

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

Keio University

WPI-Bio2Q

2nd Symposium

Tokyo, Japan Onsite & Online

July 27, 2023

WPI Research Center
Keio University



Keio University



Opening Remarks

Ryosuke TAKAHASHI

Program Officer

World Premier International Research Center Initiative



Keio University

WPI-Bio

2

posium

Integrating Biology
for Healthy Longevity

Quantum Computing

Date

July



Opening Remarks

Kenya HONDA

Keio University School of Medicine
Center Director of WPI-Bio2Q



WPI Research Center
Keio University

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Human
Microbiome
Research

慶應義塾大学 ヒト生物学-
微生物叢-量子計算研究センター

Keio University
Human Biology-Microbiome-
Quantum Research Center
(Bio2Q)

Integrating Biology,
Microbiome and
Quantum Computing
for Healthy Longevity

WPI Research Center
Keio University

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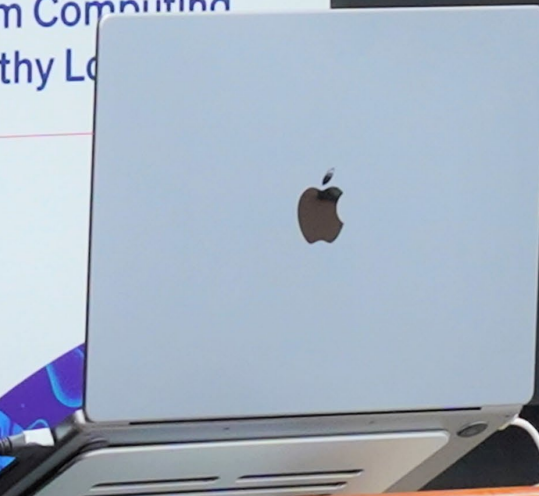
Integrating Biology,
Microbiome and
Quantum Computing
for Healthy Living

Unexpected Roles of the Gut Microbiome and the Host Immune System in Controlling Animal Behaviors

