IST AUSTRIA
Institute of Science and Technology

Life Sciences Seminar

Discovering molecular nuts and bolts in the nervous system

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Host: Peter Jonas

We aim to discover molecular mechanisms that underpin neuron and circuit properties. As entry points we identify mutants in the nematode C. elegans unable to adopt particular behavioral states. Forward genetics is a potent tool for discovering biological mechanism. However, linking phenotypes to mutations requires laborious mapping. We circumvent this by showing that bioinformatics alone can predict phenotype-causing mutations in large collections of sequenced mutants. From 251 mutants defective in C. elegans aggregation behavior, we identify (thus far) 43 genes promoting this behavior. The proteins they encode define several molecular machines. All act in the same defined circuit. I will describe some of our discoveries. Unexpectedly, we find that interleukin 17, a pro-inflammatory cytokine, can act on neurons to change circuit gain. We identify complexes in the endoplasmic reticulum that appear to control biogenesis of ion channels and GPCRs. These complexes are conserved, and we are using biochemistry to understand their function in mammalian cells.

Thursday, March 1, 2018 10:00am - 11:00am

IST Austria Campus Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: https://ist.ac.at/en/campus/how-to-get-here/ The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.