



WPI-Bio2Q NEWSLETTER

Bio2Q Connect

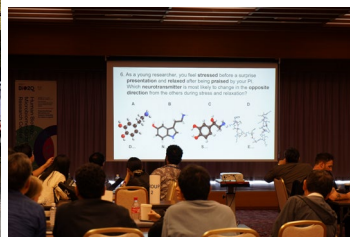
Title photo taken by Oltea Sampetean. Used with permission.

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ESTABLISHING A BIO2Q NETWORK OF RESEARCHERS

The 2nd WPI-Bio2Q Retreat was held on June 5 and 6 in Shuzenji, Shizuoka prefecture. Fifty scientists and staff members participated in the retreat. Three participants share their reflections.



All photos are Bio2Q original and used with permission.

The discussions I had with researchers from other labs during the retreat were incredibly valuable and helped broaden my perspectives. As teams, we each presented our research projects and explored how to address their challenges. This process deepened our mutual understanding and allowed us to identify respective strengths and weaknesses, fostering creative solutions through interdisciplinary perspectives. The group activities also fostered strong team chemistry. For example, the outdoor “rogaining” activity required strategic thinking and teamwork—skills that are equally essential in scientific research. The retreat helped me visualize my goals and better understand the kind of researcher I aspire to become. I look forward to participating in more workshops and contributing to the program alongside my peers.

(Maho Uemura, WPI RA (STaMP))

“Bringing Bio2Q Together”

This year's Bio2Q retreat was more than just a break from the lab, it was a great opportunity to connect, collaborate, and recharge.

It all started with an insightful talk by Dr. Scott Behie on scientific communication.

His talk really resonated with many of us. The quiz session afterward sparked some fun, friendly rivalry and lively team spirit. One of the main highlights was a group challenge activity, each team was tasked with exploring a big question about microbiome-human interactions, challenges studying them, and how to overcome them with different approaches i.e AI/Quantum. It was wonderful to see everyone's different skills and perspectives coming together in such a collaborative way. The next day, gears shifted with more outdoor sessions with a photo roving where teams explored the area, found checkpoints. The combination of physical activity and light-hearted competition helped bring everyone together in a new and fun context. The beautiful natural surroundings, relaxing onsen, and clear views of Mt. Fuji made the retreat even more memorable. For many of us who spend long hours at the desk or in the lab, the retreat provided a much-needed mental reset.

Overall, the retreat strengthened the sense of community within Bio2Q and reminded us of the value of collaboration, not just across research areas, but across people. Thanks to the organizers and staff for creating such a well-balanced retreat!

(Vinodh, Postdoc)

This year's retreat was a great opportunity to get to know each other and foster our motivation toward interdisciplinary research. I am still a newcomer to Bio2Q - the retreat was a great opportunity to talk to broad range of people, from students to PIs, particularly members who work in different campuses. One main event was a focused group discussion and presentation by members with diverse research fields. Through this discussion and presentation, we realized the potential of interdisciplinary collaboration to address big biological and medical challenges, such as understanding of complex biology in gut-to-brain axis. At the same time, we also got to know that there are multiple layers of hurdles in exchanging opinions and limitations of different fields. This priming toward cross-disciplinary research was most impressive and valuable take-home, and I am confident that our shared experience will be a basis that strongly drive the unity and ambition of Bio2Q. It was also a great opportunity to express our appreciation to coordinating staffs and enjoy the relaxing atmosphere in beautiful nature and onsen of Shuzenji. Thank you Bio2Q staff again for coordinating this wonderful retreat!

(Shohei Kojima, Jr. PI)

WELCOME ON BOARD!

We are delighted to introduce two new members who joined Bio2Q in June.

DR. LEONIE BROCKMANN BIO-1 CORE JR. PI

Hello Bio2Q community! I am excited to join you in studying the critical dialogue between gut microbes and the immune system. During my PhD at the University of Hamburg, I identified key signals that induce and maintain immunosuppressive Tr1 cells in the gut microenvironment. As a postdoc at Columbia University, I revealed how specific commensal bacteria can program effector T cells toward anti-inflammatory fates. Now at Bio2Q, I aim to: (1) define microbial metabolites and host-derived signals guiding immune cell decisions, (2) map plasticity in gut tolerance programs, and (3) develop targeted microbial interventions. Let us collaborate to turn gut-immune insights into human health solutions!



Leonie Brockmann
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DR. SCOTT WILLIAM BEHIE DIRECTOR OF RESEARCH PROGRAMS

Hello everyone, My name is Scott Behie, and I'm thrilled to be joining Bio2Q as the new Director of Research Programs. I'm looking forward to working



Scott William Behie
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closely with all of you to help elevate the impact and visibility of the outstanding science happening across the institute. I earned my PhD at Brock University, where I studied microbial ecology with a focus on nutrient transfer in plant-microbe interactions, genetics, and microbial chemistry. My postdoctoral research at UC Berkeley expanded on this foundation, exploring the composition, genetics, and chemistry of naturally occurring microbiomes to uncover bioactive small molecules and to better understand how microbiomes function in natural systems. My research interests are highly interdisciplinary and I'm especially drawn to work that connects diverse fields like ecology, molecular biology, microbiology, and biotechnology. I'm also deeply passionate about scientific communication and excited to support efforts that amplify the reach and resonance of our research. I look forward to collaborating with all of you!