Jun HUH

Harvard Medical School, USA
Principal Investigator of WPI-Bio2Q

chaired by Kenya HONDA

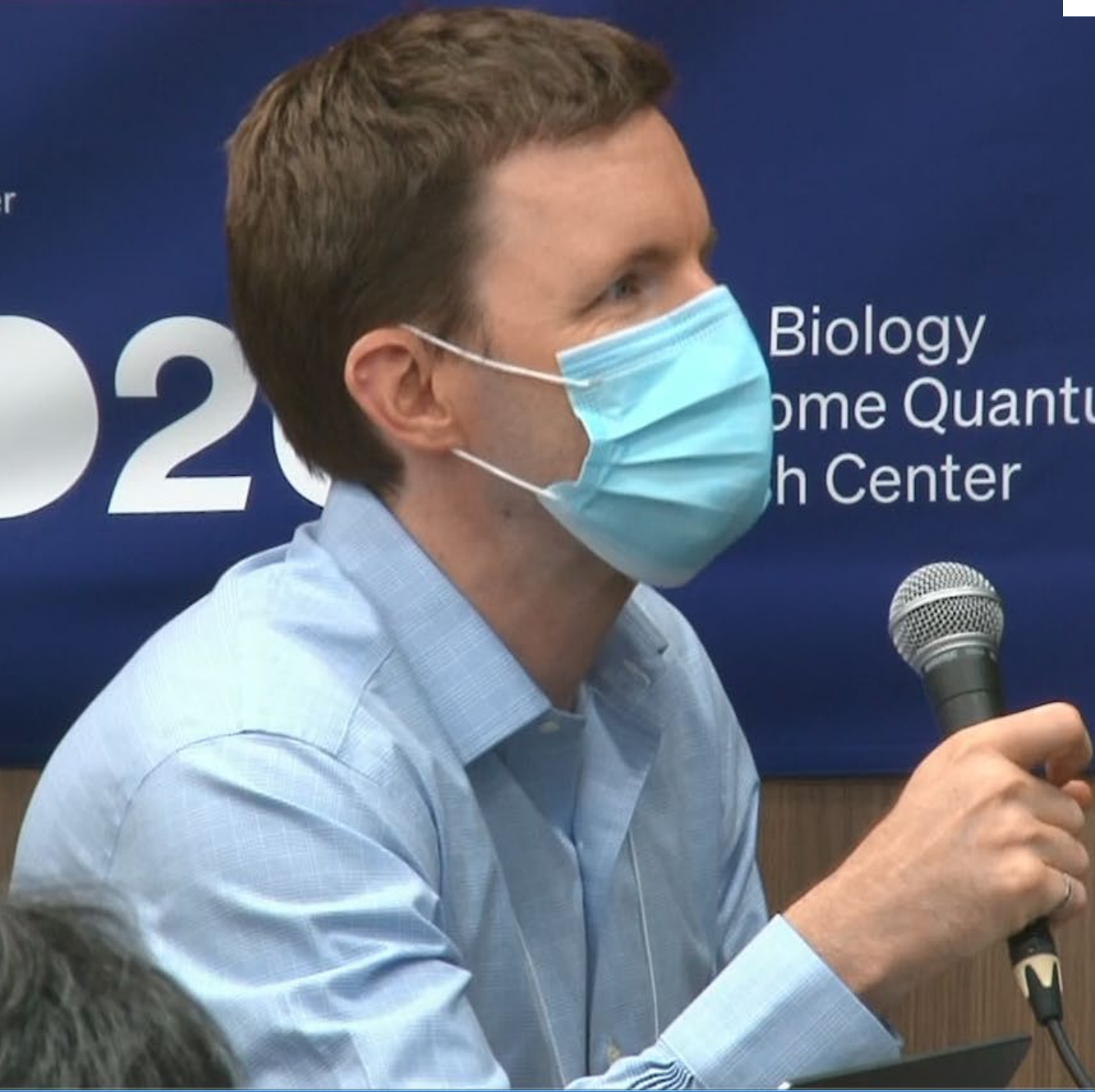


Advisor Laurent Lessard

WPI Research Center
Keio University

BiO20

Biology
ome Quantum
h Center



Microbiome-Empowered Drug Efficacy Optimization

Timur TUGANBAEV

Keio University School of Medicine, Japan
Junior Principal Investigator of WPI-Bio2Q

