

MCMICKEN COLLEGE OF ARTS AND SCIENCES

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 1, 2007

The Department of Chemistry 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.

RNA-Protein Interactions

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Project Description

The ribosome is an amazing biomolecular machine responsible for synthesizing proteins within cells rapidly and mistake-free. Our group is interested in understanding the specific intermolecular interactions among the various ribonucleic acids (RNA) and proteins present in the ribosome. One particular interest in our lab is determining how antibiotics interact with ribosomes over time leading to antibiotic-resistant strains of pathogens. We use modern biochemical and bioanalytical techniques to figure out how the ribosome works as well as it does. In this research project, a student would be exposed to a number of state-of-the-art research techniques including cell culturing, protein and RNA isolation, separations, and mass spectrometry. She will specifically be working with existing research group members on culturing various bacterial cells in the presence and absence of particular antibiotics. Ribosomes will be isolated and characterized by the methods described above in order to map out changes in RNA-protein interactions that occur when antibiotics are present. The student does not need any prior experience in biochemistry for this project.