

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

Keio University

**WPI-Bio2Q**

**2<sup>nd</sup> 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-Bi**

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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

**Bio2Q**



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微生物叢-量子計算研究センター

Keio University  
Human Biology-Microbiome-  
Quantum Research Center  
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Research  
Microbiome  
Human



Integrating Biology,  
Microbiome and  
Quantum Computing  
for Healthy Longevity



A man with glasses and dark hair, wearing a blue blazer over a light-colored striped shirt, stands behind a wooden podium. He is speaking into a microphone and gesturing with his hands. A name tag on the podium reads "Jun HUH". To his right is a silver laptop with an Apple logo. Behind him is a white wall featuring the Keio University logo and the Bio2Q logo. Text on the wall includes "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)", and "Integrating Biology, Microbiome and Quantum Computing for Healthy Life".

## 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

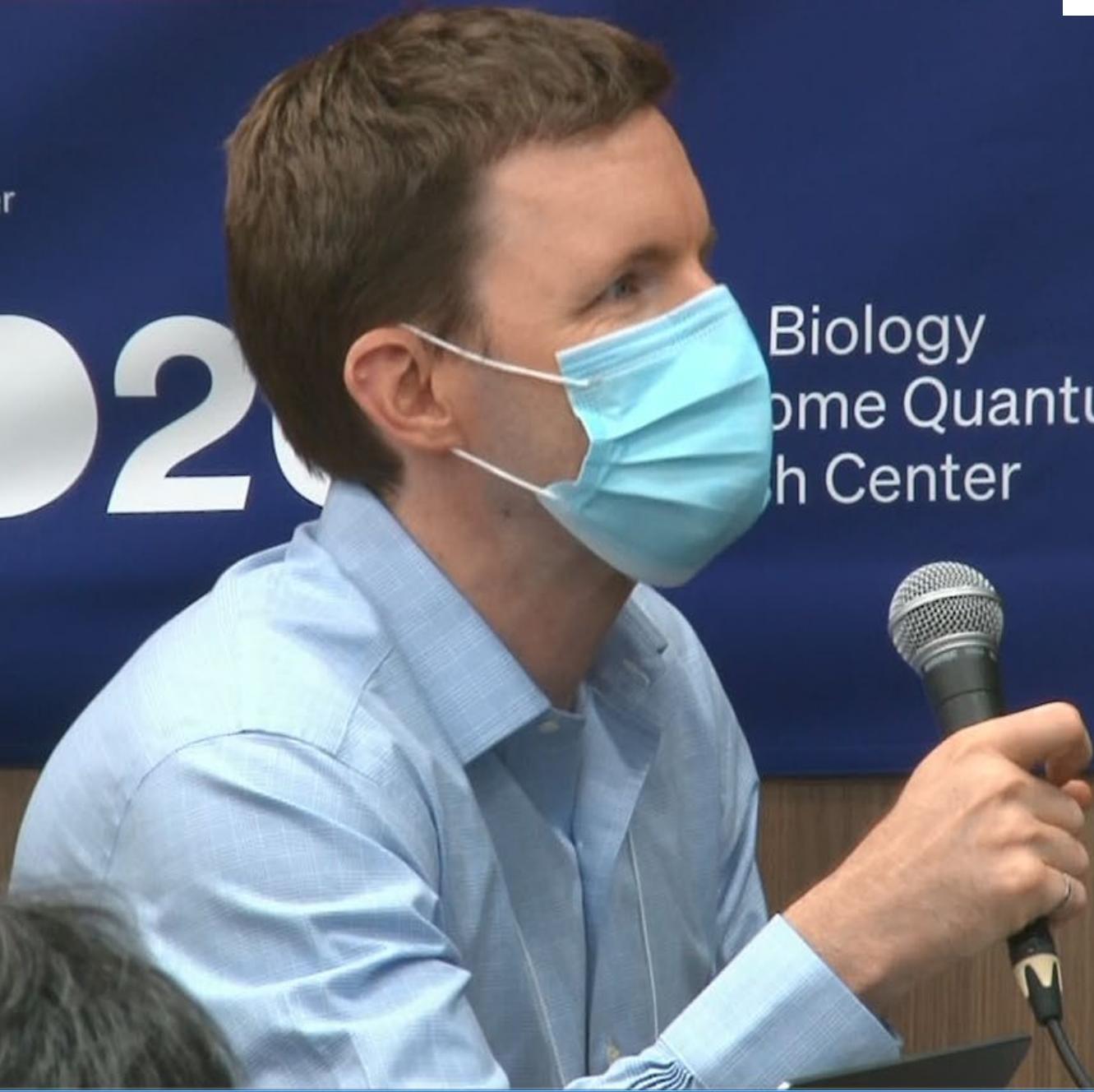
chaired by Kenya HONDA

Advisor Laurent Lessard

WPI Research Center  
Keio University

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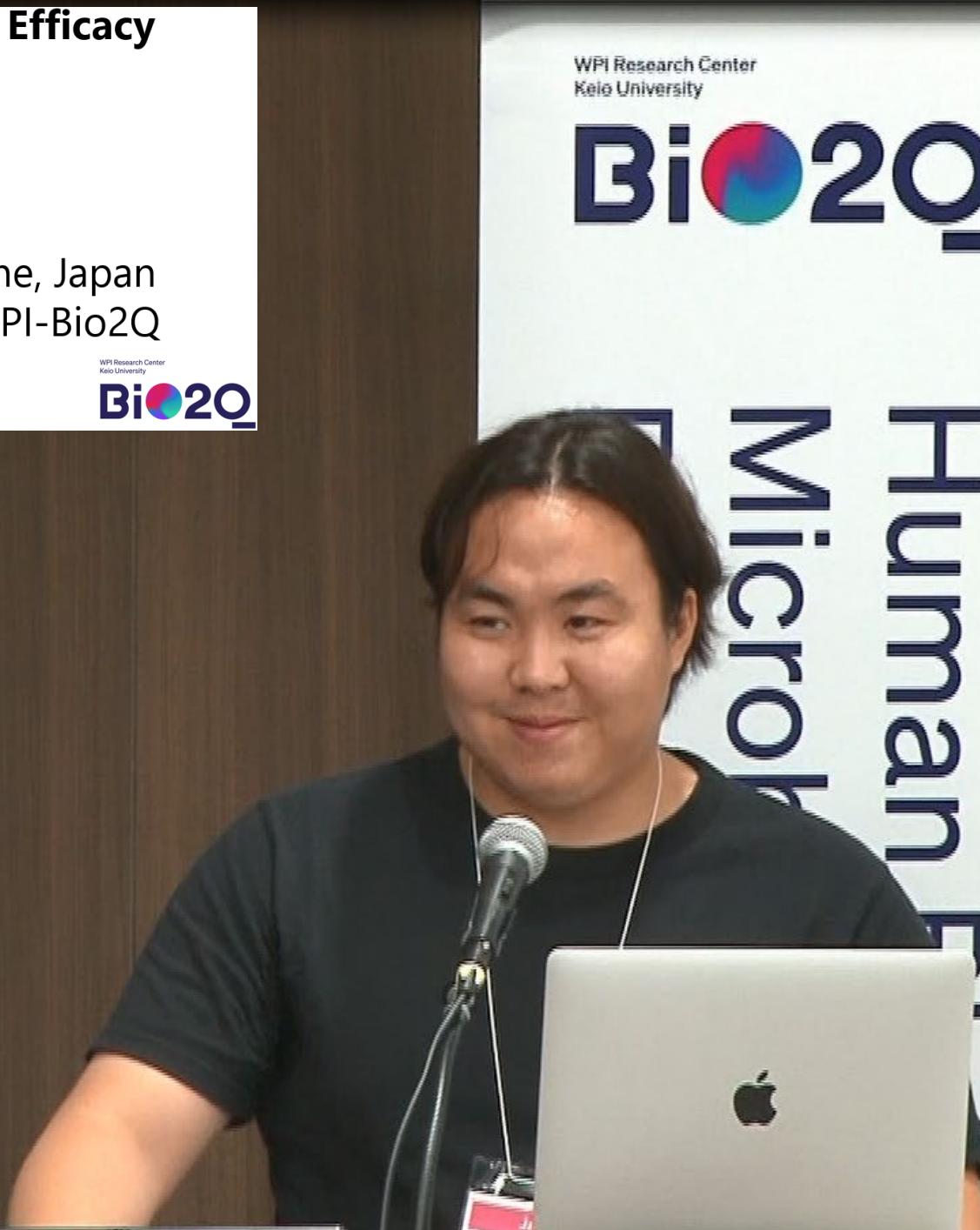


