

COURSE OFFERING

Pharmacology 750

"Cellular and Molecular Mechanisms of Excitability"

This course will focus on the molecular biological, biochemical and biophysical characteristics of voltage- and ligand-gated ion channels, and other ion transport proteins in a variety of excitable cells. The course will begin with a description of basic cable theory, conventional electrophysiological techniques and classical "Hodgkin & Huxley" analysis of ion channels in axonal membranes and trace the development of new biophysical and molecular biological methods for the study of ion channels. Individual lectures will then focus on studying the different classes of ion channels, including potassium, sodium, calcium and chloride channels. The objective will be to describe the physiological and pharmacological function of each type of ion channel and to examine the relationship between biophysical properties and protein structure. Finally, several classes will examine the ionic basis of excitability in selected types of excitable membranes, including nerve, cardiac, skeletal and smooth muscle. This class is open to all graduate students who have completed introductory Pharmacology or Physiology courses and obtained instructor approval.

For Information:

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Text: Hille, B., Ion Channels of Excitable Membranes

Sinauer Associates, Sunderland Ma., 3rd ed., 2001