Name: Patricia Dorn
College/Department: Biological Sciences

Rank: Professor
Chair/Professorship: None

Date Submitted: Nov. 2, 2012

Start Date: May 21, 2012
Completion Date: July 13, 2012

Title of Project: Identification of the kissing bugs most important for Chagas disease transmission in Central America and southern Mexico

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<th>Budget</th>
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<td>1. Supplies (itemize below)</td>
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Budget Justification: (Please do not attach other budget pages.)

I am requesting $400 for an upgrade of MacVector, a DNA analysis program, to facilitate our analyses.
Where will the results be published, exhibited or performed? In addition to submitting an article to a high impact peer-reviewed journal, I plan to present the results of this work at an international scientific conference that I’ve recruited to Loyola University New Orleans, the 11th International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases to be held Oct. 30-Nov. 2, 2012 (http://www.meegidconference.com/).

What other sources of funding (internal and external) have you identified for this project? Internal: Travel to Guatemala will be supported by funds from the dean’s office for my presentation of our data at our annual Chagas control meeting. This will facilitate the work with my collaborators.

External: None. My current NIH grant is completed April 30, 2012. I may request a “no-cost extension,” however; the remaining funds are for student stipends and supplies.

List years and amounts of prior Loyola University faculty grants (for the last three years): Faculty development grant 1/19/2011 for participation in the American Society for Microbiology / Joint Genome Institute Bioinformatics Institute March 9-12, 2011, in Washington, D.C. $2,937.

Narrative Description of Project:
Project: Working with a team of collaborators in Guatemala, Mexico, Uruguay and Vermont, I have for several years now been working on identifying the most important bugs in the transmission of Chagas disease to humans in southern Mexico and Central America. This fellowship will allow me to meet with my collaborators to complete the data analysis, synthesize the results and write up and submit for publication the overall conclusions of our study. This step is critical if we are to be competitive for the next NIH proposal; moreover, these results will become available to the public health community allowing them to focus Chagas control efforts in the most efficient manner possible.

Significance: Chagas is the most serious parasitic disease in Latin America where it is the fourth leading cause of death. It is a “silent killer” since in endemic areas children are usually infected and their mild symptoms are often missed. Ten to 30 years later, 30% of these infected people will die of heart disease, eliminating large numbers of the most productive cohort from the population. With no vaccine available and the only treatment of limited efficacy and causing serious side effects, the most effective approach is prevention: namely, controlling the “kissing bugs” that transmit the parasite. With the limited resources available in endemic countries it is important to identify and locate the subtypes of kissing bugs that are most important for human transmission so that control efforts can be more focused.

_T. dimidiata_ is the most important species of kissing bug in transmitting Chagas disease to humans across Central America. Although it looks similar across its geographic range, we have identified distinct genetic subtypes, even a different species in particular localities. Such subtypes likely vary in their importance for transmission of the parasite to humans, and we have already shown that different populations of kissing bugs display different behaviors and characteristics influencing the likelihood of transmission to humans. Such characteristics include whether the kissing bugs live in houses or in the forest (and how much they move between habitats); whether they prefer to feed on humans or other animals; and the specific prevalence of
infection with the Chagas parasite. My current NIH project, which is slated to finish in April 2012, involves a collaborative approach, dividing aspects of the research among investigators in Guatemala, Mexico, Uruguay, and Vermont, as we try to understand which subtype(s) is/are most important for transmission and its/their geographic location.

Working with collaborators in Mexico and Guatemala, we are collecting kissing bugs from across their geographic range. The bugs are then typed by head shape (Guatemala), by DNA analysis (Loyola and Vermont), and by chromosome structure (Uruguay). Once the subtype is known, we are determining which subtype is most important for transmission to humans by three criteria: (1) whether it lives in houses or the forest (Guatemala)[bugs that live in houses have the most contact with humans, therefore are more likely to transmit the parasite to humans]; (2) whether it carries the Chagas parasite (Loyola); and (3) whether it prefers to feed on humans or other blood meal sources (Vermont). In addition, by using the genetic analyses, we are also studying how much the bugs are moving between the forest and the houses (Loyola and Vermont), since highly mobile populations can thwart control efforts by reinfesting houses following pesticide applications.

