

様式 A-1
(FY2025)

2026 年 1 月 20 日

サイエンス・ダイアログ 実施報告書

1. 学校名: 静岡県立掛川西高等学校
2. 講師氏名: Dr. Mohamed Ibrahim Sayed Ibrahim DARWISH
3. 講義補助者氏名: 飯島 崇利
4. 実施日時: 2026 年 1 月 15 日 (木) 14 : 10 ~ 15 : 40
5. 参加生徒: 1 年生 38 人(合計 38 人)
備考: すべて理数科生徒
6. 講義題目: How we use genes and mice to understand human diseases
7. 講義概要: クリスピーキャスト9を活用することで、神経伝達に関わる遺伝子に変異を起こすことで、ASD 傾向を示すマウスを作成することで、自閉症、アスペルガー症候群等の理解につながる研究をすることができる。
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 60 分 質疑応答時間 30 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あり。実験、実習なし。
 - 3) 事前学習
有 ・ 無 (どちらか選択ください。)
使用教材: クリスピーキャスト9について授業で扱った。(高校生物の教科書では標準で内容が記載されている。)講師から事前に受け取った要旨を生徒に配布して紹介した。。
9. その他特筆すべき事項:
特になし。

Form B-2
(FY2025)
Must be typed

Date (日付)
23/02/2026 (Date/Month/Year: 日/月/年)

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ 実施報告書)

- Fellow's name (講師氏名): **Mohamed Ibrahim Sayed Ibrahim Darwish**
(ID No. ID: **P25114**)

- Name and title of the lecture assistant (講義補助者の職・氏名)
Dr. Takatoshi Iijima, Professor at Tokai University School of Medicine

- Participating school (学校名): **Shizuoka Prefectural Kakegawanishi High School**

- Date (実施日時): **15/01/2026** (Date/Month/Year: 日/月/年)

- Lecture title (講義題目):
From Curiosity to Cures: How We Use Genes and Mice to Understand Human Diseases

- Lecture format (講義形式):
◆ Onsite ・ Online (Please choose one.)(対面 ・ オンライン)((どちらか選択ください。))
◆ Lecture time (講義時間) 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))
used projector

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.

In this lecture, I shared my personal and scientific journey as a researcher interested in understanding how the human body works and why some people develop disease. From a young age, I was curious about biology and human health, which motivated me to pursue a career in research. My work focuses on how genes regulate brain development and function, and how disruptions in these genes can lead to neurological and neurodevelopmental disorders.

I explained how recent advances in molecular biology, particularly genome-editing technologies such as CRISPR, have transformed neuroscience research. These tools allow us to create genetically modified mice that carry the same gene alterations found in human patients. Such “model mice” are powerful systems for investigating disease mechanisms and for testing potential therapeutic strategies in a controlled and reproducible manner.

As an example, from my own research, I introduced a recently studied neurotrophic gene involved in brain development. I described how mice lacking this gene exhibit abnormalities in movement and communication, which resemble key features observed in autism spectrum disorder. These findings illustrate how genetic studies using animal models can provide important insights into the biological basis of complex brain disorders and help link molecular changes to behavioral outcomes.

In addition to the scientific content, I discussed my academic journey from Egypt to Japan. I emphasized how science enables collaboration across countries and cultures, connecting researchers worldwide to address shared challenges. I concluded the lecture by highlighting that curiosity-driven research, combined with advanced technologies and international cooperation, has the potential to deepen our understanding of disease and ultimately contribute to improving human health and quality of life.

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

I greatly enjoyed the lecture and the opportunity to interact with the students. I was particularly impressed by the high level of scientific activity demonstrated by the students, as well as their strong motivation and thoughtful comments regarding research and my presentation. Their enthusiasm and engagement made the lecture experience especially rewarding.

- Impressions and comments from the lecture assistant (講義補助者の方から、本プログラムに対する意見・感想等がありましたら、お願いいたします。):

Dr. Takatoshi Iijima also found the experience highly enjoyable and enriching. They were pleasantly surprised by the advanced level of the students and the quality of their scientific activities. In particular, the students demonstrated strong communication skills by preparing posters and presenting their work clearly and efficiently.