

Pharmacy Student Summer Research Fellowship Proposal for 2019

FACULTY INFORMATION:

NAME: Nukhet Aykin-Burns, PhD

DEPARTMENT: Pharmaceutical Sciences, Division of Radiation Health

LOCATION: BioMed II – room # 441A-2

PROJECT INFORMATION:

TITLE: Protective effects of tocotrienols against UV radiation

LOCATION OF THE PROJECT: BioMed II – rooms # 438-2 and 435-2

BRIEF DESCRIPTION OF THE PROJECT: In addition to cancer, exposure to UV radiation can result in numerous health problems. UV radiation, either from the sun or from artificial sources such as tanning beds, can cause skin injury, including allergic reactions, premature aging of the skin and signs of sun damage. UV rays can also cause eye problems. They can cause inflammation of the cornea or lead to the formation of cataracts or pterygium, both of which can impair vision.

Tocotrienols (vit E analogs) have been shown efficacy against ionizing radiation as well as UV but the mechanisms in which they exert their protective effects have not been well studied especially following UV radiation exposure.

Current proposal will determine the short and long-term effects of tocotrienol administration following UV irradiation and provide knowledge to develop a mechanism based biochemical rationale for the prevention of UV injury in skin and cornea.

STUDENT'S RESPONSIBILITIES-DUTIES IN THE PROPOSED PROJECT:

- 1- To measure protein oxidation end points by Western Blotting in cells and tissues
- 2- To measure redox enzyme activities in cells and tissues.
- 3- To score immunohistochemistry slides for detection of ferroptosis.
- 4- To determine mitochondrial bioenergetics in cells following UV + tocots

ESTIMATED TIME FOR PROJECT COMPLETION: 10 weeks

DOES THE WORK INVOLVE ANIMAL RESEARCH? YES, however student will only handle tissues obtained from the animlas, they will not handle any mice or rats during this project)

ORAL/POSTER PRESENTATION OPPORTUNITY @: Annual National Meeting of Radiation Research Society, UAMS Student Research Day, Redox Biology Meetings

MANUSCRIPT SUBMISSION: Possible journal names for this work to be submitted:
Radiation Research, Free Radical Biology and Medicine