

# Summer Research Fellowship Proposal for 2020

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## ***FACULTY INFORMATION:***

**NAME:** Analiz Rodriguez  
**DEPARTMENT:** Neurosurgery

**LOCATION:** Cancer Institute 11<sup>th</sup> floor

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## ***PROJECT INFORMATION:***

**TITLE:** Photobiomodulation of neuronal mitochondria

**LOCATION OF THE PROJECT:** cancer center 11<sup>th</sup> floor

**BRIEF DESCRIPTION OF THE PROJECT: 1) Relevance:** Many cancer patients receive brain radiation but a main side effect is a decline in cognition. The main problem people experience is a change in memory. Radiation causes brain injury by releasing oxidative stress especially in the hippocampus, a main memory center of the brain. Oxidative stress is mainly processed in the mitochondria of cells. Laser light at certain wavelengths can be absorbed by mitochondria and affect oxidative stress. This effect can lead to changes in neurons and may be able to reverse the effects of radiation induced injury.

**2) Overall Goals:** In this study we will use a mouse model to understand the effect of laser light on the memory area of the brain following radiation

## **STUDENT'S RESPONSIBILITIES-DUTIES IN THE PROPOSED PROJECT:**

- Process tissue samples
- Treat animals
- Treat cells

**ESTIMATED TIME FOR PROJECT COMPLETION:** \_\_6\_\_ weeks

DOES THE WORK INVOLVE ANIMAL RESEARCH? YES -X--  
NO -----