

Faculty Member Contact Information

Name	Kyong-Sup Yoon
Contact Info	
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Department	Environmental 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)

6-9

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

Yes ENSC499, BIOL493 1-3

Location of research/creative activities:

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

Altered life history parameters in the highly DDT resistant 91-R strain of *Drosophila melanogaster*

Fitness disadvantage under the insecticide selection pressure has been commonly observed in many insecticide-resistant insect pests since physiological and fitness alterations in insects often occur because of exposure to xenobiotics. The 91-R strain of *Drosophila melanogaster* has been selected with dichlorodiphenyltrichloroethane (DDT) under laboratory conditions for more than a half century and determined to be highly resistant to DDT. Fitness disadvantage of the 91-R has also been characterized several times. However, linkages between metabolic alterations in terms of utilizing glucose, protein and lipid for cellular respiration and biochemical mechanisms associated with DDT resistance resulted from the DDT selection pressures have not been well understood.

Overall goal of this research project is to determine base-line life history parameters in the presence and absence of DDT exposure. Nutritional impact, such as alteration of life history parameters by high fat diet, will be also monitored to address combined risk of excess calorie intake and sublethal DDT exposures.

Brief description of student responsibilities?

Students will participate fruit fly laboratory maintenance, perform fruit fly mortality, behavioral bioassays, enzyme activity measurements, and qPCR to measure transcript levels of genes that are important in insulin signaling and glucose metabolism.

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?

Yes

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:

Work schedule for the URCA project will be adjusted based on the student's semester schedule.

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

No.

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

BIOL 150, D or better

Other requirements or notes to applicants: