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WPI-Bio2Q NEWSLETTER

Bio2Q Connect

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Bio2Q LAUNCHES LEAD50 INITIATIVE WITH INSPIRING INAUGURAL LECTURESHIP BY DR. AKIKO IWASAKI

From left, President Kohei Itoh, Dr. Clifford Paul Brangwynne, Dr. Akiko Iwasaki, and Toshiro Sato, Chair of the Keio Medical Science Prize Selection Committee. Photo: Takeshi Kishi

The 30th Keio Medical Science Prize Ceremony and Commemorative Lecture was held at the Kitasato Hall on Shinanomachi Campus on Tuesday, November 4, 2025. This year's recipients were Dr. Clifford Paul Brangwynne of Princeton University and Dr. Akiko Iwasaki of Yale School of Medicine, who is also an International Collaborator for Bio2Q. Dr. Brangwynne was honored for his research, "Discovery of Liquid-Liquid Phase Separation in Cells," and Dr. Iwasaki for her work, "Advancing Understanding of Human Immunity of COVID-19."

EVENT REPORT – INAUGURAL Bio2Q “LEAD50” LECTURESHIP

On November 5, Bio2Q had the privilege of hosting the inaugural “LEAD50” lectureship, delivered by our distinguished international collaborator, Dr. Akiko Iwasaki. The event highlighted how scientific breakthroughs arise not only from rigorous intellectual and experimental pursuit but also from a thoughtfully navigated personal journey. Dr. Iwasaki exemplified this dual path, offering compelling insights into career development, resilience, and scientific leadership.

Her presentation resonated strongly with attendees and stimulated dynamic discussion. Several young students posed concrete questions, demonstrating genuine curiosity and eagerness to shape their own scientific futures. Their engagement underscored the lectureship’s impact in motivating early-career researchers.

The event set an inspiring benchmark for the Bio2Q LEAD50 initiative, recently launched to provide mentorship and visibility to exceptional women scientists. This inaugural lectureship marked a promising beginning, encouraging participants to pursue scientific excellence with ambition and purpose.

(Oltea Sampetrean, Administrative Director, PI)

Photo courtesy of Keio University Medical Science Fund

14TH WPI SCIENCE SYMPOSIUM – “NEW SCIENTIFIC EYES FOR CHANGING THE FUTURE”

The 14th WPI Science Symposium was held at Tsukuba International Congress Center in Tsukuba, Ibaraki, on November 15, 2025. From Bio2Q, Dr. Keiko Matsuda, Jr. PI Bio2-Core, presented a poster on the mechanism of synapse formation. The event also featured exhibition booths from all 18 WPI centers and networking between high school students and WPI researchers.

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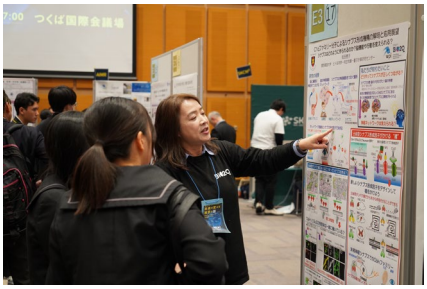
“On November 15, I attended the Science Symposium at the TSUKUBA International Congress Center, where students proudly presented their research. Their clear explanations of the creative processes behind their work were truly impressive, and several high school students showed remarkable ability to organize observations logically and express them in their own words, highlighting their potential as future researchers. The event also helped me deepen my understanding of initiatives at other WPI institutes. During the introduction of Bio2Q’s research, many students asked insightful and thoughtful questions, demonstrating strong interest in our activities. Their curiosity and enthusiasm were inspiring, and I hope that these experiences will one day lead them to pursue research at Keio Bio2Q, where we can work together to advance science.”

(Keiko Matsuda, Jr. PI)



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INTRODUCTION TO Bio2Q RESEARCH

Series #9: **Dr. Ashish Joshi**
Postdoctoral Fellow,
Q Core

Quantum computers use fundamental principles of quantum mechanics to solve certain problems faster than classical computers. While still at its nascent phase, rapid advances are being made in quantum hardware whereas a similar progress in quantum software is lacking. This problem is more severe in biology, where even identifying the biological problems amenable to a quantum computer is challenging. My research attempts to fill this gap by developing algorithms for biological problems that can potentially be faster than the current state-of-the-art classical algorithms.
In our latest work, we designed a quantum algorithm to study metabolic networks. We used quantum interior point methods with quantum singular value transformation as the subroutine to solve the system of linear equations obtained in metabolic network analysis. With this work, we presented the first application of quantum algorithms to metabolic pathway analysis, establishing a new direction for quantum computational biology.

Ashish Joshi. Used with permission.

MEET OUR NEW RESEARCH INTERNSHIP STUDENTS - 2 -

In the previous issue, we introduced two of our four research interns for this fall. We are now delighted to introduce the other two: Ms. Julia Tsanis-Horniblow, who recently graduated from Imperial College London, and Ms. Enya Mistry, an undergraduate student at Yale University. Both interns are currently conducting their research under the supervision of Prof. Toshiro Sato at the

From left, Enya Mistry, Julia Tsanis-Horniblow. © Bio2Q 2025

Shinanomachi Campus. Over the course of approximately eight weeks, participants have the opportunity to rotate through multiple laboratories that align with their research interests. This structure enables them to gain diverse hands-on experience and build meaningful connections at Bio2Q.
For more information about the Bio2Q Research Internship Program, please visit the link via the QR code.

COMPREHENSIVE SUPPORT FOR STARTING LIFE IN JAPAN

As part of our support for newcomers to Japan, Bio2Q has launched a welcome airport arrival assistance service under the Bio2Q Connect program, for those newly arriving in the country. We assist with essential procedures for life in Japan, such as currency exchange and purchasing transportation IC cards, and provide transportation to their accommodation while offering guidance on how to use trains and other aspects of daily life in Japan. By having Bio2Q members personally greet them at the airport, we aim to build a sense of familiarity and help them start their life in Japan with confidence and peace of mind.

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(Mayuko Sato, Administrative staff)

3RD ANNIVERSARY OF WPI-Bio2Q

On November 11, 2022, Keio University Bio2Q was selected as one of the World Premier International Research Centers – WPI Centers – under the World Premier International Research Center Initiative by the Ministry of Education, Culture, Sports, Science and Technology – MEXT, Japan. Bio2Q is the first center based at a private university to be selected since the WPI Program began in 2007, and it celebrated its third anniversary this year.

UPCOMING EVENTS

December 2 (Tue) -3 (Wed)
The 4th Keio University WPI-Bio2Q International Symposium @Shiba-Kyoritsu

Scan here for the program

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December 12 (Fri)
KEIO TECHNO-MALL 2025 @Yurakucho

Science Meeting Series

January 21 (Wed) 14:00-15:00
#35: Juntaro Matsuzaki, Affiliated PI
@Shinanomachi and Zoom (Hybrid)

January 28 (Wed) 14:00-15:00
#36: Shigeki Ishikawa, PI
@Shinanomachi and Zoom (Hybrid)

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The next “Bio2Q Connect” will be issued on December 29, 2025