chaired by Kenya HONDA



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Keio University

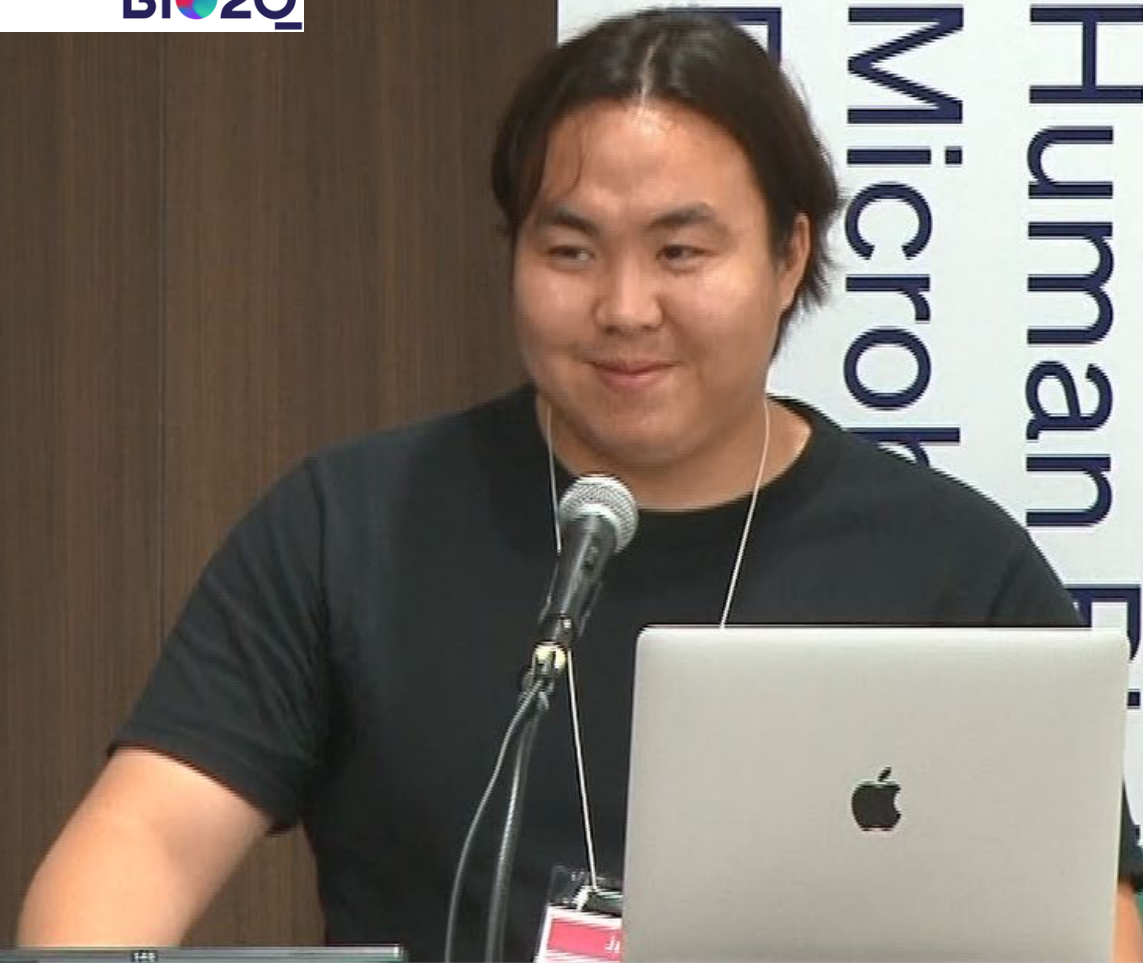
Bio2Q



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**Integrating Biology,
Microbiome and
Quantum Computing
for Healthy Longevity**





Bio20
Human Biology,
Microbiome, Quantum
Research Center



National Institute of
Advanced Industrial Science and
Technology



Host-Produced, Bacterially Modified Gut Metabolites

Sloan DEVLIN
Harvard Medical School, USA
International Collaborator of WPI-Bio2Q

chaired by Kenya HONDA



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Microbiome
Research

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**Integrating Biology,
Microbiome and
Quantum Computing
for Health and Longevity**

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Quantum Computing
for Healthy Longevity

Effects of Diet versus Gastric Bypass on Metabolic Function in Diabetes

Mihoko YOSHINO

Keio University School of Medicine, Japan
Junior Principal Investigator of WPI-Bio2Q

chaired by Koji ATARASHI

WPI Research Center
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Development of Preimplantation Embryos Requires Transposon Expression

Haruhiko SIOMI

Keio University School of Medicine, Japan
Administrative director & Principal Investigator
of Bio2Q

chaired by Koji ATARASHI



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Human
Microbiome

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for Healthy Longevity





Transposable elements (TEs)
How does the host regulate the activity of TEs?
and
How does the activity of TEs regulate the host?



chaired by Koji ATARASHI

The image shows a man in a white button-down shirt speaking into a microphone at a podium. The podium features a sign for BiO2Q with the following text: "Integrating Biology, Microbiome and Quantum Computing for Healthy Longevity". Below the text is a graphic of two overlapping circles, one purple and one green, with a DNA helix in the center. To the right of the man is a black laptop with a "ThinkPad" logo. In the foreground, a name tag on the table reads "Chair". A person wearing glasses and a white face mask is partially visible in the bottom right corner.

Understanding of Human Disease Biology using Organoids

Toshiro SATO

Keio University School of Medicine, Japan
Core Director & Principal Investigator
of WPI-Bio2Q

chaired by Koji ATARASHI



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Integrating Biology,
Microbiome and
Quantum Computing
for Healthy Longevity

Networking
Speakers
④⑤⑥
ONSITE only

2:00 p.m.-3:00 p.m.
One-on-One Networking
Meet the Speakers
①②③④⑤⑥
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Meet the Speakers
①②③④⑤⑥
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Bio2Q
Integrating Biology, Microbiome, and Quantum Computing for Healthy Longevity

Chairperson

Mayumi KIMURA
University of Tsukuba
Administrative Director of IIS

Ryosuke TAKAHASHI
Program Officer
World Premier International Research
Center Initiative

