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<b>14. ABSTRACT</b> During this reporting period, twelve highly qualified students (four from JSU, four from StMU, three from TAMIU, and one from TAMU-CS) participated in the summer research internship program at TAMU-CS. This group included six juniors and six seniors; and of these, six were biology majors, four were chemistry majors, one was a genetic major, and one was a pharmacy major. Interns were matched with suitable mentors based on their indicated research interests, and participated in research projects supervised by faculty in the departments of Biochemistry and Biophysics, Biology, Veterinary Integrative Bioscience, Animal and Food Services, Nutrition and Food Science and Poultry Science, and Veterinary Physiology and Pharmacology. The program ran from May 30 through August 2, 2004, and culminated with a two-day symposium, held on August 3 and 4 in conjunction with the NSF Research Experiences for Undergraduates Program, in which the interns made oral and poster presentations of their research. During the 2005-2006 academic year three interns presented their research at the Annual Biomedical Research Conference for Minority Students (ABRCMS) held in Atlanta, Georgia, on November 2-5.					
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Project Title: Office of Naval Research-Interns in Biomolecular Sciences Multi-institutional  
Research Enhancement Partnership Program: Research Leadership for the 21<sup>st</sup> Century

ONR Award No: N00014-03-1-0317

Reporting Period: June 1, 2004 – December 29, 2005

Award Period: December 30, 2002 – December 29, 2005

### **Scientific and Technical Objectives**

Our objective is to enhance the research training of undergraduate students in the biological sciences, particularly underrepresented ethnic minorities and women, from three minority-serving primarily teaching institutions - Jackson State University (JSU - Jackson, MS), St. Mary's University (StMU - San Antonio, TX), and Texas A&M International University (TAMIU - Laredo, TX).

### **Approach**

Fifteen students, five from each one of the participating undergraduate institutions, engage in a ten-week long summer research internship at Texas A&M University, College Station (TAMU-CS) in order to develop fundamental research skills. At the end of the summer, students write a thesis, and prepare oral and poster presentations that are delivered at a symposium. In addition, activities carried out during the academic year at the three undergraduate institutions include presentation by the interns of their research results at national student research symposia or mainstream scientific meetings as appropriate; presentation of research seminars by TAMU-CS faculty members, including prospective ONR summer research preceptors, and by outstanding scientists from other institutions; and enhancement of undergraduate laboratory training.

### **Concise Accomplishments**

During this reporting period, twelve highly qualified students (four from JSU, four from StMU, three from TAMIU, and one from TAMU-CS) participated in the summer research internship program at TAMU-CS. This group included six juniors and six seniors; and of these, six were biology majors, four were chemistry majors, one was a genetics major, and one was a pharmacy major. Interns were matched with suitable mentors based on their indicated research interests, and participated in research projects supervised by faculty in the departments of Biochemistry and Biophysics, Biology, Veterinary Integrative Bioscience, Animal and Food Services, Nutrition and Food Science and Poultry Science, and Veterinary Physiology and Pharmacology. The program ran from May 30 through August 2, 2004, and culminated with a two-day symposium, held on August 3 and 4 in conjunction with the NSF Research Experiences for Undergraduates Program, in which the interns made oral and poster presentations of their research.

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During the 2005-2006 academic year three interns presented their research at the *Annual Biomedical Research Conference for Minority Students (ABRCMS)* held in Atlanta, Georgia, on November 2-5. In addition, students at the three target institutions were provided with enhanced research and laboratory training, and attended research seminars.

### Expanded Accomplishments

During this reporting period twelve highly qualified students participated in the Summer Research Internship program at TAMU-CS. Table I lists the 2005 ONR Interns, their school, major, academic classification, and research mentors. Interns were matched with suitable mentors based on their indicated research interests, and participated in research projects supervised by faculty in the departments of Biochemistry and Biophysics, Biology, Veterinary Integrative Bioscience, Animal and Food Services, Nutrition and Food Science and Poultry Science, and Veterinary Physiology and Pharmacology. The program ran from May 30 through August 2, 2005, and culminated with a two-day symposium, held on August 3 and 4 in conjunction with the NSF Research Experiences for Undergraduates Program, in which the Interns made oral and poster presentations of their research.

