

**Department of Pediatrics
COLLEGE OF MEDICINE**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 2, 2009

The Department of Pediatrics is pleased to offer the following research project for the summer of 2009. 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.

**LUNG REGENERATION AFTER ACUTE AND CHRONIC INJURY IN
TRANSGENIC MICE**

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PROJECT DESCRIPTION

The Perl lab utilizes various transgenic mouse models to study molecular mechanisms of lung regeneration. The goal of our research is to identify cellular programs and lung specific stem cells that are activated during lung repair. We have established two mouse models: one for the repair of the alveolar compartment, the compartment of air exchange and a second one for the bronchiolar compartment, these are the conducting airways.

We are currently investigating two major cell surface receptors and their role in regeneration, one is the fibroblast growth factor (FGF) and the other one is the epidermal growth factor (EGF). We are also testing cell-type specific markers for their applicability to label tissue specific stem cells to follow their fate during lung regeneration.

Experiments for the summer projects will include: mouse breeding and genotyping, harvesting of lung tissue for RNA, Protein and histological analyses. Subsequent analysis of lung tissue will include histological sectioning, histological stainings, immunohistochemistry and imaging by light and fluorescent microscopy. Identification of cellular programs, which are involved in lung regeneration, will be critical to advance research on pharmaceutical targets for the treatment of emphysema and chronic obstructive lung disease.