

1) Sensation and Sensory Processing:
Perceiving the world

2) Pain

Neuroscience

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Slide 2

STS: Lecture Overview:

L9: The sensory system: an overview of sensory organisation for nervous systems. The TRP channel paradigm and the function and organisation of pain perception

L10: Olfaction and taste: chemosensation for gustation and detection at a distance. Molecular mechanisms of taste and olfaction in mammals and insects

L11: Hearing/Touch/Balance: mechanosensation. Organisation of the human ear, the hair cell. Organisation and molecular construction and function of the hair cell, a paradigm for movement sensation in insects, worms and mammals.

L12: Vision: Photosensation: Rhodopsins as the principle mechanism of capture of photons. Signal transduction cascades downstream of rhodopsin for invertebrates and vertebrates. The organisation of vision for barnacles, flies and humans.

Slide 3

Learning Outcomes:

Understand the purpose of the sensory system to an organism

Differentiate between different sensory 'modalities'

Understand that the sensory system is organised in a logical manner, tuned to life strategy eg mouse=olfactory

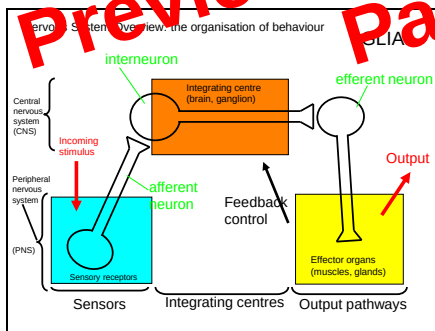
Understand that sensory stimuli are transduced, encoded and finally perceived

Many of the transduction 'events' are mediated by ion channels (trp receptor)

Understand that 'pain' or the sensation of noxious stimuli is cross modal

Understand the centrality of TRP channels to many modalities

Slide 4



All nervous systems have this basic plan, the difference is in the distribution of the integrating centre (CNS or in distributed ganglia). Input enters system through peripheral nervous system, comes through to interneuron which is any central neuron next to a sensory neuron. These form integrating centres. Brain= big integrating centre. Octopus has distributed separated brains, Ganglia. We have sensory stimuli straight to back through muscles without brain. All our outputs are essentially muscular There's feedback control- deciding which signal (saliency) is important.