

PHARMACOLOGY AND SYSTEMS PHYSIOLOGY
COLLEGE OF MEDICINE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE WOMEN

APPLICATION DEADLINE: 03/01/2018

PROJECT TITLE: Role of myeloid Kruppel-like Factor 2 in skeletal muscle regeneration

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Project Description

Unlike most adult organs, adult skeletal muscles retain a remarkable capacity to regenerate lost or injured tissue. This study will investigate the consequences of altering Kruppel-like Factor 2 (KLF2) levels in circulating immune cells, on the progress of skeletal muscle regeneration. KLF2 is a zinc-finger transcription factor that plays an essential role in immune cell activation. We have discovered that lowering KLF2 enhances the inflammatory response to muscle injury and improves regeneration. This study will characterize the consequences of raising and lowering KLF2 on the progress of regeneration. Studies will utilize transgenic mice which have a targeted deletion of KLF2 in all immune cells, and WT mice treated with statins. Statins, in addition to their cholesterol-lowering actions, elevate KLF2 in immune cells. Skeletal muscle pain and injury are reported adverse effects of statin usage. The WISE student may be assigned to various aspects of this research, including evaluating cytokine expression, mRNA and protein expression, and histological changes in regenerating muscle samples.