

(For JSPS Fellow)

Form B-5

Date (日付)

2016.07.01.

(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): Eszter Németh (ID No. P 14807)- Participating school (学校名): Jr. & Sr. High School at Komaba, University of Tsukuba- Date (実施日時): 2016.06.18. (Date/Month/Year: 日/月/年)- Lecture title (講演題目): (in English) Cutting DNA with molecular scissors –A perspective for gene therapy(in Japanese)

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

Genetic diseases are related to the DNA sequence of the patient's genome. For example, some part of a gene is changed or missing. The aim of gene therapy is to correct this wrong DNA sequence. Artificial nuclease enzymes are designed to do this. They are molecular scissors that cut the DNA around the error in the gene. And then, the cell can cure itself. The first aim of my research is to design new nucleases. On the other hand, how cells respond to a damage in the DNA is also a very fascinating field of research. I am interested in how the chromatin changes when DNA damage occurs.

I started research related to nucleases when I was a Master student in Chemistry in University of Szeged, Hungary. During my PhD years I visited laboratories in Copenhagen (Denmark), Vienna (Austria) and Prague (Czech Republic) and now I am a postdoctoral fellow in University of Tsukuba. I will talk about why I became a researcher and also about my experience as a scientist in Europe and Japan.

Summary of facts: A nuclease enzyme can cut DNA. An artificial nuclease enzyme can cut DNA where we want to. We can cut the chromosome where the wrong gene is in a genetic disease. After cutting, the cell recognizes the broken chromosome. Using a template DNA the cell repairs the chromosome itself. This can cure the genetic disease. How cells respond to DNA damage is very complicated and there are many details we don't understand yet.

- 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) 30 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))

Power point presentation (projector)

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- ◆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))

No

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

No

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- ◆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。):