

**Department of Pediatrics
COLLEGE OF MEDICINE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 1, 2013

The Department of Pediatrics is pleased to offer the following research project for the summer of 2013. 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.

PROJECT TITLE: Computational Analysis of Metabolomics Data

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Project Description

Our laboratory's mission is to bring quantitative approaches from disciplines such as computer science and applied mathematics to study the molecular mechanism of human diseases.

In contemporary systems biology, analysis of “-omics” data, such as genomics, proteomics and metabolomics, provides a holistic view of biological systems and human diseases. This summer research project will focus on computational analysis of metabolomics data to improve the mechanism study and treatment options for Cystic Fibrosis (CF) patients. Metabolomics studies the small molecule metabolite profiles, which are the end products of cellular processes, in a biological cell, tissue, organ or organism. We aim to identify novel biomarkers in CF patients through this summer project. The student is expected to survey the literature, learn to access and download metabolomics datasets from public databases, use standard software package to conduct statistical analysis and write basic computer codes to process and organize large-scale metabolomics data.