Yoko YOSHINO
University School of Medicine

Sloan DEVLIN
Harvard Medical School
International Collaborator of
WPI-Bio2Q

Kenya
Keio University
Center Director

WPI Research Center
Keio University

Bio2Q



Research
Microbiome
Human

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Neuroimmune Interactions Shaping Social Behavior

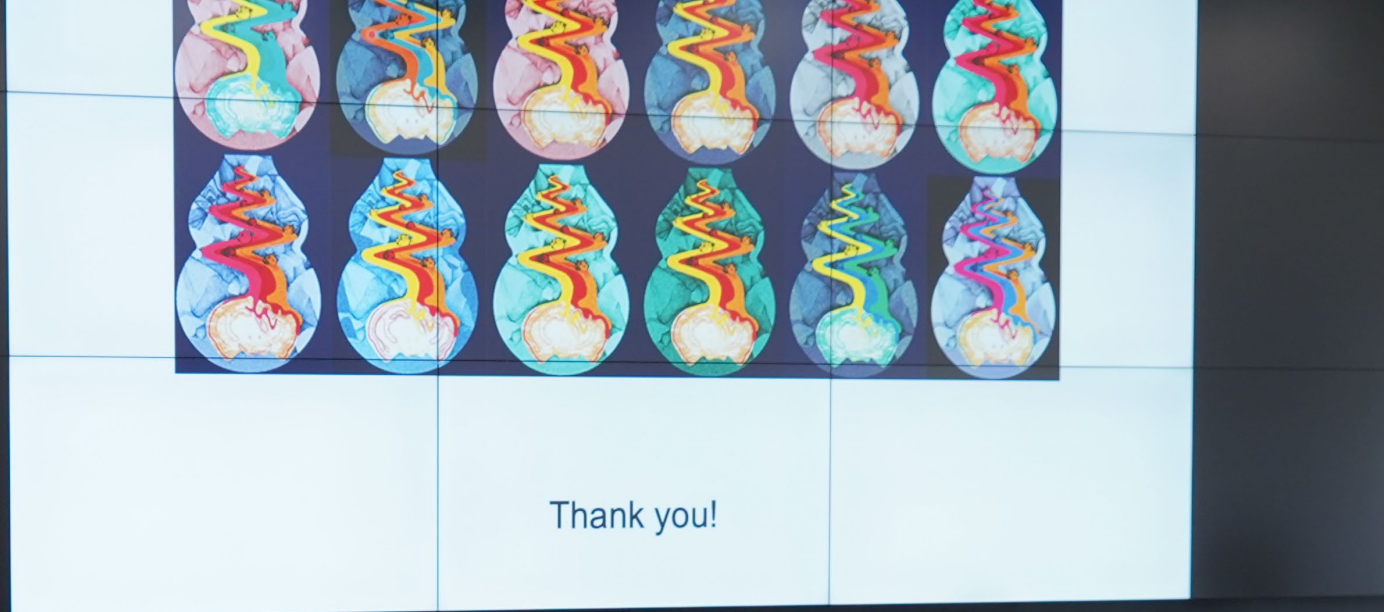
Gloria CHOI

MIT Department of Brain and Cognitive Sciences, USA
International Collaborator of WPI-Bio2Q

chaired by Michisuke YUZAKI



Bio2Q
Research
Integrating Biology,
Microbiome and
Quantum Computing
Healthy Longevity





Structure-guided Control of the Connectivity

Kunimichi SUZUKI

MRC Laboratory of Molecular Biology, Cambridge, UK

Keio University School of Medicine

Junior Principal Investigator of WPI-Bio2Q

chaired by Michisuke YUZAKI



Research Center

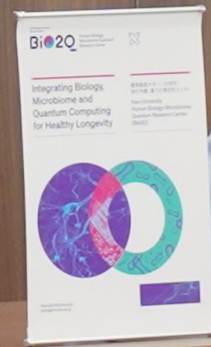
Microbiology

Pharmaceutical

Keio University
WPI Research Center
Keio University School of Medicine
WPI Research Center
WPI Research Center

Integrating Biology,
Microbiome and
Computing
Longevity





Chairperson

Ryosuke TAKAHASHI
Program Officer
World Premier International Research
Center Initiative

