GMS 6029  Brain Journal Club: Molecular pathogenesis of cerebrovascular disease

One credit hour. Spring 2012. Wednesdays 4:30-5:30 pm

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Course description

Cerebrovascular disease is a group of brain dysfunctions affecting the circulation of blood to the brain. Lack of sufficient blood supply (ischemia) rapidly damages the brain and may cause a stroke. Reduced cerebral blood flow may result from stenosis (narrowing of blood vessels), thrombosis (clot formation) or hemorrhage (blood vessel rupture). Cerebrovascular disease includes stroke (ischemic or hemorrhagic), aneurysms, vascular malformations, and blood vessel stenosis.

The aim of this course is to help students in reading, discussing, and presenting content from the scientific literature. The primary goal of this journal club is to discuss the newest and most exciting research papers on the neuropathological mechanisms of cerebrovascular disease. Articles will be presented on a diverse set of topics related to cerebrovascular disease, with a particular focus on the cascade of molecular and cellular events responsible for brain damage following ischemia.

Course requirements and grading

Each student will be required to present at least one paper of their choosing per semester. All students are required to attend every journal club and be prepared to discuss the article and ask thoughtful questions. Students are expected to have not more than two unexcused absences per semester. The course director will make sure that there is an active discussion of the paper and all students participate in the discussion. Grading (satisfactory/unsatisfactory) will be based on the quality of presentation, attendance, and student’s participation in the discussion of the paper.

Students should select a paper of interest (not older than 12 months) published in a top-tier journal in the cerebrovascular research field. The students should be able to defend their paper’s choice and justify its significance. At least a week before the presentation, the student will provide an article for consideration to the course director. If the paper is inappropriate for discussion or the course director feels that the paper represents minimal advance in the current knowledge, the student together with the course director will identify another paper within a couple of days. The paper will be available to all the students via email.

Students will prepare a 35-40 min PowerPoint presentation of the data. The student should start off with an introduction to provide the group with a brief overview of the subject of the paper, what questions are being asked, what is the hypothesis, and why conducting this research is important. In addition to the introduction of the paper, the student should utilize other sources of information (e.g., recent comprehensive reviews) to prepare the introductory overview. Uncommon methodological approaches and specialized techniques should be explained. The student is expected to clearly explain the goal of each experiment and the methods used to obtain the data. The presenter as well as the rest of the students should be prepared to comment on the quality and relevance of the results and how the data furthers our understanding of the neuropathological mechanisms of cerebrovascular disease.