capital city Ottawa, were presented. 2) An explanation of my background in which I described the different steps I took between high-school and my present position as a JSPS fellow. I talked about my education and the different University degrees I obtained in order to be able to start working as a researcher. I also explained why I am interested in research in plant molecular biology and protein biochemistry. 3) After explaining the central dogma of molecular biology (i.e. DNA is transcribed into RNA messages, which are then translated into proteins) and the unique properties of proteins, a short introduction to cell biology focusing on the chloroplast was presented. The role of chloroplast in absorbing light energy and transforming it into usable, biochemical energy was discussed as well as their importance to plants and other living organisms on earth. The endosymbiotic origin of chloroplasts (i.e. their evolution from a photosynthetic bacterial ancestor engulfed by a simple eukaryotic cell) was described. I also

explained how, in plant cells, the majority of chloroplast proteins are made outside of the chloroplast and need to be transported into the chloroplast. Finally, I explained in simple terms my field of research which focuses on how proteins are directed to the chloroplast (protein targeting) and transported across the envelope which separates the chloroplast from the rest of the cell (protein import). 4) In the final section of my lecture, to show the students what kind of things we can do in a molecular and biochemistry laboratory, the different steps taken to purify a previously unknown protein complex were presented. The explanation of SDS-PAGE, the introductions to molecular biology, proteins and cell biology as well as the final section on our current research were translated / summarized in Japanese to help the students understand the information presented.

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- Language used (使用言語): English and Japanese

- Lecture format (講演形式):

◆Lecture time (講演時間) 100 min (分), Q&A time (質疑応答時間) 15 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 and screen to give a PowerPoint presentation, performed an experiment / demonstration and provided samples for students to look at

◆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))

a colleague provided translation in Japanese of sections of my presentation

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

Dr. Kikuchi

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

- 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。):

今回、石川県立七尾高校では、同時に 4 名の JSPS fellow が呼ばれ、4 つの講義が並行して同時刻に行われた。七尾高校には 4 名の演者と 4 名の同行者の計 8 名が全国各地から集められた。これにかかった経費はかなりのものと予想される。高校側の少人数制教育を行いたいという意向はわからないでもないが、すこし贅沢すぎるのではないか。JSPS としては、なんらかの上限をもうけるべきではないだろうか。

また、演者が足りないという理由で、今回はオファーを受けたが、このような事情が前もってわかっていたなら、我々はオファーを受けなかった可能性が高い。