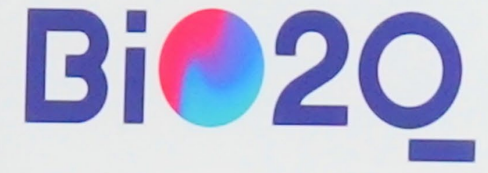


A Non-Human Primate Model for Understanding Mechanisms of Healthy Longevity

Erika SASAKI

CIEA Department of Marmoset Biology and Medicine, Japan
Principal Investigator of WPI-Bio2Q

chaired by Hideaki KAWAGUCHI



Research
M
H

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A non-human primate model for understanding mechanisms of healthy longevity

Department of Marmoset biology and Medicine, Central Institute for Experimental Animals
Erika Sasaki



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Quantum Annealing: Current Status and Future Challenges

Shu TANAKA

Keio University Faculty of Science and Technology, Japan
Core Director & Principal Investigator
of WPI-Bio2Q

chaired by Hideaki KAWAGUCHI



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Human Microbiome Research

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3:00 p.m.
One-on-One Networking
Meet the Speakers
1 2 3 4 5 6
ONSITE only

2:00 p.m. - 3:00 p.m.
One-on-One Network
Meet the Speaker
1 2 3 4 5 6
ONSITE only

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One-on-One Networking
Meet the Speakers
1 2 3 4 5 6
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Closing Remarks

Takanori KANAI

Dean, Keio University School of Medicine, Japan



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Research

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Closing Remarks

Oltea SAMPETREAN

Keio University School of Medicine, Japan

Administrative director & Junior Principal Investigator
of Bio2Q



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Rinya HONMA
Associate Professor of Keio University

Ryoko TAMAKAWA
Associate Professor of Keio University

Mihoko YOSHINO
Keio University School of Medicine
Senior Principal Investigator of WPI-Bio2Q



Lunch Break
12:45 p.m.-2:00 p.m.

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12:45 p.m.-2:00 p.m.

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Agenda

9:30 AM-9:40 AM Opening Remarks

Ryosuke TAKAHASHI / Program Officer, WPI-Bio2Q (online)

Kenya HONDA / Center Director of Bio2Q / Keio University School of Medicine

9:40 AM-12:40 PM

chaired by Kenya HONDA

① Jun HUH / Harvard Medical School, USA

Unexpected Roles of the Gut Microbiome and the Host Immune System in Controlling Animal Behaviors

② Timur TUGANBAEV / Keio University School of Medicine, Japan

Microbiome-Empowered Drug Efficacy Optimization

③ Sloan DEVLIN / Harvard Medical School, USA

Host-Produced, Bacterially Modified Gut Metabolites

[Short Break]

chaired by Koji ATARASHI

④ Mihoko YOSHINO / Keio University School of Medicine, Japan

Effects of Diet versus Gastric Bypass on Metabolic Function in Diabetes

⑤ Haruhiko SIOMI / Keio University School of Medicine, Japan

Development of Preimplantation Embryos Requires Transposon Expression

⑥ Toshiro SATO / Keio University School of Medicine, Japan

Understanding of Human Disease Biology using Organoids

12:40 PM-2:00 PM [Lunch Break]

Agenda

2:00 PM-3:00 PM

One-on-One Networking, Meet the Speakers ①②③④⑤⑥;

3:00 PM-5:00 PM

chaired by Michisuke YUZAKI

⑦ Gloria CHOI / MIT Department of Brain and Cognitive Sciences, USA
Neuroimmune Interactions Shaping Social Behavior

⑧ Kunimichi SUZUKI / MRC Laboratory of Molecular Biology, Cambridge, UK
Structure-guided Control of the Connectivity

[Short Break]

chaired by Hideaki KAWAGUCHI

⑨ Erika SASAKI / CIEA Department of Marmoset Biology and Medicine, Japan
A Non-Human Primate Model for Understanding Mechanisms of Healthy Longevity

⑩ Shu TANAKA / Keio University Faculty of Science and Technology, Japan
Quantum Annealing: Current Status and Future Challenges

5:00 PM-5:10 PM Closing Remarks

Takanori KANAI / Dean, Keio University School of Medicine, Japan

Oltea SAMPETREAN / Administrative director of Bio2Q / Keio University School of Medicine, Japan

5:10 PM-5:50 PM

One-on-One Networking, Meet the Speakers ⑦⑧⑨⑩

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