



***Multiscale Brain/
Molecular and Cellular Cognition Society Asia***

Constructive understanding of multi-scale dynamism of brain and its disorders

Date: June 27-28, 2022

Venue: Ito Hall, Tokyo Univ.

Zoom meeting ID : 874 0536 0524, Pass code : 651613

Organizers

Satoshi Kida (Tokyo Univ.)

Yasunori Hayashi (Kyoto Univ.)

Support

MEXT Grant-in-Aid for Scientific Research on Innovative Areas
“Constructive understanding of multi-scale dynamism of
neuropsychiatric disorders”

SECOM Science and Technology Foundation

The Uehara Memorial Foundation

The NOVARTIS Foundation (Japan) for the Promotion of Science

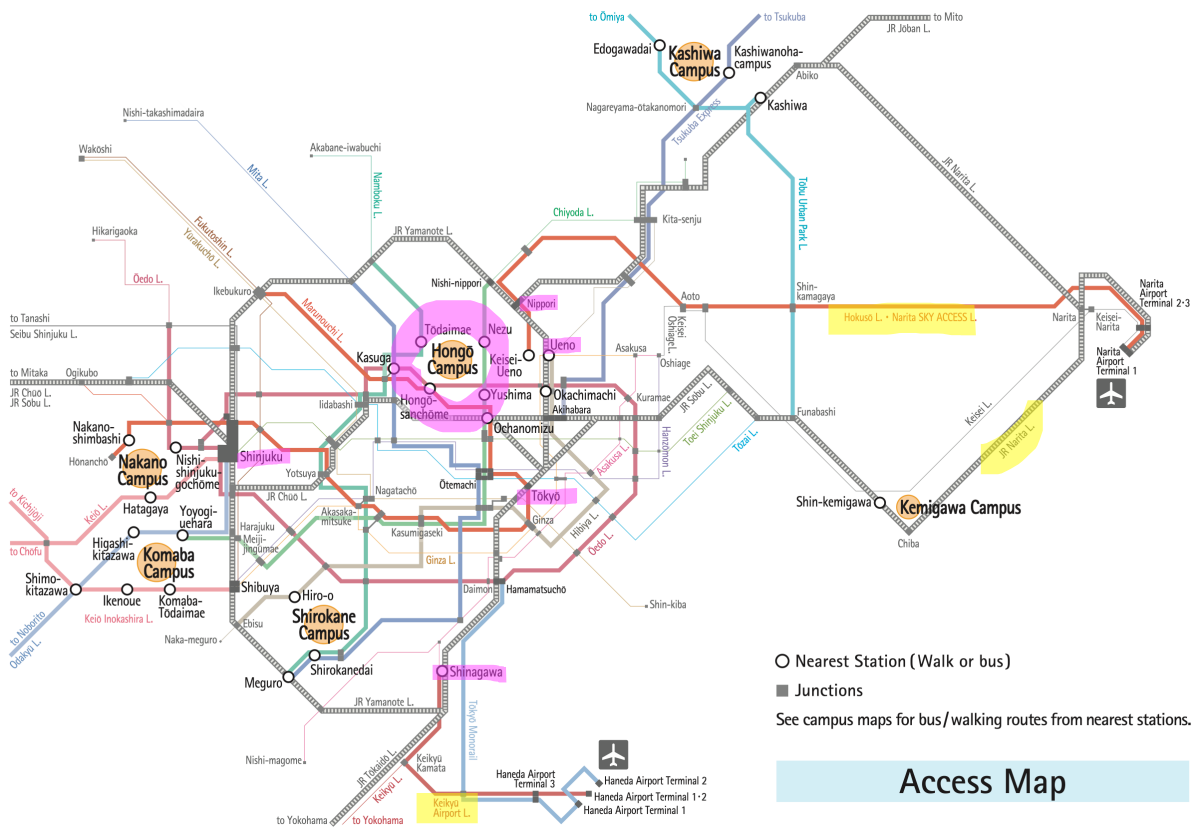
Contact

Satoshi Kida: akida@g.ecc.u-tokyo.ac.jp

Yasunori Hayashi: yhayashi-tky@umin.ac.jp

Access to Ito Hall, Tokyo Univ.

