

# DANDRITE Topical Seminar

## Unveiling experience-dependent proteostasis in the brain – when it happens and why it matters!

Experience shapes the neural circuit through activity-dependent plasticity mechanisms. A hallmark of activity-dependent plasticity is activity-driven de novo protein synthesis. Numerous prior studies indicate that functionally distinct proteins are synthesized in temporally distinct ‘waves’ following plasticity-inducing activities. Yet our understanding of how experience-induced nascent protein synthesis and degradation are regulated in the intact neural circuit in response to physiologically-relevant sensory experience remains elusive. This is partly due to technical challenges in specifically and effectively labeling nascent proteins in vivo, as well as an incomplete understanding of the cellular machinery that controls the degradation of nascent proteins. Recent work from ours and other labs suggest that a neuronal membrane proteasome (NMP) is specifically involved in timely degradation of activity-induced nascent proteins in neurons, and its function plays critical roles in regulating neuronal activity in both central and peripheral nervous system. Using *Xenopus laevis* tadpole as an animal model, and a combination of biochemistry, functional imaging and behavioral assays, we are gearing up to delineate the dynamics of experience-dependent proteostasis in the live brain with unprecedented temporal resolution, and probing for the functional significance of the proteostatic regulation of the nascent proteome.

**Host:** Chao Sun



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Date: **Tuesday 22 October 2024**  
Time: **11:00 am – 12:00 pm**  
Venue: **1170 - 347**  
Address: **Ole Worms Allé 3  
8000 Aarhus C**

**OPEN TO ALL INTERESTED.**