

Pain Taxonomy

- Nociceptive Pain
- Inflammatory Pain
- Neuropathic Pain
- Dysfunctional Pain

References:

- Costigan et al. Neuropathic pain: a maladaptive response of the nervous system to damage. Annu Rev Neurosci 2009.

Pain Anatomy

- Primary Afferents
- Spinal Cord
- Brain
- Descending Pathways

References:

- Basbaum et al. Cellular and molecular mechanisms of pain. Cell 2009.
- Kuner. Central mechanisms of pathological pain. Nat Med 2010.

Molecules of Pain Sensory Transduction

- Detection, conduction, transmission

References:

- Dubin & Patapoutian. Nociceptors: the sensors of the pain pathway. J Clin Invest 2010.
- Julius. TRP channels and pain. Annu Rev Cell Dev Biol. 2013.
- Kim et al. The role of Drosophila Piezo in mechanical nociception. Nature 2012.

Mechanisms of Inflammatory and Neuropathic Pain

- Peripheral Sensitization
- Central Sensitization
- Synaptic Structural and Architectural Changes
- Immune Modulation
- Changes in Descending Pathways
- Functional Brain Imaging Changes

References:

- Basbaum et al. Cellular and molecular mechanisms of pain. Cell 2009.
- Kuner. Central mechanisms of pathological pain. Nat Med 2010.
- Latremoliere & Woolf. Central sensitization: a generator of pain hypersensitivity by central neural plasticity. J Pain 2009.
- Tracey & Bushnell. How neuroimaging studies have challenged us to rethink: is chronic pain a disease? J Pain 2009.

Genetics of Pain in Humans

- Genes that Modulate Pain Perception
- Pain Channelopathies

References:

- Lacroix-Fralish & Mogil. Annu Rev Pharmacol Toxicol 2009.
- Fischer & Waxman. Familial pain syndromes from mutations of the NaV1.7 sodium channel. Ann NY Acad Sci 2010.