

26TH HERMANN STAUDINGER LECTURE

NOBEL LAUREATES @ FRIAS

THOMAS C. SÜDHOF

DEPT. OF MOLECULAR AND CELLULAR PHYSIOLOGY,
STANFORD UNIVERSITY

DECONSTRUCTING THE MOLECULAR LOGIC OF NEURAL CIRCUITS: CELL-ADHESION MOLECULES AND BEYOND

Neural circuits process information by transmitting and computing signals at synapses, and thus critically depend on the number and location of synapses between the neurons that form the circuit and on the properties of these synapses. We hypothesize that the number, location, and properties of synapses are determined by interactions between pre- and postsynaptic cell-surface recognition molecules and/or signaling molecules, and we refer to the rules by which these molecules construct circuits as the molecular logic of neural circuits. In my presentation, I will describe our work on testing the hypotheses inherent in this conceptual framework, focusing on families of synaptic cell-adhesion molecules such as neuroligins and latrophilins. Although incomplete, the studies that I will describe have already led to surprising conclusions about how neural circuits are organized, and provide a perspective for future work.

Monday, December 17, 2018

4:15 p.m.

Anatomy Lecture Hall
Albertstraße 17, Freiburg

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