

Neuroscience NSCI 295

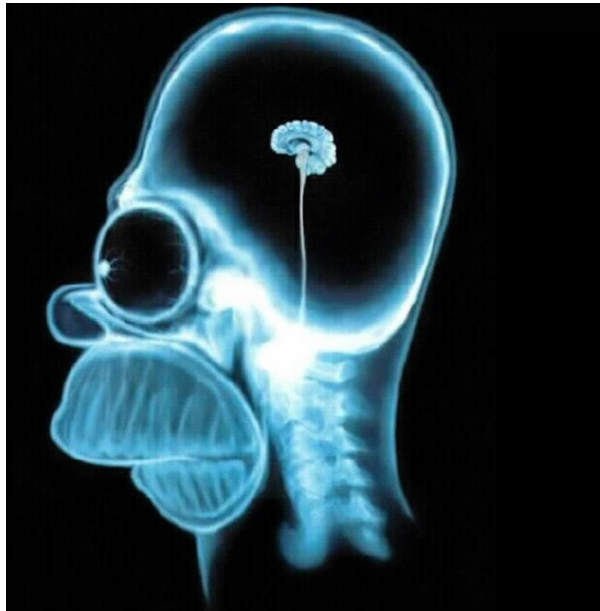
The Cerebral Circulation: Physiology & Pathophysiology

Fall 2016

Tue/Thu: 2:50-4:05 p.m.

HSRF 300

Course Directors: Dr. Marilyn Cipolla, Dr. Kelvin Siu-Lung Chan



The cerebral circulation is critical to brain function, providing necessary oxygen and nutrient to neurons and other cells. Dysfunctional blood vessels in the brain cause a number of cerebrovascular diseases, including stroke, cognitive impairment, and seizure, leading causes of death and disability worldwide.

This three credit-hour advanced-level course focuses on the unique properties and importance of the cerebral circulation. Students will gain an understanding of how blood flow is controlled to maintain brain homeostasis under normal physiological conditions and how dysfunction of brain vessels promotes pathology. Review of current and classic literature, relevant methodologies for studying the cerebral vasculature and clinical applications will be covered. In addition, imaging techniques as they relate to clinical utility will be covered as well as clinical applications.

This is a team-taught course with faculty from the Departments of Neurological Sciences, Pharmacology, Radiology and Medicine that include physicians and basic scientists to provide an array of expertise on the featured topics of the course.

For further information, please contact Dr. Kelvin Siu-Lung Chan at Siu-Lung.Chan@uvm.edu.

Lecture Topics (subject to change)	Instructor
Structure & Function of the Cerebral Circulation:	
Anatomy of the Cerebral Circulation	Dr. Abbie Johnson
Control of Vascular Tone in the Brain	Dr. Marilyn Cipolla
Brain Hemodynamics & Control of Cerebral Blood Flow	Dr. Kelvin Chan
Neurovascular Coupling & Local Control of Blood Flow	Dr. Mark Nelson
Cerebrovascular Diseases:	
Epidemiology of Stroke	Dr. Mary Cushman
Hemodynamics of Stroke & Models of Focal Ischemia	Dr. Marilyn Cipolla
Subarachnoid Hemorrhage	Dr. George Wellman
Cerebral Small Vessel Disease	Dr. Fabrice Dabertrand
Cerebrovascular Disease & Cognition	Dr. Mary Cushman
Pregnancy, Preeclampsia, Eclampsia	Dr. Abbie Johnson
Water Hemostasis & Edema Formation in the Brain	Dr. Abbie Johnson
Impact of Hypertension on the Cerebral Circulation	Dr. Kelvin Chan
Diagnosis & Treatment:	
Brain Imaging: Structural	Dr. Grant Linnell
Brain Imaging: Functional	Dr. Grant Linnell
Endovascular Treatment for Acute Stroke	Dr. Josh Nickerson
Endovascular Treatment for Other Cerebrovascular Diseases	Dr. Josh Nickerson
Neuropharmacology	To be determined
Special Topics:	
Controversies in the Field: Do Astrocytes Control Blood Flow?	Dr. Mark Nelson
UVM Radiology Imaging Facility Tour : Who Wants a Brain Scan?	Dr. Josh Nickerson