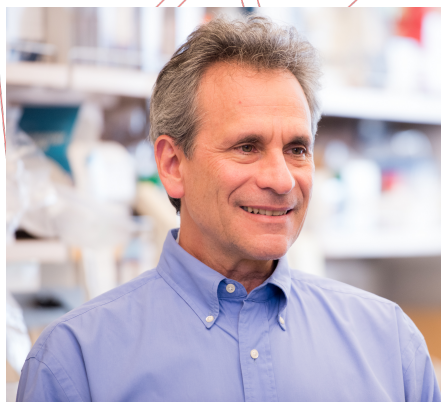
NEURO GLOBAL Lecture

●Neuro Globalプログラム生(Neuro Global Program Students)
【選択必修科目「基礎神経科学ー分子神経生物学」, 選択科目「先進基礎神経科学ー分子神経生物学」】
【Compulsory elective, "Fundamental Neurosciences – Molecular Neurobiology"
Elective "Advanced Neurosciences – Molecular Neurobiology"】

Date

Monday, February 16, 2026



Speaker

John Rubenstein M.D., Ph.D.

Nina Ireland Distinguished Professor in Child Psychiatry
Nina Ireland Laboratory of Developmental Neurobiology
Center for Neurobiology and Psychiatry, Department of Psychiatry
University of California, San Francisco

Time & Titles

①15:00-16:30

Dlx1&2 Directly Promote Expression of *Cxcl14* to Control Synapse Development and Interneuron Survival

②16:40-18:10

Morphogenetic Patterning During Regional and Cell Type Specification in the Embryonic Basal Ganglia

Venue

Auditorium, School of Medicine Building 6 (Megabank) ,1F/ Seiryo Campus
医学部6号館 (メガバンク)1階 講堂 星陵キャンパス 【B08】
【MAP】https://www.tohoku.ac.jp/map/en/?f=SR_B08

Format Onsite ONLY
Registration Please contact NGP Office (neuroglobal@grp.tohoku.ac.jp)

【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2回分
【Medical Science Doctoral Course】 International Interchange Seminar (Advanced Lecture course)2 attendances
●生命科学研究科(Graduate School of Life Sciences)
【単位認定セミナー】【イノベーションセミナー(留学生対象)】3ポイント
【Credit-granted seminar】【Innovation seminar (For international students)】3 points

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NEURO GLOBAL Tohoku University

NEURO GLOBAL
Lecture

Title1: *Dlx1&2* Directly Promote Expression of *Cxcl14* to Control Synapse Development and Interneuron Survival

Abstract: *Dlx* genes have fundamental roles in the generation, differentiation and functions of virtually all forebrain GABAergic neurons. Here we used single cell RNA-Seq (scRNA-Seq) to identify genes that are dysregulated in *Dlx1/2* conditional mutants in mouse immature CGE- and MGE-derived cortical, and Olfactory Bulb (OB), GABAergic interneurons (INs). We also identified DLX2-bound putative regulatory elements (pREs) of these *Dlx*-regulated genes. Within the *Dlx*-expressing lineage, some DLX-bound pREs were specific to CINs, others appeared to be constitutively bound; the latter class having activity in mature CINs. One such pRE and its associated gene, *Cxcl14*, is strongly activated by *Dlx1/2* and is essential for synaptogenesis onto CINs and for CIN survival.

Title2: Morphogenetic Patterning During Regional and Cell Type Specification in the Embryonic Basal Ganglia

Abstract: Prevailing evidence proposes that cell type specification in the embryonic brain and spinal cord begins within molecularly defined progenitor domains (ventricular and subventricular zones (VZ, SVZ) that do not intermix. Within a basal ganglia anlage, the medial ganglionic eminence (MGE), distinct domains of transcription factor (TF) expression are thought to participate in the specification of subtypes of pallidal projection neurons [e.g. globus pallidus (GP)] and interneurons (IN) that migrate to the striatum and cortex. Our data provide an alternative model that is spatially and temporally dynamic. During early stages, MGE VZ cells are progressively displaced ventrally and caudally from a rostral growth zone. As they move, their transcriptional states and cell type output change. Transcriptional analyses show temporal changes as the progenitors move, including the induction of the *Nfi* TFs. *Nfia* and *Nfib* double mutants (need an abbreviation here), alter the repertoire of IN subtypes. We suggest that the field needs to re-evaluate how growth and cell type specification are coordinated over developmental time.

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