OPEN LAB UPDATES

We are pleased to share the latest developments from the Bio2Q Open Lab. First, please join us in warmly welcoming three new Jr. PIs who will make use of the lab: Dr. Kojima, Dr. Brockmann, and Dr. Shihoya - we look forward to the exciting new directions their projects will bring to Bio2Q. Over the past few weeks, we have seen a notable increase in lab usage and coordination among Bio2Q members. It's encouraging to see more shared discussion taking place across researchers, which will no doubt have been strengthened by the recent Bio2Q Retreat and the new connections made there. Research using organoids and induced pluripotent stem cells will soon take place in the Open Lab for the first time. To support this, new equipment has been installed in the cell room.

We are expecting great results from this research at the forefront of biology. As always, we encourage everyone to make the most of the Open Lab, whether by trying new techniques, connecting with fellow researchers, or simply dropping by to see what others are working on.

(Ryan Browne, Technical Staff)



LS6000 Storage Tank
Bio2Q 2025. Original Photo

UPCOMING EVENTS

July 23 (Wed) 14:00-15:00 Science Meeting Series #29: PI, Tomoyoshi Soga (Online)

July 24 (Thu) 17:00-18:00 WPI-Bio2Q Open Seminar by Dr. Harris Wang (Columbia Univ.) @Shinanomachi

July 28 (Mon) Yuzaki Lab Brain Club Seminar (Co-host: Bio2Q) by Dr. Tetsuo Hasegawa (MRC-LMB) @Shinanomachi

July 31 (Thu) 17:00-18:00 @Shinanomachi, August 1 (Fri) TBA @Shiba-Kyoritsu, WPI-Bio2Q Open Seminar by Dr. Jianguo Xia (McGill Univ., Canada)

August 4 (Mon) 14:00-15:00 WPI-Bio2Q Open Seminar by Dr. Shinichi Sunagawa (ETH Zurich, Switzerland)

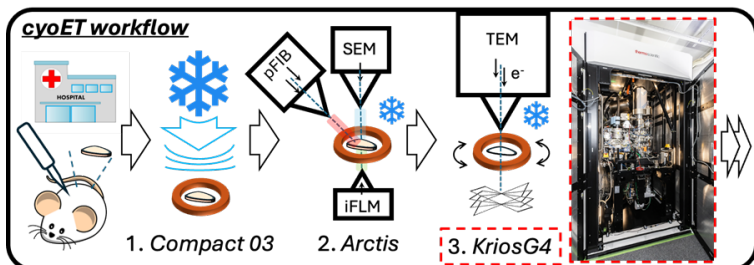
Aug 7 (Thu) 17:00-18:00 WPI-Bio2Q Open Seminar by Dr. Kazuki Nagashima (Harvard Univ.) @Shinanomachi

[NEW INSTRUMENT]

Cryo Transmission Electron Microscope, KriosG4

So far, a High-Pressure Freezer, **Compact 03** and cryo pFIB-SEM-iFLM, **Arctis** had been introduced as critical instruments of the first and second steps for *in situ* structural biology in the previous Bio2Q newsletters (May and June). Here, we introduce the third instrument, **KriosG4**, a state-of-art 300 kV transmission electron microscope (cryo-TEM), which is being installed in Structural Analysis Unit. KriosG4 in Bio2Q contains Falcon4i, direct electron detector with high speed and signal-to-noise ratio, and Selectris X, imaging filter to increase the contrast, which leads to the structural analysis with atomic resolution. For cryo-electron tomography (cryoET) pipeline, thick tissue or cell sample that is frozen by Compact 03 and fabricated to make thin

section, lamellae, by Arctis is now transferred to KriosG4 and tilt-series images are obtained by tilting CompuStage, rendering the reconstruction of tomograms with structural information in the native environment, followed by the subtomogram averaging (STA) for the detailed molecular structural analysis. In addition to cryoET analysis, Krios G4 is also used for single-particle analysis (SPA) and micro-crystal electron diffraction (microED), enabling us to reveal the structures of proteins and small molecules with high resolution. Structural Analysis Unit is working hard to set up these instruments and pipelines, and we will provide the environment and opportunity for you to carry out *in situ* structural analysis



In Bio2Q.
(Kunimichi Suzuki Jr. PI)

Cryo Transmission Electron Microscope
KriosG4. Bio2Q 2025. Original Photo

EDITING NOTE

This was my first time participating in the retreat. It was such an enjoyable experience being able to capture the participants' bright, glowing faces through my camera lens. When I had a falconry experience in Chiba the other day, I learned that trying new things, even though they may be difficult at first, can bring unexpected joy and memories. Would you like to join the retreat next year, where there are many new encounters and discoveries?

(Miyuki Ogino)

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

