共催（Co-organized by）
Tohoku University RIEC Nation-wide Cooperative Study Group “Neural Mechanisms of Social Behavior"
後援（Supported by）
Tohoku University Brain Research Center, National Taiwan University NCSC

# NEURO GLOBAL Seminar

## Speaker

# Prof. Menno Witter

**Kavli Institute for Systems Neuroscience**
**Norwegian University of Science and Technology**
**Norway**
**Visiting Professor, Tohoku University**

## Title

# Functional relevance of the structural neurobiology of entorhinal cortex circuitry

## Date

**16 September 2022 (Friday) 16:00-18:00**

## Venue

**Lecture Room, Project Research Building, Graduate School of Life Sciences, Katahira Campus 【MAP】** https://www.tohoku.ac.jp/map/ja/?f=KH_D04

## Format **Hybrid (Onsite & Online)**

## Registration Refer to the message from the NGP office.

## Related Website https://www.ntnu.edu/employees/menno.witter

●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) 1 attendance
●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）】 2ポイント
【Credit-granted seminar】 【Innovation seminar (For international students)】 2 points

東北大学 Neuro Global 国際共同大学院プログラム事務局
info@neuroglobal.tohoku.ac.jp
http://www.neuroglobal.tohoku.ac.jp

Contact: Prof. Ken-Ichiro TSUTSUI
[tsutsui@tohoku.ac.jp]

共催（Co-organized by）
Tohoku University RIEC Nation-wide Cooperative Study Group “Neural Mechanisms of Social Behavior"
後援（Supported by）
Tohoku University Brain Research Center, National Taiwan University NCSC

NEURO GLOBAL
Seminar

## Abstract

The entorhinal cortex is a crucial component of our conscious medial temporal lobe memory system.
The quest to understand this memory system after its ‘discovery’ in the late 1950th, was boosted by finding spatially modulated neurons in the hippocampus in 1971. Subsequently, many spatially modulated neurons were discovered in the entorhinal cortex as well, particularly in a part called the medial entorhinal cortex. The standard connectional scheme of the medial temporal lobe memory system is that the medial entorhinal cortex conveys spatial information to the hippocampus, the ‘where pathway’, whereas its counterpart, the lateral entorhinal cortex conveys information concerning objects, the ‘what pathway’.
In my presentation I aim to present our recent findings indicating that this scheme needs to be revised. I will show that the local networks of the lateral and medial entorhinal cortex are remarkably similar and emphasize the difference in extrinsic connectivity as a major defining feature for the known functional differences. I will propose to consider the lateral entorhinal cortex as a high-order multimodal cortex, appropriately positioned to integrate representations of the external world with motivational signals, modulated by planning and decision signals originating from the amygdala and frontal cortical regions.
I will finish by integrating this structural knowledge of entorhinal circuitry with what is known about the specific involvement of entorhinal cortex neurons in the onset of Alzheimer’s disease and argue that such an integration results in specific predictions about the behavioral consequences associated with early-stage Alzheimer’s disease.

東北大学 Neuro Global 国際共同大学院プログラム事務局
info@neuroglobal.tohoku.ac.jp
http://www.neuroglobal.tohoku.ac.jp

Contact: Prof. Ken-Ichiro TSUTSUI
[tsutsui@tohoku.ac.jp]

NEURO GLOBAL
Tohoku University