

Faculty Member Contact Information

Name	Bhargav Patel
Contact Info	
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Department	Pharmaceutical Sciences

1 Funded, 1-2 Unfunded URCA Assistant

	This position is ONLY open to students who have declared a major in this discipline.	M
	This project deals with social justice issues.	
	This project deals with sustainability (green) issues.	
✓	This project deals with human health and wellness issues.	
	This project deals with community outreach.	
	This mentor's project is interdisciplinary in nature.	I

Are you willing to work with students from outside of your discipline? If yes, which other disciplines?

Yes

How many hours per week will your student(s) be required to work in this position?
(Minimum is 6 hours per week; typical is 9)

9

Will it be possible for your student(s) to earn course credit?

No

Location of research/creative activities:

Department of Pharmaceutical Science research labs in Health Science complex on campus

Brief description of the nature of the research/creative activity?

Development of chemoresistance to first-line therapies is responsible for the majority of deaths (over 90%) in tumor patients. Elevated protein synthesis is a critical trait that is associated with genesis, poor prognosis, and drug resistance in many types of human cancers. An essential requirement for the assembly and operation of the eIF4F translational machinery is the interaction between subunits eIF4E and eIF4G and eIF4E with mRNA. Our goal is to develop novel drug-like and selective small-molecule inhibitors of the interactions of eIF4E with eIF4G and mRNA molecules. There are tools that can measure these interactions in in vitro conditions. We want to develop these tools in our lab for robust experimentation.

Brief description of student responsibilities?

The student will receive training in modern organic chemistry techniques and in vitro pharmacological testing skills. Specifically, the student will be synthesizing m7-GTP-based sepharose beads that can be utilized in pull-down experiments to measure the interactions of eIF4E with eIF4G and mRNA.

URCA Assistant positions are designed to provide students with *research or creative activities* experience. As such, there should be measurable, appropriate outcome goals. What exactly should your student(s) have learned by the end of this experience?

The student would have a better grasp of modern organic chemistry skills, including synthesis, ion-exchange purification, and characterization techniques such as UV, NMR, and LC-MS. In addition, there would be a better understanding of the utilization of the developed beads in pharmacological assay conditions.

Requirements of Students

If the position(s) require students to be available at certain times each week (as opposed to them being able to set their own hours) please indicate all required days and times:

N/A

If the location of the research/creative activities involves off campus work, must students provide their own transportation?

N/A

Must students have taken any prerequisite classes? Please list classes and preferred

grades: Students must have completed university level general chemistry courses CHEM 121A and CHEM 125A

Other requirements or notes to applicants: