Institut NeuroMyoGène

INMG seminar

Friday April 29th 2016 14:00

Amphithéâtre de la délégation du CNRS

2 avenue Albert Einstein

Interrupting neuronal communication from a GABAergic viewpoint

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In the brain distinct population of inhibitory GABAergic interneurons innervate principal glutamatergic neurons to regulate various aspects of brain function. At the postsynaptic compartment, specific GABAAR subunits are segregated to different neuronal compartments to recieve specific inputs from different interneurons. The correct interpretation of the incoming signal requires functional coupling between the presynaptic neurotransmitter GABA, postsynaptic GABAARs, and downstream signaling by postsynaptic density proteins. The main postsynaptic density protein at inhibitory synapse is gephyrin. In the past decade we have identified diverse signaling cascades that converge on gephyrin scaffold to regulate its scaffolding property, and in turn GABAergic neurotransmission. These studies have shed light into mechanisms that underlie dynamic changes in inhibitory neurotransmission, and how excitation shapes inhibition.

Institut NeuroMyoGène

Dr. Shiva Tyagarajan

http://www.pharma.uzh.ch/research/neuromorphology/researchareas/molecularcellularneuroscience.html

RECENT PUBLICATIONS

Mircsof D, Langouët M, Rio M, Moutton S, Siquier-Pernet K, Bole-Feysot C, Cagnard N, Nitschke P, Gaspar L, Žnidarič M, Alibeu O, Fritz AK, Wolfer DP, Schröter A, Bosshard G, Rudin M, Koester C, Crestani F, Seebeck P, Boddaert N, Prescott K; DDD Study, Hines R, Moss SJ, Fritschy JM, Munnich A, Amiel J, Brown SA, **Tyagarajan SK**, Colleaux L. Mutations in NONO lead to syndromic intellectual disability and inhibitory synaptic defects. Nat Neurosci. 2015 Nov 16. doi: 10.1038/nn.4169. [Epub ahead of print]

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Accardi MV, Daniels BA, Brown PM, Fritschy JM, **Tyagarajan SK**, Bowie D. Mitochondrial reactive oxygen species regulate the strength of inhibitory GABA-mediated synaptic transmission. Nat Commun. 2014 Jan 16;5:3168. doi: 10.1038/ncomms4168.

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