NEURO GLOBAL Seminar

Speaker

Julien Courchet DVM PhD

Group Leader
Pathophysiology and genetics of neuron and muscle (PGNM)
NeuroMyoGene Institute
Inserm/University of Lyon

Title

Fine-tuning of cortical circuits development through a local regulation of mitochondrial metabolism

Date

October 13, 2022 (Thursday) 16:30-18:00 JST

Venue

Middle Auditorium, Clinical Lecture Building [A21] 2F, Seiryo Campus
[MAP] https://www.tohoku.ac.jp/map/en/?f=SR_A21

Format Hybrid (Onsite & Online)

Registration Refer to the message from the NGP office

●Neuro Globalプログラム生(Neuro Global Program Students)
【脳科学セミナーシリーズEx】/【先進脳科学セミナーシリーズEx】セミナー1ポイント
【Brain Science Seminar Series Ex】/【Advanced brain science seminar series Ex】1 point
●医学系研究科(Graduate School of Medicine)
【医学履修課程】国際交流セミナー (アドバンスド講義科目)」(出席1回分)
【Medical Science Doctoral Course】International Interchange Seminar (Advanced Lecture course) (It will be counted as 1 attendance.)
●生命科学研究科(Graduate School of Life Sciences)
【単位認定セミナー】単位認定セミナーとして2ポイントを付与します。
【Credit-granted seminar】2 point will be granted to the students who will attend this seminar.

東北大学 Neuro Global 国際共同大学院プログラム事務局
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NEURO GLOBAL
Tohoku University

NEURO GLOBAL
Seminar

Title

Fine-tuning of cortical circuits development through a local regulation of mitochondrial metabolism

Speaker

Julien Courchet DVM PhD, Group Leader

Abstract

The proper function of neuronal circuits in the adult brain relies on glucose metabolism to ensure energy-demanding neuronal functions such as synaptic activity or long-distance axonal transport. Deregulation of the energy metabolism is strongly associated to many neurodegenerative diseases and has been linked to some neuropsychiatric diseases such as schizophrenia. However, our current understanding of metabolic regulation in the developing brain and in particular in rapidly growing neurons is still fragmental.

We previously identified a signaling pathways involving two kinases, the polarity regulator LKB1 and the autism-associated kinase NUAK1, and controlling axon outgrowth and terminal branching through a novel mechanism involving the regulation of mitochondria trafficking and clustering in the developing axon. We furthermore describe the LKB1/NUAK1 axis as an integrator of extracellular cues controlling axon branching, providing neural correlates to behavioral alterations found in NUAK1-deficient mice. My presentation will review the latter findings, as well as our use of molecular tools to visualize mitochondria trafficking and function in cultured neuron.