

**DEPARTMENT OF NEUROLOGY**  
COLLEGE OF MEDICINE

**Summer Research Opportunities  
for Undergraduate Women**

**APPLICATION DEADLINE: MARCH 1, 2002**

*The Department of Neurology is pleased to offer the following research projects for the summer of 2002. Interested students are urged to contact the faculty member(s) directing the project(s) that most interest them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be, and if possible, develop a timetable for the twelve-week research period.*

**Professor Joseph F. Clark**

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There are two research projects available for a Summer Student.

Subarachnoid hemorrhage induced vasospasm: We have identified three molecules found in human CSF following subarachnoid hemorrhage (SAH) and are currently correlating these molecules to cerebral vasospasm and clinical condition/outcome. These molecules have never been identified before and may be the cause of SAH induced cerebral vasospasm. To study these molecules, we regularly perform various examinations of these compounds using the CSF from SAH patients as well as synthesize the compounds in the lab for analysis. Our long-term goals are to demonstrate that these compounds play a role in SAH induced cerebral vasospasm and develop strategies for treating these patients. A summer student project could be to quantify the concentration and activity of these molecules in the CSF of patients. We have already received the CSF and need to process it.

Stroke and blood clot. Apolipoprotein E (Apo E), and its respective isoforms, has been linked to outcome and survival following acute central nervous system injury. The effectiveness of intravenous tissue plasminogen activator (tPA) in patients with acute ischemic stroke is enhanced in patients who have an Apo E2 genotype. The ability of Apo E isoproteins to modulate tPA induced clot lysis is being assessed for its possible role in stroke and stroke therapy. We have found that Apo E isoproteins can modulate tPA induced clot lysis. This modulation of clot lysis is consistent with the observed benefit of the Apo E2 genotype in patients receiving tPA. Our results suggest that Apo E may have an impact on clot dissolution and the effectiveness of thrombolytic therapy and we are currently trying to develop ways to develop better treatments for these patients. A summer student project could be to determine the amount of clot degradation seen by

measuring the fibrin degradation products in the blood of patients. These blood samples have already been collected and can be analyzed during a summer project.