From Narita or Haneda Airport to Tokyo



Airport	Train lines and major destinations in downtown Tokyo
Narita Airport	JR Line: Narita Express to Tokyo, Shinagawa or Shinjuku Stations
	Keisei/Hokuso Sky Access Line: Skyliner to Nippori or Ueno Stations
Haneda Airport	Keikyu Airport Line to Shinagawa Station

Do not take a taxi. It is too far away and can cost >US\$200.

After arriving downtown Tokyo, please change to local line (JR or subway) to reach your hotel.

Venue and Online Participation

Ito Hall is located on Hongo Campus Tokyo Univ..

7-3-1, Hongo, Bunkyo-ku, Tokyo 113-0033
 +81-3-5841-0779 (international) or 03-5841-0779 (within Japan)
 (for GPS: 35.710N, 139.760E)

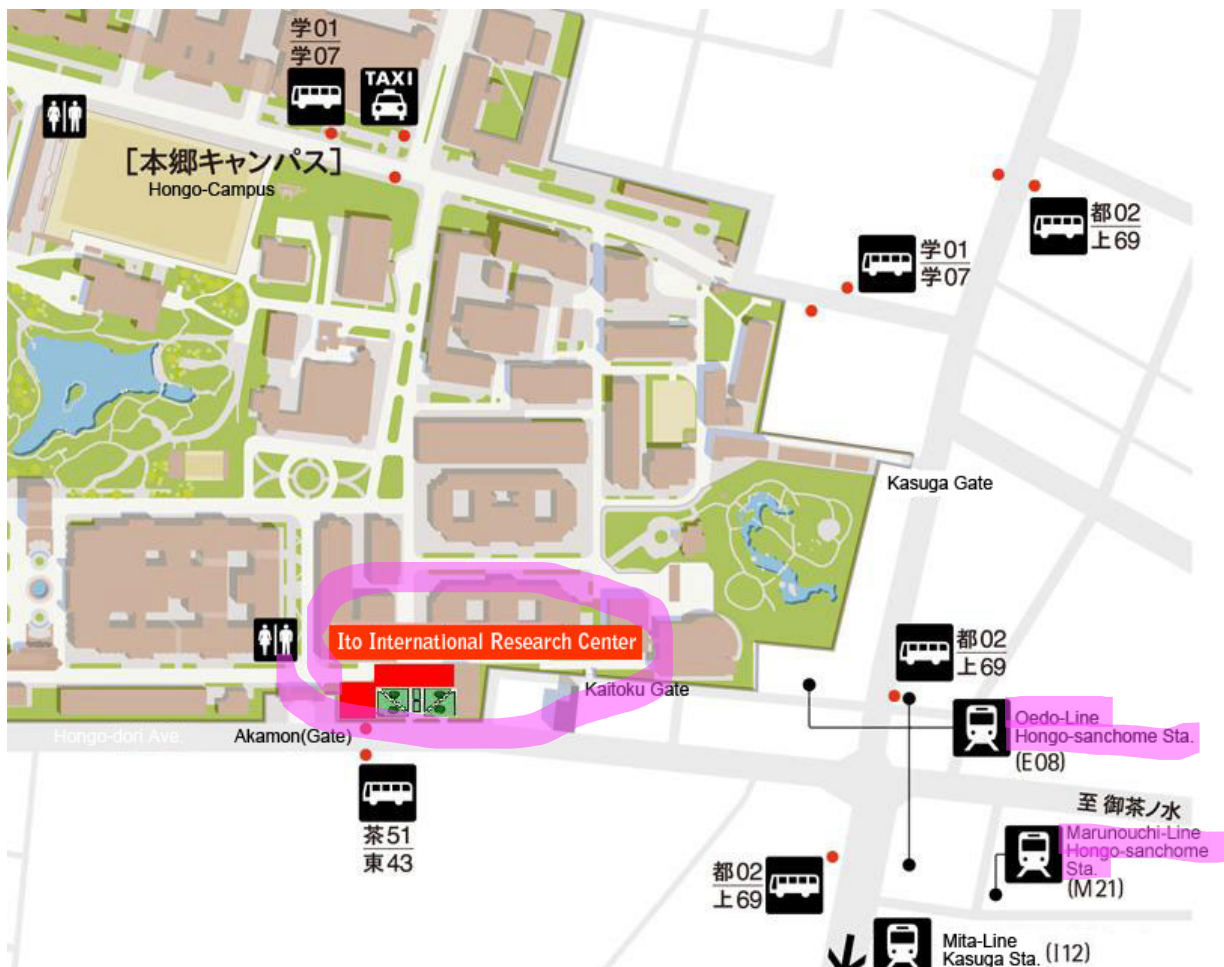
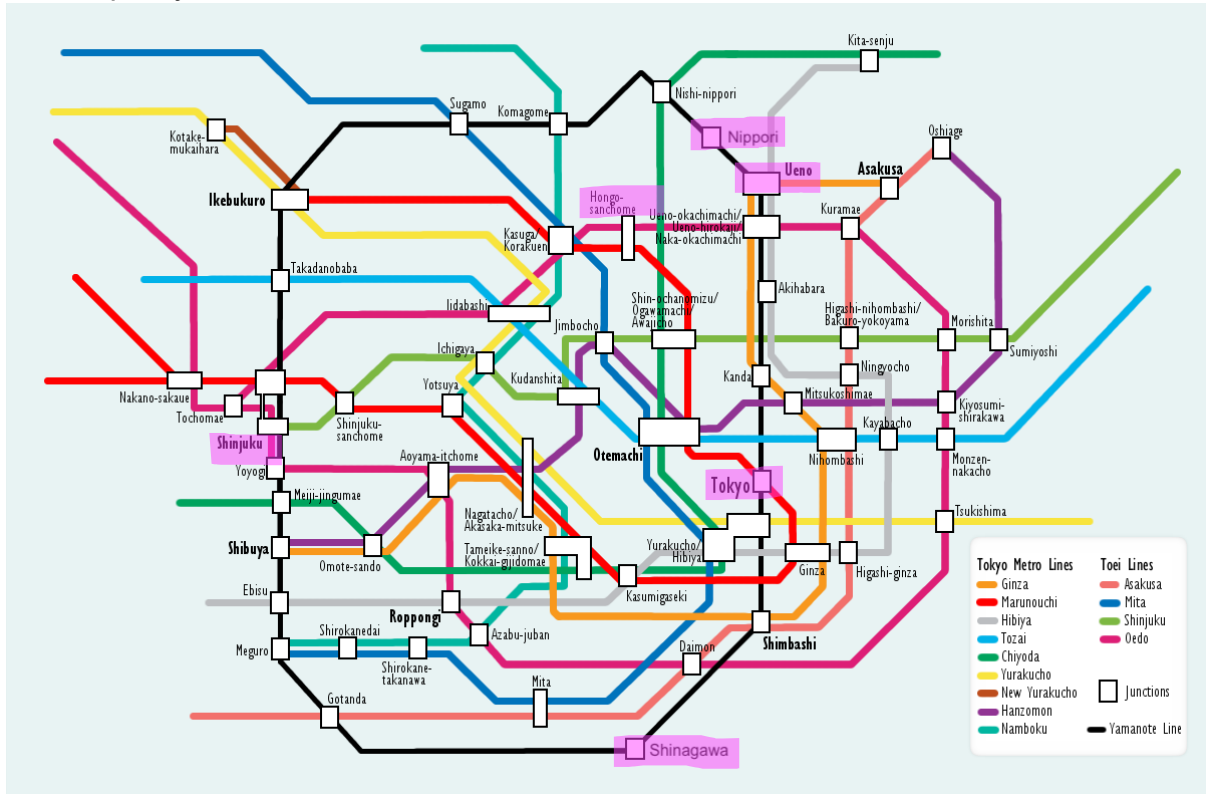
Hongo-sanchoe Station (Marunouchi and Oedo Lines) is the closest station.

