

Summer Student Research Program

Project Description

FACULTY SPONSOR'S NAME AND DEGREE: *Ying Xu, MD, PhD*

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PROJECT TITLE (200 Characters max):

Role of PDE2A in mitochondrial dysfunction in Alzheimer's disease

HYPOTHESIS:

Inhibition of PDE2A in mitochondria will improve learning and memory performance in Alzheimer's disease mouse models.

PROJECT DESCRIPTION (Include design, methodology, data collection, techniques, data analysis to be employed and evaluation and interpretation methodology)

The student in the Summer Program will participate in animal breeding, genotyping by PCR, behavioral tests and cell-based assays. He/She will learn the concept of drug development and drug screening, get hands-on experience in animal behavioral tests including learning and memory, depression, anxiety, and pain related behavioral work. The *in vitro* drug screening work includes hippocampal cell culture, cell viability by CCK8 assay and cell death by LDH assay, and IC₅₀ measurement.

SPONSOR'S MOST RECENT PUBLICATIONS RELEVANT TO THIS RESEARCH:

Phosphodiesterase 2 and Its Isoform A as Therapeutic Targets in the Central Nervous System Disorders. Metkar SK, Yan Y, Lu Y, Lu J, Zhu X, Du F, Xu Y. *CNS Neurol Disord Drug Targets*. 2024;23(8):941-955.

THIS PROJECT IS: Clinical x Laboratory x Behavioral Other

THIS PROJECT IS CANCER-RELATED: No.

Please explain Cancer relevance

THIS PROJECT IS HEART, LUNG & BLOOD- RELATED: No.

Please explain Heart, Lung, Blood relevance

THIS PROJECT INVOLVE RADIOISOTOPES? No

THIS PROJECT INVOLVES THE USE OF ANIMALS

PENDING APPROVED x IACUC PROTOCOL#
PROTO202100135

THIS PROJECT INVOLVES THE USE OF HUMAN SUBJECTS? No.

PENDING APPROVED IRB PROTOCOL # M

THIS PROJECT IS SUITABLE FOR:

UNDERGRADUATE STUDENTS ENTERING FRESHMAN
SOPHMORES ALL STUDENTS x

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THIS PROJECT IS WORK-STUDY: Yes

**THIS PROJECT WILL BE POSTED DURING ACADEMIC YEAR
FOR INTERESTED VOLUNTEERS:** Yes

WHAT WILL THE STUDENT LEARN FROM THIS EXPERIENCE?

The students will learn how to do the cell-based assay and some neuropsychiatric behavioral tests in mice.