



WPI-Bio2Q NEWSLETTER

# Bio2Q Connect

Keio University  
Human Biology-Microbiome-Quantum Research Center (Bio2Q)  
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Title photo taken by Oltea Sampetean. Used with permission.

## WELCOME ON BOARD!

In this issue, we would like to introduce three new members who have joined Bio2Q between Dec.-Jan.

### DR. ERIKO MIURA, TECHNICAL STAFF

I have studied neuronal anatomy, morphology and immunohistochemistry in graduate school. After completing the course, I started working as a technical staff in the Department of Physiology at Keio University School of Medicine 15 years ago. I mainly use confocal laser microscopy and electron microscopy in my experiments, but also do molecular work, IUE and IVF of mice. I am pleased to announce that I am now a member of Bio2Q and will be learning CryoEM anew. Please feel free to contact me to discuss how I can assist you with my skills and knowledge.



Eriko Miura  
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### DR. DANIEL MENDE, BIO-1 CORE PI

Hello everyone, My name is Daniel Mende, and I am a new Bio2Q PI. I grew up in Germany and successfully pursued my PhD with Peer Bork at the EMBL in Heidelberg, Germany, pioneering different approaches to investigate microbiomes using metagenomics. After a postdoc with Ed DeLong at the University of Hawaii studying marine microbial communities, I became an assistant professor at the Amsterdam University Medical Center returning to the study of human microbiomes. My goal at Bio2Q is to understand the inner workings of microbial communities and their evolutionary history by using computational approaches to analyze multi-omics datasets. Within Bio2Q, I wish to establish fruitful collaborations to achieve our mutual goals as a research center.



Daniel Mende  
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### DR. NADINATH NILLEGODA, BIO-1 CORE PI

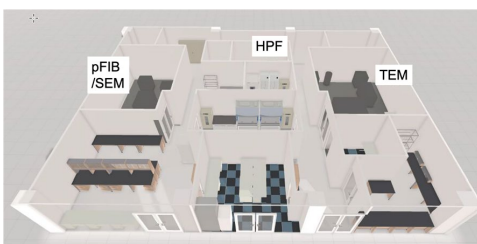
I am thrilled to join Bio2Q as a PI/Professor and contribute to its groundbreaking research efforts. I hold a Ph.D. in Biomedical Sciences from New York University and the Icahn School of Medicine at Mount Sinai, USA. I completed my postdoctoral studies at Heidelberg University, Germany as an Alexander von Humboldt Fellow and held appointments at German Cancer Research Center, Monash University, and NHMRC, Australia. At Bio2Q, my team will investigate primate-specific adaptations in cell and protein repair pathways, an area we are pioneering, and their role in protecting gut barrier integrity after proteotoxic damage caused by dysbiosis, transforming our understanding of gut health and potentially advancing treatments for gut-related diseases.



Nadinath Nillegoda  
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## STRUCTURAL ANALYSIS UNIT WILL OPEN SOON!!

### 【FACILITY INTRODUCTION】



Lab layout, 1S3-5, Bio2Q 2025. Original image.

Our new laboratory, Structural Analysis Unit is being constructed in 1S3-5 on the first floor of the Center for Integrated Medical Research, and

it will be a unique core facility of the structural biology to reveal the molecular mechanism of the multi-organ interaction. To see the structures of molecules at the high resolution and in the physiological condition, the specimens need to be purified/prepared, cryo-fixed, fabricated to be thin and imaged by the electron microscope (EM). Here, we are establishing the all-in-one facility from the sample prep, EM imaging, all the way to computational analysis through cutting-edge workflow, high pressure freezing (HPF) -> plasma focused ion beam (pFIB)

milling -> transmission electron microscope (TEM)-imaging for the *in situ* structural biology. Some of the state-of-art equipment for this procedures will be installed here for the first time in Japan and this facility will enable our research that no one else in the world has ever accomplished by utilizing cryo-electron tomography (cryoET) as well as single particle analysis (SPA) and micro-electron diffraction (MicroED). New instruments will be introduced in the next issue of "Bio2Q Connect" newsletter.

(Kunimichi Suzuki, Jr. PI)

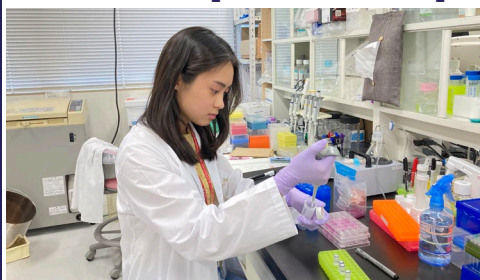
## WHAT IS WPI-BIO2Q RESEARCH INTERNSHIP PROGRAM?