<https://u-tokyo-ac-jp.zoom.us/j/87405360524?pwd=RFRma1kwczRkN245MFRyQTlpZkVvdz09>

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For simplicity, not all stations are listed.



Symposium Schedule

June 27, 2022

9:00–9:10 **Opening Remarks – Chair of Multiscale Brain**
Dr. Akiko Hayashi-Takagi (RIKEN CBS, Japan)

9:10–9:15 **Opening Remarks – MCCS Asia**
Dr. Satoshi Kida (Univ Tokyo, Japan)

<**Session 1**> Chairman; Dr. Satoshi Kida (Univ Tokyo, Japan)
Sponsored by SECOM

9:15–9:40 Dr. Alicia Che (Yale Univ, USA)
Role of GABAergic interneurons in mediating early life experiences and implications in psychiatric illnesses

9:40–10:05 Dr. Yasunori Hayashi (Kyoto Univ, Japan)
Online- and offline-LTP underlying long-term fear memory

10:05–10:30 Dr. Jelena Radulovic (Albert Einstein Med Coll, USA, **online**)
Primary cilia control the formation of lasting memories

10:30–10:45 **Coffee Break**

<**Session 2**> Chairman; Dr. Timothy W. Bredy (Univ Queensland, Australia)

10:45–11:10 Dr. Gustavo Turecki (McGill Univ, Canada, **online**)
The depressed brain at single-cell resolution

11:10–11:35 Dr. Satoshi Kida (Univ Tokyo, Japan)
Potential roles of cAMP signaling pathway in PTSD

11:35–12:00 Dr. Tadafumi Kato (Juntendo Univ, Japan, **online**)
Possible roles of paraventricular thalamic nucleus in bipolar disorder

12:00–13:00 **Lunch Break**

<**Session 3**> Chairman; Dr. Tomoyuki Furuyashiki (Kobe Univ, Japan)

13:00–13:25 Dr. Kanzo Suzuki (Vanderbilt, USA)
Synaptic mechanisms underlying rapid antidepressant action

13:25–13:50 Dr. Anatol Kreitzer (UCSF, USA)
Modulation of dopamine signaling by internal needs

13:50–14:15 Dr. Weidong Li (Shanghai Jiao Tong Univ, China)
Desipramine rescues memory deficits in mouse model of Kabuki syndrome

14:15–14:25 **Coffee Break**

<Session 4> Chairman; Dr. Ted Abel (Univ Iowa, USA)

14:25–14:50 Dr. Takanobu Nakazawa (Tokyo Univ. Agri. Japan)
Modelling psychiatric disorders with patient iPSC-derived neurons and mouse disease models

14:50–15:15 Dr. Zhihua Gao (Zhejiang Univ, China, [online](#))
Oxytocin and emotional control

15:15–15:40 Dr. Akiko Hayashi (RIKEN CBS, Japan)
Multi-scale synaptic analysis for schizophrenia

15:40–15:50 **Coffee Break**

<Session 5> Chairman; Dr. Thomas McHugh (RIKEN CBS, Japan)

15:50–16:15 Dr. Mazen Kheirbek (UCSF, USA)
Representing rewarding and aversive experiences in hippocampal circuits

16:15–16:40 Dr. Juan Song (Univ North Carolina, USA)
Hypothalamic modulation of adult hippocampal neurogenesis and its functional implication

16:40–17:05 Dr. Ted Abel (Univ Iowa, USA)
Endoplasmic reticulum chaperone genes encode effectors of long-term memory

