DSV Seminars

2017

Master Degree in Neuroscience

Wednesday, 3 May 2017 - 14:30

Room A, Building A (*main building*) - Piazzale Europa 1

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Host: Annalisa Bernareggi

Serotonergic and cholinergic control of migraine pain

Serotonin for decades was considered as a central player in migraine pathology. However, the region-specific effects of serotonin are poorly understood. Using extracellular and patch-clamp recordings, we found that serotonin has a dual role in migraine pain. While triggering a robust activation of the nociceptive firing via 5-HT3 receptors in peripheral nerve endings in meninges, serotonin has the opposite inhibitory effect in the central terminals of primary afferents. Thus, when the central inhibitory serotonergic control is weakened, this 'opens the gates' for peripheral migraine pain signalling. In contrast to serotonin, the role of cholinergic neurotransmitter acetylcholine was almost unexplored in migraine despite the well-known fact of parasympathetic innervation of meninges. In our recent study, we show that trigeminal nerve terminals in meninges, as well as dural mast cells and trigeminal ganglion neurons express a repertoire of pro-nociceptive nicotinic and muscarinic AChRs which could be activated by the acetylcholine released from parasympathetic nerves and initiate migraine pain.