

2nd IDAC (Tohoku University)

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Karolinska Institutet Symposium

~Brain and Aging~



June 2 (Mon) ~ 3 (Tue), 2025

@Institute of Development, Aging and Cancer (IDAC)

Supported by IDAC & CURE Program

Program (DAY 1) - June 2, 2025

[2nd IDAC x Karolinska Institutet Symposium : Brain and Aging]

12:00 ~ **Registration**

13:05 ~ 13:20 **Welcome Address & Opening Remarks**

Asako Sugimoto (Executive Vice President, Tohoku University)

Kozo Tanaka (Director, IDAC, Tohoku University)

Maria Ankarcrona (Head of NVS Department, Karolinska Institutet)

13:20 ~ 15:00 **Session 1 Aging and Neuroimaging**

13:20 ~ 13:45 Serhiy Dekhtyar
Aging Research Center, Karolinska Institutet

Aging Research Center at Karolinska Institute: 25 years of insights into cognitive resilience from epidemiological and neuroimaging studies.

13:45 ~ 14:10 Ryuta Kawashima
Institute of Development, Aging and Cancer, Tohoku University

Cognitive Interventions - From the Past to the Future -

14:10 ~ 14:35 Yasuyuki Taki
Institute of Development, Aging and Cancer, Tohoku University

Brain aging using large brain MRI database and lifestyle intervention research

14:35 ~ 15:00 Chengxuan Qiu
Department of Neurobiology, Karolinska Institutet

Data resources for aging research at ARC: from observational to traditional research

15:00 ~ 15:20 COFFEE BREAK

15:20 ~ 17:25 **Session 2 Aging brain and molecular mechanism**

15:20 ~ 15:45 Dorota Religa
Department of Neurobiology, Karolinska Institutet

Clinical research in aging

15:45 ~ 16:10 Takuya Sasaki
Graduate School of Pharmaceutical Sciences, Tohoku University

Brain-body physiological mechanisms to maintain homeostasis and emotion

16:10 ~ 16:35 Noriko Osumi
School of Medicine, Tohoku University, Online from UK
Paternal Aging and the Risk of Neurodevelopmental Disorders in Offspring

16:35 ~ 16:50 Fan-Yan Wei
Institute of Development, Aging and Cancer, Tohoku University
Epitranscriptome basis of brain function in learning and memory

16:50 ~ 17:00 Motoaki Sugiura
Institute of Development, Aging and Cancer, Tohoku University
Cognitive Neuroscience Application Center, Tohoku University
IDAC MRI facility complex: connecting molecules to human society

17:00 ~ 17:25 Per Nilsson
Department of Neurobiology, Karolinska Institutet
Ongoing preclinical research to mechanistically understand and treat dementia diseases

Dinner

Program (DAY 2) – June 3, 2025

09:05 ~ 9:30 **Special Lecture**

Aim and progress of the Tohoku Medical Megabank Project

Masayuki Yamamoto

Tohoku Medical Megabank Organization

The Tohoku Medical Megabank (TMM) was established in 2012 with a bold vision. TMM is dedicated to the creation of a comprehensive population biobank based on two prospective large-scale cohort studies: a population-based cohort study and a birth and three-generation cohort study, which has enrolled newborns, their parents, siblings, and grandparents. These two prospective cohorts of TMM have collectively recruited approximately 157,000 participants under a highly unique and strategic design. Beyond the initial surveys conducted to capture baseline data, TMM diligently conducts follow-up assessments every five years, ensuring a longitudinal understanding of participants' health trajectories. The integrated biobank of TMM stores more than five million of bio-specimens and houses an analytical center, which generates both genome and omics data in-house. Collaborating closely with five pharmaceutical companies, TMM embarked on a groundbreaking whole genome sequencing (WGS) initiative, successfully completing sequencing for 100,000 participants by April 2024. Additionally, TMM has undertaken plasma metabolome analyses for over 80,000 participants and Japonica microarray® analysis for nearly all enrolled individuals. Crucially, TMM is committed to modern biobank operation, sharing both data and samples with the wider research community and industry. By fostering this spirit of modern biobank, TMM aims to accelerate biomedical research and drug development. TMM also aims to pave the way for personalized healthcare interventions. One of the challenging attempts by TMM is the Return of Genomic Results to the participants. With the completion of the 50,000 WGS, we returned genetic risk of hereditary breast and ovary cancers and Lynch syndrome. We believe that our attempts are important pilot studies toward the implementation of genetic risk assessment into the personalized healthcare and medicine.

