



## SHP Student Interns for Research and Scholarly Activities Application of Project Proposal Form

### Instructions:

Please fill out the form and return via email to Nipa Sahasrabuddhe ([ns1115@shp.rutgers.edu](mailto:ns1115@shp.rutgers.edu)) by **March 31, 2023**. Please fill each box to the right of each required field. If you are sending attachments, please ensure your contact information is added to all your forms.

### Faculty Contact Information:

Date submitted:	3/30/2023
Faculty Name:	Antonina Mitrofanova
Department/Program:	Biomedical and Health Informatics
Telephone number:	Cell 646-290-1530
E-mail:	amitrofa@shp.rutgers.edu

### Project Detail:

Project Title: (56 characters max)	Investigating long non-coding RNAs and their role in regulating alternative splicing in prostate cancer
Hypothesis:	<p>Prostate cancer is characterized by the scarcity of genomic mutations, thus investigating other data types promises to open horizons to identifying novel biomarkers of disease progression. We have been investigating the role of alternative splicing in prostate cancer and in this project aim to connect alternative splicing to their upstream regulatory elements (long non-coding RNAs) for more effective biomarker discovery and therapeutic targeting.</p> <p>Based on our preliminary findings, we hypothesize that long non-coding RNAs play an essential role in regulating alternative splicing in prostate cancer, opening new horizons for more effective biomarker identification and additional non-traditional avenues for therapeutic targeting.</p>
Description: (Include design, methodology, data collection, techniques, data analysis to be employed, evaluation and	In this summer project, we will perform extensive literature search (using PubMed databases and alike), investigating the role of long non-coding RNAs in cancer development, progression, and therapeutic response. An in-depth understanding of splicing regulation will be an essential first step in this literature search project. It be followed by the investigation of the role of long non-

interpretation methodology for research component)	coding RNAs in each step of the splicing process. Our search will be focused on, but will not be limited to, prostate cancer.  This literature review/search will allow us to build bases for a comprehensive, biologically-relevant computational algorithm to investigate long-non coding RNAs as marker of prostate cancer progression and potential therapeutic targets.
Specific Student Responsibilities:	<ol style="list-style-type: none"> <li>1. Perform literature search using PubMed (and alike) databased</li> <li>2. Read each identified manuscript and present a comprehensive summary of each manuscript during Mitrofanova lab meetings</li> <li>3. Document findings in a form of a written report</li> <li>4. Participate in manuscript writing, related to alternative splicing and long non-coding RNAs</li> </ol>
Start / end date of project:	June 1 <sup>st</sup> –July 27 <sup>th</sup> (dates are flexible)

### **Educational:**

WHAT OTHER EDUCATIONAL OPPORTUNITIES ARE AVAILABLE TO STUDENTS? (e.g., journal club, seminars, clinic, rounds)	<ol style="list-style-type: none"> <li>1. Attending Mitrofanova lab meetings</li> <li>2. Participating in manuscript writing</li> </ol>
WHERE DO YOU PLAN TO PRESENT OR PUBLISH THE FINDINGS WITH THE STUDENT? (e.g., national or state meetings, newsletter or journal, SHP poster day)	EBiomedicine or Nature Communications

### **CHECK ALL APPROPRIATE BOXES BELOW AND PROVIDE REQUESTED INFORMATION.**

This project is: ☐ clinical ☐ laboratory ☐ behavioral ☐ survey ☐ educational

x☒ Other: please specify\_\_\_\_\_Computational\_\_

☐ This project involves the use of human subjects (including chart review, retrospective studies and questionnaires).

Pending ☐ Approved ☐ IRB Protocol Number \_\_\_\_\_

**IRB approval must be obtained by June 2023**

4/5/2023

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\_\_\_\_\_ 3/30/23 \_\_\_\_\_

Signature of Department Chair

Date

OR-For internal use

Form: (1)

Reviewed date: 4/4/23

Date processed on website: \_\_\_\_\_