

Summer Student Research Program
Project Description
FACULTY SPONSOR'S NAME AND DEGREE: Theresa Liyun Chang, PhD

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PROJECT TITLE (200 Characters max):

Role of IFN epsilon in cancers

HYPOTHESIS:

IFN epsilon promotes or inhibit cancer growth by modulating cellular metabolism

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

IFNe has been suggested to inhibit ovarian cancer. However, we found that IFNe promotes cervical cancer growth through NDUFA12. To address whether the role of IFNe in cancer growth is cancer cell type dependent, we will determine the mRNA and protein levels of IFNe in a panel of ovarian, endometrial, and lung cancer cell lines by RT-PCR and western blot, respectively. The effect of IFNe on the proliferation of various cancer cell types will be examined by using MTS assays in cells with IFNe knockdown or knockin cell types. Additional tumor functional assays including migration and colony formation assays will be conducted. Data will be analyzed using GraphPad.

SPONSOR'S MOST RECENT PUBLICATIONS RELEVANT TO THIS RESEARCH:

Xu C, Wang A, Ebrahim L, Sullivan L, Tasker C, Pizutelli V, Couret J, Hernandez C, Kolli P, Deb PQ, Fritzky L, Valero-Pacheco N, Subbian S, Gao N, Lo Y, Salvatore M, Rivera A, Lemenze A, Fitzgerald-Bocarsly P, Tyagi S, Lu W, Beaulieu A, and Chang TL. Interferon ϵ restricts Zika infection at the female reproductive tract. PNAS Nexus. 2023 Oct 25;2(11):pgad350. doi: 10.1093/pnasnexus/pgad350. PMID: **37954158**

THIS PROJECT IS: Clinical Laboratory Behavioral Other

THIS PROJECT IS CANCER-RELATED

Please explain Cancer relevance

IFNe may promote or inhibit cancer growth.

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 no

PENDING

APPROVED

IACUC PROTOCOL #

THIS PROJECT INVOLVES THE USE OF HUMAN SUBJECTS? no

PENDING

APPROVED

IRB PROTOCOL # M

THIS PROJECT IS SUITABLE FOR:

UNDERGRADUATE STUDENTS

ENTERING FRESHMAN

SOPHOMORES

ALL STUDENTS

THIS PROJECT IS WORK-STUDY: Yes or No

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**THIS PROJECT WILL BE POSTED DURING ACADEMIC YEAR
FOR INTERESTED VOLUNTEERS: Yes or No**

WHAT WILL THE STUDENT LEARN FROM THIS EXPERIENCE?

The student will learn about techniques involved in the project and acquire critical thinking and problem-solving skills. The student will be asked to present the data in the weekly group meeting to practice their communication skill.