

# SEMINAR CYCLE

*of the PhD in Neuroscience of Turin*

10<sup>th</sup> Appointment

**Prof. Makoto Sato**

Department of Anatomy and Neuroscience, Graduate School of Medicine,  
Osaka University, Japan; Division of Child Development, United Graduate  
School of Child Development (UGSCD), Osaka University, Japan

**“Beyond the cytoskeletons and cortical development:  
Looking for the cellular mechanisms for intelligence  
and underlying neuronal circuit regulation”**

**21<sup>th</sup> November, 2025 h 2:00 PM**

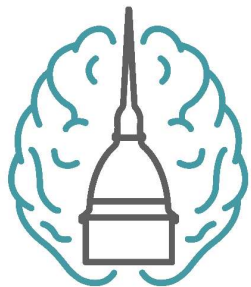
The lecture will last 1 hour and it will be followed by discussion

**Host: Prof. Alessandro Vercelli**

Seminar Room, NICO – Neuroscience, Institute Cavalieri Ottolenghi,  
AOU San Luigi Gonzaga; Regione Gonzole, 10 Orbassano

Link: <https://unito.webex.com/meet/alessandro.vercelli>

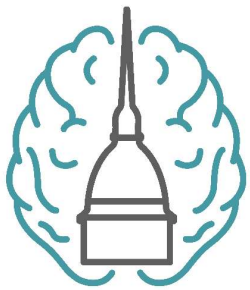
**Organized by PhD in Neuroscience - Doctoral School of the  
University of Turin**



## PROF. MAKOTO SATO

Dr Makoto Sato is currently a specially appointed professor at the United Graduate School of Child Development (UGSCD) of The University of Osaka (Osaka University) and a professor emeritus at Osaka University (2013~2025) and the University of Fukui (1998~2013), Japan. He was a full professor of the Department of Anatomy and Neuroscience, Graduate School of Medicine, and the dean of UGSCD at Osaka Univ. He obtained a BEng (Mathematical Information Engineering) from the Univ. of Tokyo, an MD and a PhD from Osaka Univ. in 1991. He was a postdoc at the Salk Institute, USA, before he joined Osaka City University (Osaka Metropolitan University) as an associate professor.

He was made a full professor at the University of Fukui in 1998. His research interest is developmental neuroscience. He has taught neuroanatomy, human anatomy, histology, and human embryology to more than 4000 medical students. He was a board of directors of The Japanese Association of Anatomists and a board officer of The Japanese Society for Neurochemistry. He acted as the president of the 127 th Annual Meeting of Anatomists in Japan (March 2022). He has won numerous research awards, including the Prizes for Science and Technology (The Commendation for Science and Technology by the Minister of MEXT, Japan).



# ABSTRACT

*My primary research focus is to uncover the neuronal circuit architectures that underpin human intelligence.*

*To achieve this, I have been investigating the development of cerebral cortical circuits during early stages, when the structural complexity is lower and foundational circuits are being established. In January 2024, I gave a presentation at the NICO seminar titled “The Cytoskeleton and Cerebral Cortex Development: How does the neocortex develop and establish the prototype of neural circuits during development through neuronal migration and collateral branching?”. In my upcoming talk, I will briefly revisit the key points from that presentation and share new data that highlights significant progress made since then.*

*Specifically, I will discuss the molecular mechanisms of controlling the length of the primary cilium and the unique cells that are found in higher animals. Also, I will present an example of neural circuit network control that has emerged from research on these cells.*