

FLORIDA STATE UNIVERSITY  
2008 FSU YOUNG SCHOLARS PROGRAM  
June 15 – July 26, 2008

Faculty Member: [Thayumanasamy Somasundaram \(12-Month Faculty\)](#)

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I. Brief description in layman's terms of the specific research project for the student(s). List specific activities in which the student(s) will be involved. This information will be sent to the students, who will rank the top six projects that most interest them. **Students rely heavily on your description when selecting their choices, please be as accurate as possible.**

The aim of the project is to crystallize a biological enzyme lysozyme with different sizes and study the effect of crystal sizes on cryo cooling rates and cell dimensions. This project is an extension of last year's YSP work. The project will involve the following steps:

- 1) Specific laboratory skills in handling liquids, biological samples and liquid nitrogen.
- 2) Preparation of buffer solutions, enzyme samples and crystallization plates.
- 3) Setting-up of crystal trays with enzyme samples and salt solutions.
- 4) Optical examination of crystal trays using a light microscope and recording results.
- 5) Flash cooling of crystals in liquid nitrogen and storing of samples.
- 6) Examination of crystals using x-ray diffraction instrument and recording results.
- 7) Drawing conclusions based on the observations

Steps 1-3 can be completed during the first three weeks, Steps 4 and 5 can be completed during the 4<sup>th</sup> week, Steps 6 and 7 during the 5<sup>th</sup> week leaving the last week for final analysis and presentation of the results.

**Please note that crystallization procedure for the enzyme is already known. Flash cooling procedure is a standard technique. The correlation between crystal size and cooling rates and cell dimensions are not fully known and will be the part that the student will research and learn.**

II. Please indicate whether computer skills will be useful to the student and if so, what software or language skills would be appropriate.

Proficiency with MS Windows environment is sufficient for major part of the project's goal. Basic Linux environment skills will be introduced and is helpful in the last part of the project.

III. Many students find working in small groups to be a very positive experience. Please indicate the number of students you would be able to accept into your laboratory. 1 or 2

IV. The research will be carried out:

- A. Entirely in my laboratory [X-Ray Suite & Wet Lab](#)
- B. In both laboratory and field \_\_\_\_\_  
Marine environment \_\_\_\_\_  
Fresh water environment \_\_\_\_\_  
Terrestrial environment \_\_\_\_\_
- C. Location of Laboratory \_\_\_\_\_
- D. Under the direction of a grad student or post-doc? \_\_\_\_\_  
(Name: \_\_\_\_\_)

Return this form to Robin Smith ([smith@bio.fsu.edu](mailto:smith@bio.fsu.edu)) OR Dept. of Biology  
Mail code 1100)