09:30 ~ 11:20 **Session 3 Bioresource in Aging study**

09:30 ~ 09:55 Shinpei Kawaoka
Institute of Development, Aging and Cancer, Tohoku University
Immuno-metabolic crosstalk in cancer cachexia

09:55 ~ 10:20 Akiko Satoh
Institute of Development, Aging and Cancer, Tohoku University
Age-related brain characteristics and sexual dimorphism revealed by awake resting-state fMRI in mice

10:20 ~ 10:45 Kozo Tanaka
Institute of Development, Aging and Cancer, Tohoku University
Chromosomal instability in aging

10:45 ~ 11:15 Daniel Ferreira & Maria Ankarcona
Department of Neurobiology, Care Sciences and Society (NVS), Karolinska Institutet
Research resources at NVS department and Karolinska Institutet

11:15 ~ 11:20 Closing Remark

11:20 ~ 12:00 Strategy meeting I ~ toward a sustainable collaboration

12:00 ~ 13:00 Lunch

13:00 ~ 14:00 fMRI core facility tour

14:00 ~ 15:00 Tohoku Medical Megabank tour

17:00 ~ 18:00 Strategy meeting II

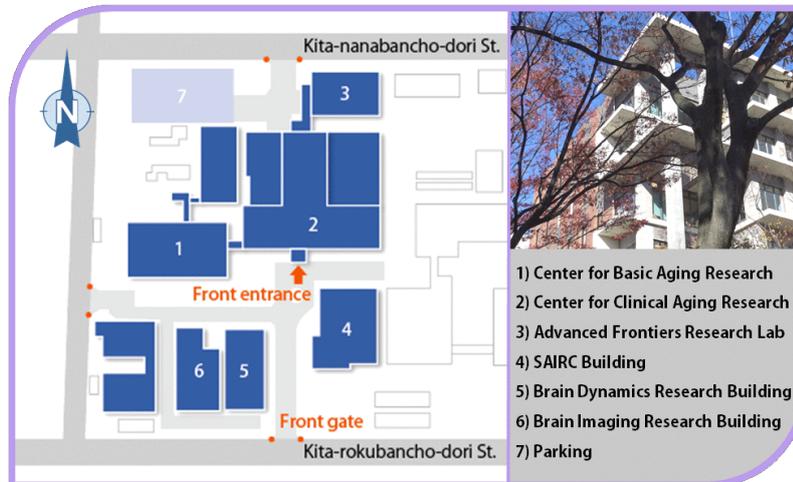
Dinner

Program (DAY 3) – June 4, 2025

Individual meetings

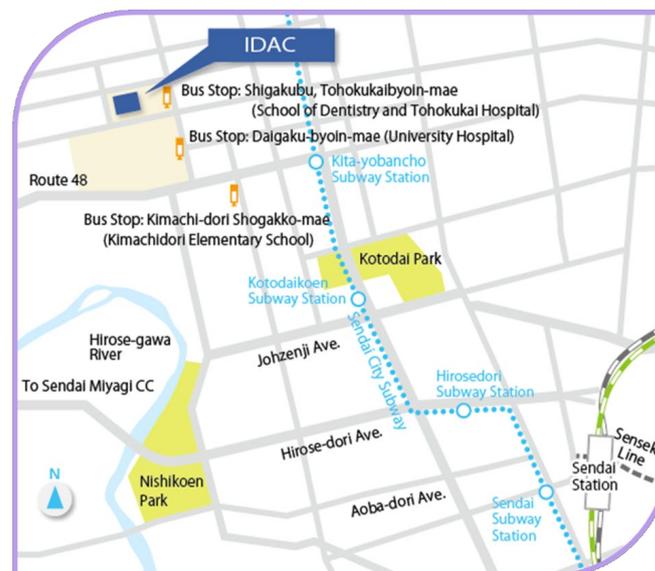
Venue

- The 1st floor of International Conference Room, Center for Smart-Aging Research (Building No. 4 in the map), Institute of Development, Aging and Cancer, Tohoku University



Access

- Take a taxi from Sendai station. Approximately 10~15 min, 1700 JPY.



Information for the speakers

- ❖ Please bring your own PC or Mac.
- ❖ If you would like to use a USB memory stick, please let the staff know about it in advance.
- ❖ Presentation (20 min + 5 min Q&A)