

Virtual DANDRITE Lecture

Friday 22 April 2022

13.00 – 14.00

Location: Online via zoom. Find the link in the outlook invitation or write Astrid Munk (asmu@dandrite.au.dk) to get it.

Host: Poul Nissen



Santiago Rompani

Professor of Neuroscience and Group Leader at EMBL Rome

The Rompani group studies the function of visual circuits in the thalamus, using a combination of functional imaging, genetics, virology, and behavioral assays in mice.

Integration and modulation of visual information in the thalamus

Image-forming visual information is transmitted from the retina to the lateral geniculate nucleus (LGN) of the thalamus, which is the principal driver of the primary visual cortex and thus conscious vision. The retina encodes the visual scene an organism sees into over 40 different features, such as motion in a particular direction or sharp edges. Previously, it was thought that these simple features were relayed by the LGN to the cortex without substantial combination or modulation. In this seminar, I will talk about recent work using single-cell initiated transsynaptic rabies in the mouse showing that LGN cells receive far more types of retinal input than was previously appreciated. Furthermore, I will present the more recent efforts from our lab in understanding the functional and structural convergence of different visual features in the thalamus using a combination of *in vivo* calcium imaging, optogenetics, and 3D electron microscopy, among other tools. Altogether, we hope to elucidate not only the early circuits of vision, but the mechanisms whereby simple neuronal features are combined to form complex representations.