# Microbiome-Empowered Drug Efficacy Optimization

Timur TUGANBAEV

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

chaired by Kenya HONDA



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Microbiome and  
Quantum Computing  
for Healthy Longevity

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BIO2

Human Biology  
Microbiome Quantitative  
Research Center

BIO2

# Host-Produced, Bacterially Modified Gut Metabolites

Sloan DEVLIN

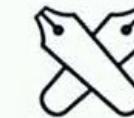
Harvard Medical School, USA

International Collaborator of WPI-Bio2Q

chaired by Kenya HONDA



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Microbiome and  
Quantum Computing  
for Health & Longevity

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Research  
Microbiome  
Hub



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## 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



# 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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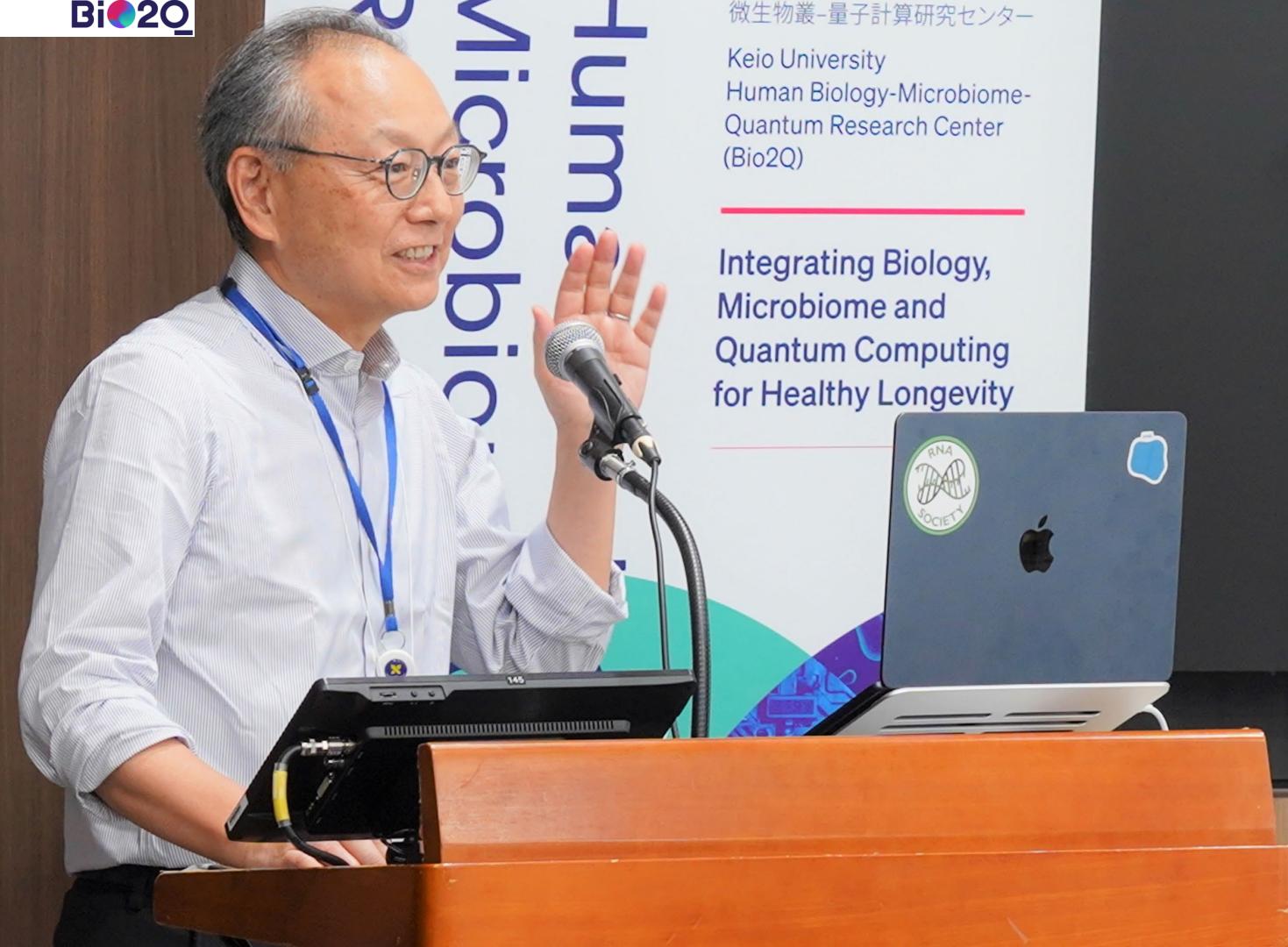


R Microbiome Human

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### Transposable elements (TEs)

How does the host regulate the activity of TEs?

and

How does the activity of TEs regulate the host?