Over the past two and a half years we have made substantial progress on this project. We have in hand 377 kissing bugs from across their geographic range and have completed habitat selection and morphometry of the heads on all samples, genetic typing on 110, blood meal analysis on 80, and determined infection rates of the parasite on 97. We expect to finish our data collection by spring 2012. My collaborators and I already have one manuscript under review, and we are working on three additional manuscripts. These cover the various individual factors involved in parasite transmission (localization of particular subtypes, movement between habitats, blood meal sources, infestation in houses, differentiation into subtypes based on head shape, etc.). To be competitive for the next grant, what we need is a comprehensive analysis. I propose to use this fellowship to integrate and analyze the data and then to write the paper that identifies the subtype(s) most important in human transmission and their geographic locations, information that can better target control efforts.

Likelihood that the project will lead to a publication/Enhancement of Loyola’s reputation: As evidenced by my CV, I understand the importance of disseminating the findings on Chagas disease to the larger scientific community. I’ve published nine journal articles (three of these with Loyola undergraduate co-authors), one review article, three book chapters, and one monograph since 2009. In addition, since 2009 I’ve co-authored 10 published abstracts (four with Loyola undergraduates) and presented our work at eight national and international conferences. I have one additional monograph in press and I’m working with three students (a Guatemalan, a Loyola undergraduate, and a Loyola alumnus doing his Master’s at the University of Vermont) on three additional articles. These frequent presentations, in venues as widespread as Amsterdam and Rio de Janeiro, raise the international reputation of Loyola University New Orleans as a place where important scientific research is taking place. Indeed, our research has already attracted a post-doctoral fellow from France, who will be joining my laboratory in January 2012.

Furthering Loyola’s strategic goals and mission: Our research on Chagas disease is deeply consistent with Loyola’s mission and goals: Chagas disease affects the poorest and most
vulnerable, those living in substandard housing with high bug populations. By addressing this serious health threat, our research furthers Loyola’s mission of leading meaningful lives with and for others and working for a more just world. These studies also benefit the larger community very directly, since my Guatemalan collaborator, Dr. Monroy, is an expert advisor to the World Health Organization Chagas control group and to many of the Ministries of Health of Central American countries. Consequently, our findings are immediately put to use to improve the health of people throughout Central America. In addition, the undergraduates at Loyola who work along side our Guatemalan counterparts in poor, rural areas of Central America, come to understand the global nature of science in a very immediate way, thus “preparing our graduates to take their place in this ever-changing world as competent, concerned, responsible members who will make a visible difference in the world.”

Project Timeline:
May 21- June 1 – Write the “Materials and Methods” and “Introduction” sections of the manuscript.
June 2-8 Work with our collaborators in Guatemala to compile and analyze our combined data, and draft the “Results” and “Discussion” sections.
June 9-July 14 Finish writing the manuscript and submit it for publication.
I’m writing in strong support of the proposal by Dr. Patricia Dorn submitted to the Summer 2012 Marquette Fellowship program.

It is rare for any science faculty member at a predominantly undergraduate institution like Loyola to be in a position to be a major player, at national and international levels, in cutting-edge scientific research. Dr. Dorn has placed herself and her laboratory in that position by the very high quality of research that she and her students here at Loyola have been able to accomplish these past 10 years.

Dr. Dorn’s proposal presents a clear plan to do the major writing (to completion) of papers that will be at the “just right” moment this summer to move her program forward. She and her collaborators from several international and US universities have been conducting field work for many years and their recent collections (of bugs and their parasites) position them to complete the laboratory studies and data analysis this coming Spring (2012). The visit to Guatemala, coupled with numerous SKYPE discussions and sharing of manuscript drafts, will form at least one major paper for submission to a major peer-reviewed journal.

