Special Issue

Sensory Neurons and Pain Signals

Message from the Guest Editor

Sensory neurons decode peripheral mechanical and chemical stimuli. They are characterised by unique physiological properties and firing patterns that transmit distinct sensory modalities to the central nervous system. Although three main subtypes of sensory neurons can be distinguished according to their different conduction velocities, genetic mapping has identified neurons with distinct gene expression profiles. While specific subsets of neurons are devoted to the transduction of acute painful stimuli, pain chronicization and allodynia cause the recruitment of a larger number of neurons, with rapid plasticity following injury or inflammation. In addition, the persistence of algogenic stimuli is transduced at molecular and genetic levels, resulting in lower threshold for firing and therefore generating the conditions for peripheral and central sensitisation. Due to the intrinsic complexity of chronic pain against individual genetic backgrounds, the pharmacological treatment of pain is very complex and still poorly effective for many patients.

Guest Editor

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