BIO2Q  
RIKEN  
RIKEN  
RIKEN

Yoshiyuki MURAKAMI  
RIKEN Center for Integrative Medical Sciences  
An Associate Professor

chaired by Koji ATARASHI



# **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  
E only

Networking  
Speakers  
456  
E only

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



chaired by Michisuke YUZAKI





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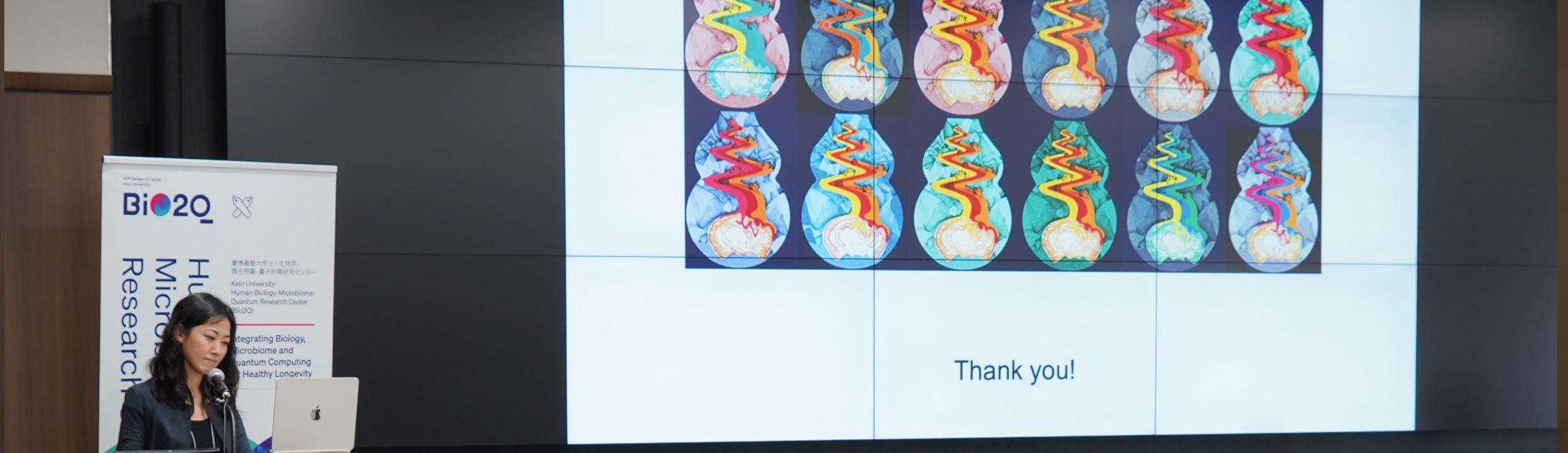


## Neuroimmune Interactions Shaping Social Behavior

Gloria CHOI

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

chaired by Michisuke YUZAKI





## 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

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Microbiome and  
Computing for Longevity

Microbiology  
Research Center

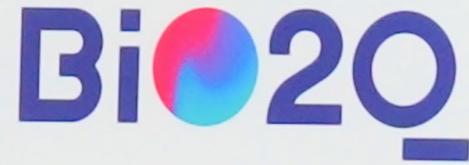


# A Non-Human Primate Model for Understanding Mechanisms of Healthy Longevity

Erika SASAKI

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

chaired by Hideaki KAWAGUCHI



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**CIEA**  
SINCE 1952

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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