Intern	School	Major	Classification	Mentor
Lori Botello	StMU	Biology	Junior	D. Shippen
Tamica Collin	JSU	Biology	Junior	S. Safe
Sara Conrad	JSU	Biology	Junior	M. Kladde
Robert Frade	TAMIU	Chemistry	Senior	P. LiWang
Andrea Fuller	TAMIU	Genetics	Senior	M. Bryk
Eduardo Garza	TAMIU	Chemistry	Senior	V. Panin
Victoria Omishakin	JSU	Pharmacology	Senior	S. Golden
Deyanira Osoria	TAMIU	Chemistry	Senior	N. Ing
Jaime Parra	StMU	Chemistry	Junior	S. Pillai
Larrisa Riojas	StMU	Biology	Junior	N. Turner
Jayson Shaifer	JSU	Biology	Senior	J. Wild
Andrea Zubia	StMU	Biology	Junior	E. Gastiglioni

Two former ONR interns from TAMIU presented their work at the annual College of Arts and Sciences research conference. Michael Guerra (2004) and Adriana L. Lee (2004) received a *mencion honorifica* for their seminars during the conference. Adriana's presentation obtained a second place in a competition judged by faculty members from the College. During the Fall semester 2005, the TAMIU- ONR program co-sponsored a seminar presented by Dr. Lacy Daniels, Department of Microbiology, The University of Iowa. Four ONR interns continued their research activities in the laboratories of Dr. Mario Garcia-Rios and Dr. Craig Bowe, and Dr. Hari Mandal from the Department of Biology and Chemistry at TAMIU.

### Work Plan

*N/A*

### Problems/Issues

*No Problems or Issues reported*

### Peer-Reviewed Journal Articles

*No journal articles reported.*

### **Books or Book Chapters**

*No book or book chapters reported.*

### **Technical Reports (Non-refereed Publications)**

*No technical reports reported.*

### **Abstract/Presentations/Posters/Conference Proceedings**

Parra, J.\*, Avila, D., Soni, K. Effects of Autoinducer AI-3 and AI-2-like Activities and Adrenergic Antagonists of AI-3 Autoinducer Molecules on the Viability and Potential Resuscitation of the E. Coli 0157:H7 Cells when Stored in Drinking Water. Presented at the *Annual Biomedical Research Conference for Minority Students*. November 2-5, 2005. Atlanta, GA.

Riojas, L.N.\*, Vanamala, J., Turner, N. D. Fish Oil and Pectin Suppresses Colon Carcinogenesis. Presented at the *Annual Biomedical Research Conference for Minority Students*. November 2-5, 2005. Atlanta, GA.

Valencia, F.D.\*, Tiffany-Castiglioni, E., and Qian, Y.C. Colocalization of IL-6 and GRP 78 in Astrocyte-Derived Cells: Relationship to IL-6 Retention in Pb Treated Cells. Presented at the *Annual Biomedical Research Conference for Minority Students*. November 10-13, 2004. Dallas, TX.

\* Denotes ONR Intern

### **Awards/Honors/Invention Disclosure**

Two former ONR interns from TAMIU presented their work at the annual College of Arts and Sciences research conference. Michael Guerra (2004) and Adriana L. Lee (2004) received a mention honorifica for their seminars during the conference. Adriana's presentation obtained a second place in a competition judged by faculty members from the College.

### **Patents Submitted**

*No patents submitted reported.*

### **Patents Issued**

*No patents issued reported.*

### **Technology Transfer**

*No technology transfer reported.*

### **ONR Database Statistics**

*N/A*

### **Other Sponsored Work**

*Not reported*

### **Foreign Collaborations**

*No foreign collaborations reported.*