

Summer Research Fellowship Proposal for 2020

FACULTY INFORMATION:

NAME: Rupak Pathak

DEPARTMENT: Pharmaceutical Sciences

LOCATION: BioMed I, Room #238

PROJECT INFORMATION: Endothelial dysfunction not only determines the magnitude of therapeutic radiation-induced early, acute, and delayed damage to normal tissues, but increases the risk of developing various pathological conditions, including but not limited to, atherosclerosis, cardiovascular disease, fibrosis, and secondary cancer in future. The shear-responsive zinc finger transcriptional factor, Kruppel like factor-2 (KLF2) is the central regulator of the functions exerted by endothelial cells.

TITLE: KLF2 in radiation-induced endothelial dysfunction

LOCATION OF THE PROJECT: BioMed I, Lab #244

BRIEF DESCRIPTION OF THE PROJECT: We will determine the effects of fractionated radiation on KLF2 relative to single exposure. Any difference in KLF2 expression after fractionated vs. single exposure will lay a foundation of developing novel therapeutic strategies in restricting radiation-induced endothelial dysfunction by modulating KLF2. This could help in the management of radiotherapy-induced normal tissue damage in various organs, thus reducing the risk of developing other pathological side effects after cancer therapy.

STUDENT'S RESPONSIBILITIES-DUTIES IN THE PROPOSED PROJECT: Student responsibilities include actively participate in experimentation, data collection, writing the results, literature survey, and learning the new techniques.

ESTIMATED TIME FOR PROJECT COMPLETION: 10 weeks

DOES THE WORK INVOLVE ANIMAL RESEARCH? YES -----

NO ----x-----