

Faculty Member Contact Information

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Description of the URCA Assistant Position

This posting includes one funded position. In addition, the faculty member may be willing to mentor additional, unfunded students.

How many unfunded students is this professor taking in addition to his/her one funded student? 1

(Students, if the faculty member will have both funded and unfunded students, he or she is free to select which student receives the funding. Funding cannot be split up between multiple students; only one student will receive it.)

Which of the following apply to this position?

- 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. 

How many hours per week will your student(s) be required to work in this position? 12

(Minimum is 6 hours per week; typical is 9.)

Will it be possible for your student(s) to earn course credit? Yes No

If yes, in which course? CHEM 396, 496

If yes, for how many credit hours? 2

Location of research/creative activities: SL 0116B

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

The project to investigate the role of CaM in STIM- dependent Ca²⁺ storage, which is require to main Ca²⁺ homeostasis. The entry of Ca²⁺ into the cell allows Ca²⁺ to be regulated and ultimately plays an important role in gene expression and growth. Aberration from its normal regulation typically leads to cell malfunction, resulting in disease development. Recent evidence indicates that the protein calmodulin (CaM) interacts the STIM protein, thus triggering Ca²⁺ translocation. In this project, we aims to investigate how CaM recognizes STIM, providing molecular mechanism.

Brief description of student responsibilities:

The student will conduct recombinant protein expression and purification to generate CaM and STIM peptid(s), and characterize them using biophysical and biochemical approaches, such as fluorescence and Isothermal Titration Calorimetry in our laboratory. The student will also have to conduct literature search, standardize protocols, and perform data analysis.

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?

There are plenty of measurable outcomes for the life science research. In the past, my undergraduate students perform research and give poster or oral presentations in the SIUE' s Probst lecture and senior assignments, as well as professional society meeting including American Chemical Society (ACS) and American Society for Biochemistry and Molecular Biology (ASBMB). They are also co-authors in peer-review journals.

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:

Students are expected and encouraged to conduct his/her research every day (Mon. – Fri.) because biochemical research is time-consuming.

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:

Biochemistry I (CHEM451A).

Other requirements or notes to applicants:

With the experience in protein expression and purification.