<Poster Session>

17:05–19:00 See p8- for titles

June 28, 2022

9:00–9:05 Dr. Satoshi Kida
General Information

<Session 6> Chairman; Dr. Akiko Hayashi-Takagi (RIKEN CBS, Japan)

9:05–9:30 Dr. Takeshi Imai (Kyushu Univ, Japan)
Cortical development during adolescence

9:30–9:55 Dr. Shusaku Uchida (Kyoto Univ, Japan)
Constructive understanding of the mechanisms underlying psychosocial stress-induced behavioral heterogeneity

9:55–10:20 Dr. Tomoyuki Furuyashiki (Kobe Univ, Japan)
Inflammatory mechanisms of stress and depression

10:20–10:35 **Coffee Break**

<Session 7> Chairman; Dr. Josh Johansen (RIKEN CBS, Japan)

10:35–11:00 Dr. Matthew Girgenti (Yale Univ, USA)
Integrating single cell genomics to understand stress disorder

11:00–11:25 Dr. Atsushi Kasai (Osaka Univ, Japan)
Clastral ensemble for stress-induced anxiety responses

11:25–11:50 Dr. Takuya Sasaki (Tohoku Univ, Japan)
Hippocampal memory mechanisms underlie stress-induced psychiatric disease

11:50–13:00 **Lunch Break**

<Session 8> Chairman; Dr. Paul Frankland (Hosp Sick Kids, Canada)

13:00–13:25 Dr. Takashi Kitamura (Univ Texas, USA)
Role of Eph/Ephrin signals on anatomical and functional modules in medial entorhinal cortex

13:25–13:50 Dr. Hyungju Park (Korea Brain Res Inst, Korea, **online**)
Regulation of learning and memory by astrocytic synapse pruning

13:50–14:15 Dr. Gisella Vetere (ESPCI Paris, France)
Decoding memory formation and stabilization in mice

14:15–14:25 **Coffee Break**

<Session 9> Chairman; Dr. Takashi Kitamura (Univ Texas, USA)

14:25–14:50 Dr. Kobi Rosenblum (Univ Haifa, Israel, **online**)

Differential cell specific regulation of protein synthesis control different neuronal and behavioral processes

14:50–15:15 Dr. Paul Frankland (Hosp Sick Kids, Canada)
The supramammillary nucleus integrates environmental signals to modulate mood and cognition via hippocampal neurogenesis

15:15–15:40 Dr. Yong-Seok Lee (Seoul Natl Univ, Korea)
Role of NAc-projecting infralimbic neurons in social recognition

15:40–15:50 **Coffee Break**

<Session 10> Chairman; Dr. Yasunori Hayashi (Kyoto Univ)

15:50–16:15 Dr. Eric Klann (New York Univ. USA, **online**)
Cell type-specific and local translation in memory

16:15–16:40 Dr. Gemma Modinos (King's Coll London, UK, **online**)
Translational approaches to the role of GABAergic dysfunction in vulnerability for psychosis

16:40–17:05 Dr. Justin Lee (Inst Basic Sci, Korea, **online**)
Reactive astrocytes as the cause of Alzheimer's disease

17:05– **Closing Remarks**
Dr. Hiroyuki Nawa (Wakayama Med. Univ, Japan)

<Poster Session>

1. Cerebello-thalamo-prefrontal circuits responsible for cognitive dysfunction in psychiatric disorders

Shinichiro Tsutsumi and Akiko Hayashi-Takagi
RIKEN CBS

2. Distorted neurocomputation by heavily-weighted synapses in mental disorders

Kisho Obi-Nagata^{1,2}, Noritsu Suzuki^{1,2}, Matthew L. MacDonald³, Kenneth N. Fish³, Kenichi Nagahama^{4,5}, Tsukasa Okimura^{6,7}, Shoji Tanaka⁷, Masanobu Kano^{4,5}, Robert A. Sweet³, and Akiko Hayashi-Takagi^{1,2}

1. Laboratory for Multi-scale Biological Psychiatry, RIKEN CBS
2. Gunma Univ. Grad. Sch. Med.
3. Dept. Psychiatry, Neurology, Statistics, and Neurobiology, Translational Neuroscience Program, Univ. of Pittsburgh, Sch. Med.
4. Dept. Neurophysiol., Grad. Sch. Med., Univ. Tokyo
5. International Res. Cntr. Neurointelligence (WPI-IRCN), Univ. Tokyo
6. Dept. Neuropsychiatry, Keio Univ. Sch. Med.
7. Dept. Inform. Comm. Sci., Sophia Univ.

3. Brain-Metabolic axis: Molecular mechanism of exacerbated depression-like behaviors in a diabetes mellitus model

Yusuke Temma^{1,2}, Ryuhei Miyake^{1,2}, Kisho Obi-Nagata^{1,2}, Yuta Katayama³, Hideo Hagihara⁴, Tsuyoshi Miyakawa⁴, Keiichi I. Nakayama³, and Akiko Hayashi-Takagi¹

- 1 Lab for Multi-scale Biological Psychiatry, RIKEN CBS
- 2 Gunma Univ. Grad. Sch. Med., Gunma Univ.
- 3 Dept. Mol. Cell. Biol., MiB, Kyushu Univ.,
- 4 Div. Systems Med. Sci., ICMS, Fujita Health Univ.

4. Region- and proficiency-specific synaptic potentiation in the prefrontal cortex during learning of normal and compulsive operant behavior

Nozomi Asaoka, Yasunori Hayashi
Dept. Pharmacol., Grad. Sch. Med., Kyoto Univ.

5. The role of CA2 in organizing hippocampal network dynamics

Hongshen He, Yi Wang, Thomas J. McHugh.
RIKEN CBS

6. Establishment of methods to study the development of higher-order cognition in mice

Eichi Toyoizumi^{1,2}, Tomomi Shimogori¹, Kazuo Okanoya², & Thomas McHugh¹

1. RIKEN CBS
2. Univ. Tokyo

7. Differential effect of midbrain-projecting lateral hypothalamic neurons on aggressive behavior in male mice.

Koshiro Mitsui¹, Aki Takahashi²
1. Neurosci. Program, Univ. Tsukuba
2. Fac. Human Sci., Univ. Tsukuba

8. Neuronal correlates of reward-related facial expressions in primary motor cortex

Wanru Li^{1,2}, Takashi Nakano³, and Takayuki Yamashita¹
1. Dept. Physiol., Fujita Health Univ. Sch. Med.
2. Dept. Neural Regulation, Grad. Sch. Med., Nagoya Univ.
3. Dept. Comp. Biol., Fujita Health Univ. Sch. Med.

9. Distinct downstream targets of the medial prefrontal cortex underlie discrete antidepressant responses to ketamine

Ryota Shinohara^{1,2}, Brendan D Hare², Rong-Jian Liu², Jin Hua Li², Xiao-Yuan Li², Catharine H Duman², Ralph J DiLeone², Ronald S Duman²
1. Div. Pharmacol, Grad Sch Med, Kobe Univ, Kobe, Japan
2. Dept. Psych., Yale Sch Med, New Haven, USA

10. Altered neuronal activity of the claustrum by stress exposure

Masato Tanuma¹, Keita Miyaji¹, Jin Ohkubo¹, Hiroshi Nomura², Hitoshi Hashimoto^{1,3-6}, Atsushi Kasai¹
1. Lab. Mol. Neuropharmacol., Grad. Sch. Pharmaceut. Sci., Osaka Univ., Osaka
2. Dept. Cog. Function Pathol., Inst. Brain Sci., Nagoya City Univ. Grad. Sch. Med. Sci, Nagoya, Japan
3. United Grad. Sch. Child Dev., Osaka Univ., Osaka, Japan
4. Inst. Datability Sci., Osaka Univ., Osaka, Japan
5. Inst. Open Transdisciplinary Res. Initiatives, Osaka Univ., Osaka, Japan
6. Dept. Mol. Pharmaceut. Sci., Grad. Sch. Med., Osaka Univ., Osaka, Japan

11. Hippocampal-entorhinal projections are differently organized between medial and lateral entorhinal cortex in rodents

Shinya Ohara^{1,2}, Menno P. Witter^{1,2}, Ken-Ichiro Tsutsui¹
1. Tohoku Univ. Grad. Sch. Life Sciences, Sendai.
2. Kavli Inst. Systems Neurosci., NTNU.

12. Autism in a dish: ES cell models of autism with copy number variations reveal cell-type-specific vulnerability

Jun Nomura, Toru Takumi
Kobe Univ. Sch. Med.

13. Neuronal population regulating fear and extinction in mPFC

Rie Ishikawa, Satoshi Kida
Dept. Applied Biol. Chem, Univ. Tokyo

14. Enhancement of memory formation and retrieval by essential amino acid histidine

Tamau Kawashima¹, Nene Kabayama², Yuki Odagiri², Toshiyuki Tanimizu¹, Rie Ishikawa¹, Satoshi Kida¹

1. Dept. Applied Biol. Chem, Univ. Tokyo

2. Tokyo Univ. Agr.

15. Brain networks centered on prelimbic of mPFC for a novel food memory

Yudai Fukuyama, Satoshi Kida

Dept. Applied Biol. Chem, Univ. Tokyo

16. Establishment of a mouse model to detect food devaluation specific to ingested food

Ayumu Yoshida, Satoshi Kida

Dept. Applied Biol. Chem, Univ. Tokyo

17. Spontaneous recovery of contextual fear memory after extinction shows similar hippocampal dependency as recent memory

Hotaka Fukushima¹, Takanori Kawamura¹, Satoshi Kida^{1,2}

1. Dept. Biosci., Fac. Life Sci., Tokyo Univ. Agri.

2. Grad. Sch. Agr. Life Sci., Univ. Tokyo

18. Time-of-day dependent impairment of hippocampal memory retrieval in AD model mice micro-infused Amyloid Beta 42 into the dorsal hippocampus.

James Borg, Satoshi Kida

Dept. Biosci., Fac. Life Sci., Tokyo Univ. Agri.

Note to presenters:

The size of poster board is W 90 cm x H 240 cm.

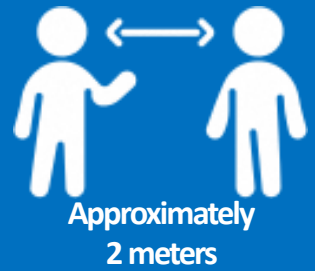
Please post your poster by 17:00 Jun. 27.

Prevention measures against COVID-19

COVID-19 Mask Use in Community Settings



- It is important to wear a mask as a basic prevention measure against COVID-19. Your action will protect everyone's health.
- You do not need to wear a mask outdoors when you are approximately 2 meters apart from others, or when you are not talking at a distance of less than 2 meters.
- You do not need to wear a mask indoors when you are approximately 2 meters apart from others and when you are not talking.



	[OUTDOORS] Sufficient Distance from Others	Insufficient Distance from Others
WHILE Talking	NO need for masks 	Masks Required
NO Talking	NO need for masks 	NO need for masks
	Walking, running, cycling in a park	In Proximity to others

	[INDOORS] Sufficient Distance from Others	Insufficient Distance from Others	
WHILE Talking	Masks Required <small>※Mask may be removed if there are infection prevention measures, such as adequate ventilation</small>	Masks Required 	 Wear a Mask in Crowded Areas (e.g. Public Transit)
NO Talking	NO need for masks <small>reading in a library etc.</small>	Masks Required 	

Wear a mask while meeting with the elderly or spending time in hospitals.
Refrain from going out if you have cold-like symptoms.



Remove your mask if you do not need it outdoors, to prevent heat stroke in summer.

Q&A
Regarding
Masks