WPI-Bio2Q's STaMP Research Internship Program offers a research internship opportunity for the qualifying applicant, whether currently in Japan or abroad, who is currently enrolled in or has just graduated from a bachelor's or master's program, and wishes to continue studying at the Keio University Graduate School of Medicine, Graduate School of Science and Technology, or Graduate School of Pharmaceutical Sciences, in a field related to WPI-Bio2Q. The research interns typically spend 4 to 8 weeks to experience studying at multiple accepting laboratories. Round-trip expenses and daily allowance (for days worked 4 hours or more) are provided. For further details, please access our website at: [https://bio2q.keio.ac.jp/wp-content/uploads/Bio2Q\\_Research\\_Internship\\_Program\\_Application\\_Guidelines.pdf](https://bio2q.keio.ac.jp/wp-content/uploads/Bio2Q_Research_Internship_Program_Application_Guidelines.pdf)



Photos above and above-right are provided by Lianne Bianca Cagalingan. Used with permission.

## Lianne Bianca Cagalingan, Research Intern [2024.9 - 2025.3]



“After completing my undergraduate studies in molecular and cellular biology at Keio SFC, I developed an interest in exploring the fields of neuroimmunology and pathology. My limited exposure to medical science research during my undergraduate years motivated me to seek opportunities to bridge the gap between basic and clinical sciences. The Bio2Q Research Internship program presented the perfect platform for this exploration, allowing me to rotate the laboratories of Prof. Kazuyoshi Ishigaki, Prof. Toshiro Sato, and Prof. Michisuke Yuzaki. These rotations enabled me to immerse myself in diverse research environments and identify my research interests before committing to postgraduate studies. The internship experience has been both challenging and rewarding, providing an inspiring, collaborative space to integrate fundamental sciences with medical applications and deepen my understanding of medical science through real-world research.”

## OPEN LAB UPDATES

The Open Lab welcomed two new PIs at the start of the year. Also, at the end of 2024, we added a **Leica SP8 Lightning Confocal Microscope**. The microscope is housed in the Open Lab Microscope Room, which can be used as a dark room. To introduce briefly, it is a state-of-the-art imaging platform that delivers ultra-high resolution and sensitivity for detailed cellular and sub-cellular imaging. Its versatility in live-cell imaging and multi-channel fluorescence makes it a fantastic



SP8 Lightning confocal Microscope Bio2Q 2025. Original Photo

tool for exploring dynamic biological processes, such as protein interactions and tissue architecture. The Open Lab Cell Culture Room has

also acquired a new cell counter, and we expect the Lab to continue to develop to meet the needs of Bio2Q researchers, both established and incoming. Lastly, we are pleased to announce that the reservation and usage flow of Open Lab machines has been decided. Please look out for an official announcement soon about the procedures. We hope that researchers will be able to make full use of all the Open Lab facilities.

(Ryan Browne, Technical Staff)

## UPCOMING EVENTS OF WPI-BIO2Q

### Science Meeting Series

Feb.5 (Wed) 14:00-15:00  
#14: Jr.PI, Timur Tuganbaev  
@JKiC 1F & zoom (hybrid)

Feb.26 (Wed) 14:00-15:00  
#15: PI, Daniel Mende  
@JKiC 1F & zoom (hybrid)

Mar.19 (Wed) 14:00-15:00  
#16: Jr.PI, Oltea Sampetean  
@JKiC 1F & zoom (hybrid)

WPI: World Premier International Research Center Initiative  
Bio2Q: Human Biology-Microbiome-Quantum Research Center

**The 3rd Keio University WPI-Bio2Q International Symposium** 2025

Integrating **Biology, Microbiome, and Immunology for Healthy Longevity**

VENUE: ON-SITE only  
KITASATO Hall,  
2F Kitasato Memorial Medical Library  
Keio University Shinanomachi Campus  
35 Shinanomachi, Shinjuku-ku, Tokyo, Japan

Pre-registration required

**3/6 Thursday 3/7 Friday**  
1:00PM - 6:00 PM 10:00AM - 3:00 PM

WPI-Bio2Q is currently accepting participants for its 3<sup>rd</sup> International Symposium. Please visit our website for more details:

<https://bio2q.keio.ac.jp/news/wpi-bio2q-third-symposium/>

❖ Registration ❖  
<https://forms.gle/fVeQuVERRofy3QeJ7>

## WPI-Bio2Q Members (as of Jan. 1, 2025)

Position	F	M	Total
PI	2	19	21
Jr.PI	3	6	9
Postdoc	2	3	5
Int'l Collaborator	5	8	13
Affiliated PI	1	8	9
WPI RA	4	10	14
Technical Staff	1	1	2
Advisor	0	5	5
URA	1	2	3
Admin. Staff	10	2	12
<b>Total</b>	<b>29</b>	<b>64</b>	<b>93</b>

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The next "Bio2Q Connect" will be issued on March 29, 2025.