Over the past 5 years, Dr. Dorn has had a truly remarkable record of initiating and completing major research projects, generating over 10 significant peer-reviewed papers. There is absolutely no doubt that her work under a Marquette Fellowship will generate at least one high quality publication.

We are in the rare position of being able to support Dr. Dorn’s research and we should do so in every way that we can. Her research program truly involves the undergraduate students that participate – they are true research team members and they bring distinction to our program and Loyola University New Orleans when they move on to graduate and professional school programs of study.
PATRICIA L. DORN

I. VITA

BIOGRAPHICAL DATA

May 1976  Graduated Livermore High School, Livermore, CA
Dec. 1980  Graduated University of California, San Diego, CA
          Major: Biology; Minors: Chemistry and Literature
May 1989  Successfully defended doctoral dissertation, “Regulation of Gene
          Expression of Equine Infectious Anemia Virus.”
          Advisors:  Dr. David Derse (National Cancer Institute)
          Dr. Richard Imberski (University of Maryland)
          Trypanosomes” Stanford University School of Medicine
          Advisor: Dr. John C. Boothroyd

Present Position:  Professor
         Department of Biological Sciences
         Loyola University, New Orleans

Web pages:
http://www.loyno.edu/~dorn/

Professional Affiliations:  Sigma Xi
                        American Society for Tropical Medicine and
                        Hygiene
                        American Society for Microbiology
                        Council for Undergraduate Research
                        Southeastern Society of Parasitologists

Research Interests:  Control of parasitic infections, population genetics of
                    parasite insect vectors, molecular diagnosis and strain typing of parasitic
                    diseases in vectors and patients, appropriate technology transfer.

Current Projects: The current research focus is on understanding the taxonomy,
population genetics, and epidemiological importance of taxa of the major
Chagas disease insect vector in Mesoamerica, *Triatoma dimidiata*, with
the ultimate goal of interrupting transmission of this serious disease. We
are also working on the epidemiology of the Chagas in the southern
United States in including in non-human primates, dogs, and humans and
studying the genetic structure of the main insect vectors.
DEGREES EARNED

Ph.D., Molecular Biology and Virology, Zoology Dept., University of Maryland, College Park, MD (1989)
B.A., Biology, University of California, San Diego, CA (1980)

AWARDS AND HONORS

2004-2007 College of Arts and Sciences Dean’s Distinguished Teaching Professorship
2007 Excellence in Research Award, Loyola University New Orleans, College of Humanities and Natural Sciences

EMPLOYMENT HISTORY

2008-present Professor, Dept. of Biological Sciences, Loyola University New Orleans
2007-2009 Associate Chair of Biological Sciences, Loyola University New Orleans
2010-present Adjunct Assistant Professor, University of Vermont
2007-present Adjunct Professor, School of Veterinary Medicine, Louisiana State University
2007-present Adjunct Assistant Professor, School of Public Health and Tropical Medicine, Tulane Health Sciences Center
2006-present Adjunct Assistant Professor, Tulane University
2000-2008 Associate Professor, Dept. of Biological Sciences, Loyola University New Orleans
1994-2000 Assistant Professor, Dept. of Biological Sciences, Loyola University New Orleans
1992-1994 Visiting Assistant Professor, Biology Dept., Hope College, Holland, MI
1989-1992 Postdoctoral Fellow in Molecular Parasitology with Dr. John C. Boothroyd, Stanford Medical School, Palo Alto, CA

II. TEACHING RECORD

COURSES TAUGHT

Pre-Loyola

DNA and Societal Issues – Calif. Acad. of Sciences, San Francisco, CA.
Biology of Parasitism (co-instructor) - Woods Hole, MA.
Principles of Biology Laboratory – Hope College, MI
Biology of Microorganisms, Lecture & Laboratory – Hope College, MI
Loyola  *advanced common curriculum course

