Must be typed

（For JSPS Fellow）

Form B-2
(FY2018)

Date（日付）
08/02/2019 （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）: Tsiamantas Christos （ID No. P18727 ）

- Participating school（学校名）: Nagano Prefectural Yashiro Highschool

- Date （実施日時）: 08//02/2019 （Date/Month/Year:日/月/年）

- Lecture title（講演題目）: From amino acids to mRNA display and from drug discovery to foldamers

- Name and title of your companying person（講義補助者 職・氏名）
日本学術振興会特別研究員 PD 広瀬久昭

- Lecture format（講演形式）:
◆Lecture time（講演時間） 90 min（分）, Q&A time（質疑応答時間） 10 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

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

My presentation started with a brief introduction about myself and my country, Greece. Some historical highlights as well as some famous dishes were mentioned. Moving towards science, I gave a brief introduction on how and why science came to being and focused on the evolution of natural sciences (chemistry, biology and physics) over time. I then introduced the concept of amino acids and in order to facilitate the reception of protein and peptide concepts that followed, I introduced fundamental examples on bases and acids, polarity, chirality and catalysis. I then moved to proteins and peptides and after briefly introducing their utility, as well as some of their structural and functional characteristics, I explained how they interact with each other and what are the consequences of peptide-protein interactions. Ultimately, why this interaction are so important and what we can achieve by manipulating them.
I then introduced my current research which is focused on genetic code reprogramming coupled with mRNA display. This particular fusion has allowed the generation of libraries of peptides (in my case macrocyclic) of trillions of candidates. Most importantly, the introduction of non-canonical amino acids is possible due to the previously mentioned genetic code reprogramming methodologies. Screening of these peptides against target proteins is currently

one of the leading approaches for the discovery of drug seeds. Despite the complexity of the above I tried to draw parallels to everyday situations in order to facilitate understanding. The significance of the methodology was highlighted.
To close my presentation I introduced my previous work, which was on the field of foldamers. Foldamers are artificial, folded molecular architectures inspired by the structures and functions of biopolymers. The connection to all the previous lies on the fact that several classes of foldamers are also composed of amino acids. But these amino acids bear no resemblance to what nature is using. Thus scientific discovery can go beyond nwhat nature has to teach us and be solely inspired by curiosity.

- Overall advice or comments to future participants in the program（今後の講師へのアドバイス）:

It was definitely a worthy experience, one that someone should try given the opportunity. In my opinion, the fellow should be explaining concepts slowly and in a clear way, drawing parallels to everyday examples that can be perceived more easily and show a lot of pictures (if possible).

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

- Impressions and comments from the accompanying person（講義補助者の方から、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。）

JSPS fellow が行なっている研究を少し紹介するうえでは、講義をする高校の学生さんが、例えば化学や生物をどこまで習っているのかを、高校が決定した段階で事前に明確にしておいてもらえると、予備知識や背景なども説明しやすくなるかと思います。本事業は、高校生にとって間違いなく非常に貴重な経験になると思いますし、JSPS fellow にとっても最先端の研究を噛み砕いて話す良い機会になると思います。