Diversity of the synaptic nanoarchitecture: Packaging of protein supercomplexes at the postsynaptic density

神戸大学CMX創発医学講演会



Seth Grant Lab, Centre for Clinical Brain Sciences, The University of Edinburgh, Edinburgh, UK

日時:2024年 10月 31日(木)17:00 – 18:30 場所:神戸大学医学研究科 研究B棟 2F 共同会議室



The postsynaptic density (PSD) is a protein-dense structure located at the postsynaptic site of excitatory synapses. The PSD plays essential roles in synaptic structure and function. Proteomics studies have shown that the PSD is composed of more than 1,000 different proteins, including neurotransmitter receptors, scaffolding proteins, and signalling enzymes. The Grant laboratory has reported that the PSD consists of 'supercomplexes' of proteins ranging from 0.5 to 2 MDa (Ref. 1). We have recently developed a method to evaluate how these supercomplexes interact with each other to form PSDs using FRET (Förster Resonance Energy Transfer). We combined this method with a comprehensive synapse imaging technique (Ref. 2) to analyse the nanoarchitecture of synapses throughout the whole brain. In this talk, I will introduce our findings along with recent advancements in research on synaptic nanoarchitecture.

References

1. Frank et al. *Nat Commun*. 2016 7:11264.

2. Zhu et al. Neuron. 2018 99:781-799.e10.

主催:神戸大学メディカルトランスフォーメーションセンター(CMX), 担当 生理学分野 (5382)