

(For JSPS Fellow)

Form B-5

Date (日付)

22/06/2017 (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): John Daniel Martin (ID No. PP1673)
- Participating school (学校名): University of Tsukuba Komaba High School
- Date (実施日時): 10/06/2017 (Date/Month/Year:日/月/年)
- Lecture title (講演題目): (in English) Decreasing solid stress to increase blood flow and drug delivery  
(in Japanese) none
- Lecture summary (講演概要): Please summary your lecture 200-500 words.  
Tumors have a lot of abnormal blood vessels, but limited blood flow. This contributes to worse outcomes for patients. Tumors with less blood flow become deadlier faster. They are also resistant to drugs, because only a limited concentration of blood-borne agents reach the tumor. Blood flow is reduced in tumors because vessels are leaky and compressed. In my lecture, I described how solid stress compresses tumor vessels and how to measure it experimentally. Similarly to removing a weight from a spring, cutting an object and measuring the deformation can demonstrate the existence of solid stress. The students then performed experiments to determine whether some common foods have solid stress or not. Some students cut the foods, while the other students guessed whether there was solid stress. The apples, oranges, and uncooked sausages did not have solid stress. The cooked sausage had solid stress, as the heat generated by cooking was stored in the casing. We discussed how elastic molecules in the tumor like collagen store and transmit solid stress generated by cancer cells. Finally, I showed what tumor vessels look like before and after solid stress reduction. The students had insightful questions about implications of the research. They were also curious about the life of a researcher and cancer.
- 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))

Used digital slides, used projector so students could watch the hands of the student doing the experiment

- ◆ 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))

after asking many questions in English, the students asked additional questions in Japanese

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

Junpei Norimatsu, University of Tokyo graduate student

- ◆ Other note worthy 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。):