# DSV Seminars 2017

UNIVERSITÀ DEGLI STUDI DI TRIESTE

DIPARTIMENTO DI SCIENZE DELLA VITA

## *PhD Program in Neural and Cognitive Sciences*

**30 OCTOBER 2017 - 14:30 h**

Emiciclo, Q Building – Via L. Giorgieri, 5


## Dr. Fabrizia Cesca, PhD

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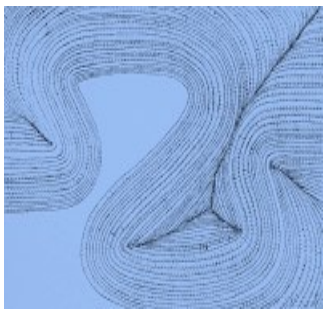
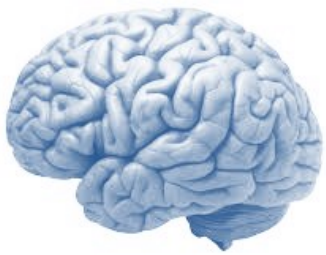
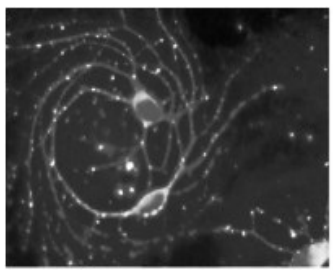
Istituto Italiano di Tecnologia, Genova, Italy


*Invited by BRAIN Centre for Neuroscience*

## "Neurotrophin signaling in the adult brain: molecular mechanisms and perspectives on neurological disorders"







Amongst the several pathways that have been implicated in the pathogenesis of cognitive and mental disorders, a prominent role is played by neurotrophins (NTs), and in particular by brain-derived neurotrophic factor (BDNF). Over the past years I have focused my attention on Kinase D interacting substrate of 220 kDa (Kidins220), also known as ankyrin repeat-rich membrane spanning (ARMS), a transmembrane scaffold protein that controls the activation of intracellular cascades downstream of NT stimuli. Mutations of the KIDINS220 gene have been identified in patients affected by autism spectrum disorders, schizophrenia, and more recently, in children and fetuses affected by severe nervous system pathologies. We are presently characterizing a brain-specific conditional Kidins220 knockout (cKO) mice that develop to adulthood but their brains show enlarged ventricles in the absence of cell death, and deficient dendritic arborization. Ex-vivo studies in acute slices revealed alterations in the TrkB-BDNF signaling pathway. Moreover, the deletion of Kidins220 leads to marked changes in specific behavioral paradigms, such as reduced anxiety levels and altered social memory, which are reminiscent of the schizophrenia and autism traits shown by the human patients carrying KIDINS220 mutations.