Department of Biological Sciences
MCMICKEN COLLEGE OF ARTS AND SCIENCES

SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN

APLICATION DEADLINE: March 1, 2007

The Department of Biological Sciences is pleased to offer the following research project for the summer of 2007. Interested students are urged to contact the faculty member(s) directing the project that most interests 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.

PNEUMOCYSTIS LIPIDS

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Project Description

A WISE summer project in the Kaneshiro Laboratory would be to participate in a project on *Pneumocystis* lipids (sterols). *Pneumocystis* is a protist that can cause a type of pneumonia in immunodeficient mammalian hosts and can transiently colonize the lungs of normal individuals. An example of a project in which a student could participate is to work with others in the group in purification of enzyme proteins and characterizing recombinant *Pneumocystis* sterol biosynthesis enzyme activities. The student will learn lipid analytical biochemistry including extraction, purification, various chromatographic techniques, and enzyme assays.

Another potential project is on parasitic microsporidia, which causes severe gastrointestinal infections, especially in immunodeficient individuals. Specifically, a student could perform immunofluorescence analysis of fecal samples using monoclonal antibodies and fluorescence microscopy to determine the prevalence rate of infections in HIV patients and normal, healthy people. Also, there might be the opportunity to expand the study by identification of the microsporidia species in the specimens, which can be done by extracting the DNA and performing restriction length polymorphism analysis.