

様式 A-1
(FY2022)

2022年 11月日

サイエンス・ダイアログ 実施報告書

1. 学校名・実施責任者氏名: 広島県立広島国泰寺高等学校・森崎 将彦
2. 講師氏名: Dr. Sylvanus Okechi ODUORI (Mr.)
3. 講義補助者氏名: 的崎 尚 教授
4. 実施日時: 2022年 11月 4日 (金) 13:40 ~ 15:30
5. 参加生徒: 2年生 70人、 1年生 人、 0年生 人 (合計 人)
備考: 普通科理数コース(2クラス)の生徒(コロナ等により、欠席が10名)
6. 講義題目: "We can teach our bodies to function even in adversity: lessons from diabetes and cancer"

7. 講義概要

In summary, my first research theme has *centered around understanding the *mechanism of insulin release from the *pancreas. In some regions, mostly in Asia, many type two *diabetes patients are as a result of inability to produce *sufficient insulin. An understanding of how insulin is produced can *hence be utilized, by specific drugs, to promote release of more insulin from such patients and therefore give them the ability to control their blood sugar. To achieve this, we identified one of the *proteins that is critical in the process of insulin release, and studied it in detail. We were able to demonstrate that in type two diabetes patients, such patients most likely have a *dysfunction in the protein and therefore, if the functionality of the protein is *restored to near normal, they are able to produce enough insulin and hence control their blood sugar.

My second research theme is on cancer treatment. Recently, it was discovered that cancer cells are able to grow *uncontrollably by getting hold of the immune system and activating the "don't kill me" signals from the *immune system. Therefore, if these "don't kill me" signals are identified and blocked, cancer cells are *eliminated by the immune system. In my *lab, we have identified some of the proteins involved in telling the immune cells not to kill cancer cells. One of the major ways in which the immune system works is by producing *antibodies against something (protein, cell, bacteria, virus etc) that needs to be eliminated. I am *thus currently generating antibodies against one of the proteins that we have identified to be important in *preventing the immune system from eliminating *breast and *prostate cancer. We hope that the antibodies we are generating can inform future drug formulation against breast and prostate cancer.

8. 講義形式:

対面 ・ オンライン (どちらか選択ください。)

- 1) 講義時間 80分 質疑応答時間 20分
- 2) 講義方法 (例: プロジェクター使用による講義、実験・実習の有無など)
プロジェクター使用による講義、顕微鏡を用いた観察実験
- 3) 事前学習
有 ・ 無 (どちらか選択ください。)
使用教材 講師の先生から事前にいただいた研究の概要・キーワードリスト, 学校作成のスプレッドシート

9. その他特筆すべき事項:

特にありません。英語の苦手な生徒でも興味を持って学んでいました。貴重な機会をいただきありがとうございました。