# 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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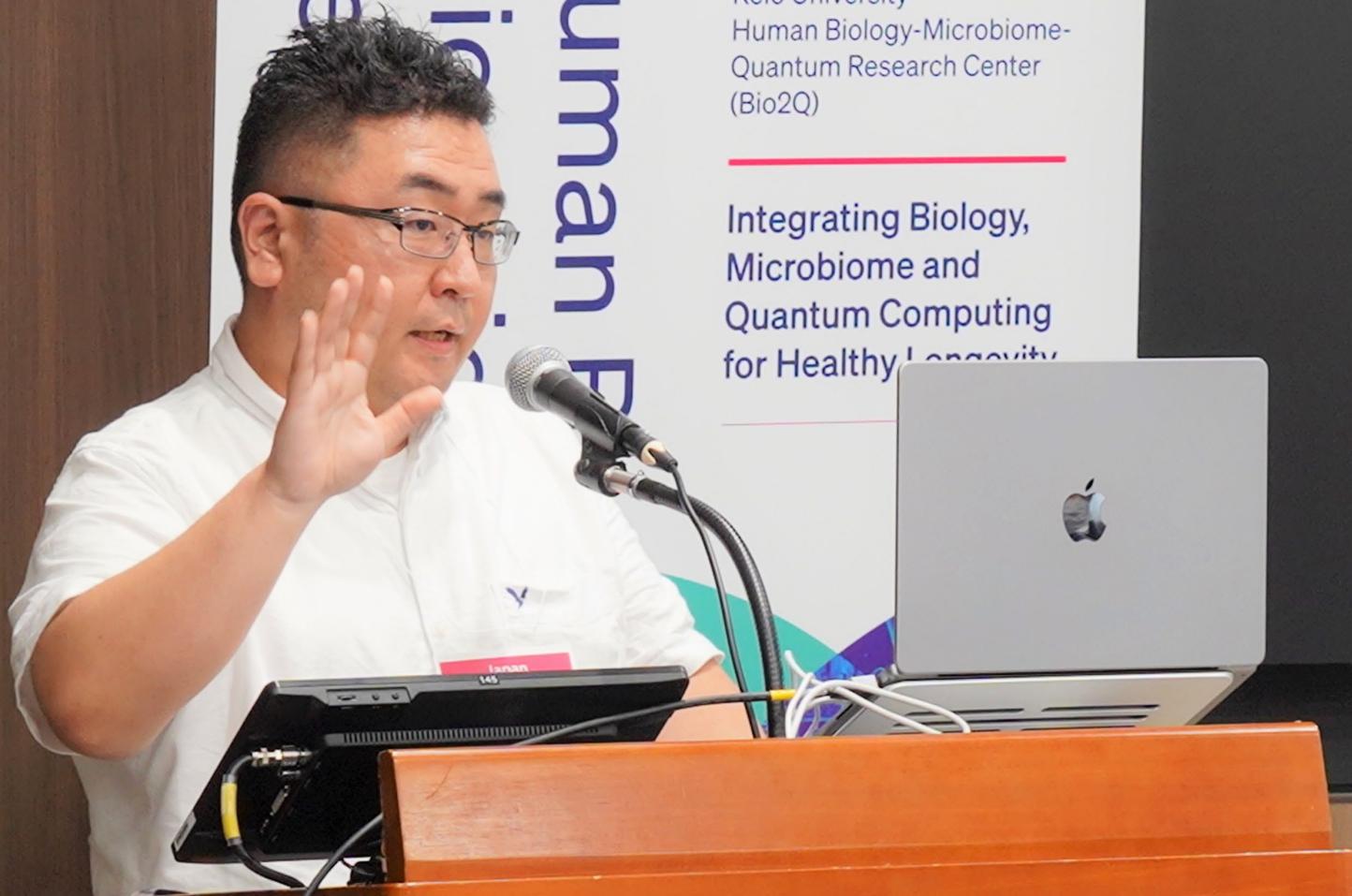
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# Closing Remarks

Takanori KANAI

Dean, Keio University School of Medicine, Japan

WPI Research Center  
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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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# WPI-Bio2Q 2nd Symposium

Tokyo, Japan Onsite & Online  
July 20, 2023



Kenya HIRADA

WPI Research Office

Keio University

Bio2Q

Human Biology

Microbiome

Quantum

Research Center

WPI Research Office

Keio University

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Human Biology

Microbiome

Quantum

Research Center

Miho YOSHINO  
Keio University School of Medicine  
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Ryujiro TAKAHASHI

WPI Research Office

Keio University

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



# 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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