SFB 1315
Mechanisms and Disturbances in Memory Consolidation:
From synapses to systems

Friday

AUG 4, 2023
4:00 pm CET

BCCN Lecture Hall
Philippstr. 13, Berlin
ZOOM ID: 7754910236

SFB1315.ifb@hu-berlin.de

SFB 1315 LECTURE SERIES 2023

SYNAPSE-ENRICHED LONG NON-CODING RNAs DRIVE SYNAPTIC PLASTICITY AND MEMORY FORMATION

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DFG Deutsche Forschungsgemeinschaft
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We have identified a specific set of experienced-dependent lncRNAs that accumulate in the synaptic compartment within the infralimbic prefrontal cortex of adult male C57/Bl6 mice. Among these was a splice variant related to the stress-associated lncRNA, Gas5.

RNA immunoprecipitation followed by mass spectrometry and single-molecule imaging revealed that this Gas5 isoform, in association with the RNA binding proteins G3bp2 and Caprin1, regulates the activity-dependent trafficking and clustering of RNA granules. We also identified an m6A-modified variant of Malat1 in the synaptic compartment that interacts with previously uncharacterised m6A-readers, including cytoplasmic FMR1 interacting protein 2 (CYFIP2) and dihydropyrimidase-related protein 2 (DPYSL2).

These findings reveal new mechanisms of memory that involve the dynamic interaction between lncRNA activity, RNA condensates and novel m6A-readers at synapse.

About the Speaker

Dr Timothy Bredy earned a PhD in Neurological Sciences from McGill University in 2004. Following CIHR and NSERC funded postdoctoral fellowships at the University of California Los Angeles, he established the Cognitive Neuroepigenetics Laboratory at the University of Queensland in 2009. In 2014, he was appointed Assistant Professor at the University of California Irvine and was promoted to Associate Professor with tenure in 2016. In 2017, he returned to the Queensland Brain Institute where he is currently Professor and Director of the UQ Centre for RNA in Neuroscience. Research in the Bredy laboratory is focused on understanding how the genome is connected to the environment, and how this relationship shapes brain and behaviour throughout life.

Hosted by:
Marina Mikhaylova (A03/A10)

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