- Biology Freshman Seminar, Biol A100
- Cells and Heredity, Lecture & Laboratory Biol A106, A107
- Cell and Molecular Biology, Lecture & Laboratory, Biol A206, A207
- Genetics, Lecture & Laboratory, Biol A201, A202
- Microbiology, Lecture & Laboratory, Biol A300, A301
- Molecular, Cellular & Developmental Biology, Lecture & Laboratory, Biol A203
- Molecular Genetics, Lecture & Laboratory Biol A394
- *Genetics & Society Biol Z138
- Research Proposal Biol A400
- Independent Research Biol A401
- Research Thesis Biol. A402
- Independent Study Biol. A499, A498

Tulane
- Microbiology, taught last 1/3 of course when regular professor became ill  
  Summer 2006

COURSES CREATED

Molecular Genetics (Biol A326-001)
This is an upper level major’s course covering the fundamentals of the principles of Genetics at the molecular level. Lectures lay the foundation for the students’ exploration of this rapidly evolving field. Through student-lead review and discussion of scientific literature, students learn the process of scientific investigation, recent findings and new technologies in the field of molecular genetics and improve their abilities to communicate in oral and written form.

Molecular Genetics Laboratory (Biol A327)
This is an upper level major’s course where students learn the process of scientific investigation by performing original research. Students have a role in deciding the research question, then in pairs identify appropriate molecular genetics methods to use in answering the question, prepare all the reagents and set up the laboratory, conduct the experiments, interpret the results and communicate these results to their fellow students.

Cells and Heredity (Biol A106)
This is the first course in the Biology core curriculum so is usually taken in the fall semester by entering freshman. This course introduces the chemical, cellular and genetic processes common to all life, emphasizing principles and concepts. Topics include the scientific method, basic chemical concepts, biological macromolecules, prokaryotic and eukaryotic cell structure, membrane structure and function, energy and metabolism, photosynthesis, respiration, meiosis, mitosis, Mendelian inheritance and the Central Dogma of molecular biology.
CREATIVE TEACHING TECHNIQUES

My teaching techniques include some of the methods identified as effective and engaging for the teaching of science including “discovery-based” and “active” learning, and are specifically designed to be inclusive of persons traditionally underrepresented in the sciences.

Although the bulk of learning experiences in my courses include lecture and lab exercises (skill-building exercises with known outcomes), I also include “teaching science as a collaborative, interpretive, constructive encounter with uncertainty” (Change, Sept./Oct. 1992). In lectures this has included giving the students the data available to the scientist and asking the students to develop conclusions from this data. In lab, students perform research projects with known (but unknown to the students) and completely unknown outcomes, including literature searches, interpretation of the results, and formal reports as a way to teach science as scientists “do science” and to engage students the process of discovery. I strive to actively engage students in their own learning in lecture including using a “personal response system” where students respond to questions flashed during lecture, activities such as writing and acting plays, completing worksheets or discussions on ethical issues in small groups.

To facilitate learning I strive for an atmosphere where we become a “community of learners”, that is, I encourage all of us to work together, support and teach each other in a cooperative rather than competitive atmosphere. I have a very interactive teaching style, provide opportunities for collaborative learning and encourage all students to participate. The contributions of women and minorities to science are emphasized. To incorporate and value different learning styles and to fairly assess student learning, I provide diverse learning experiences and assessment tools.

Oral and written communication are also emphasized in all of my courses. Students make formal presentations to the class, write brief responses to lecture material or full-length papers (which are reviewed like a scientific manuscript by the other students) and discuss issues, particularly those regarding the ethical and social implications of science. Students also work with trained tutors at the Writing Across the Curriculum lab writing their lab reports in the format of a scientific article to help them learn to write scientifically. I am making use of technology to facilitate student learning, for example, use of “Blackboard” including posting Power Point lecture outlines and figures, requiring students to post “blogs” of their service learning experience on the discussion board, online quizzes and extensive use of a personal response system in the classroom. I have also incorporated service learning activities into my courses and my students have: volunteered at an AIDS residential facility, with “Save our Lake Foundation”, produced a brochure for middle school teachers about the microbial life in Audubon Park, worked with the LA State Department of Health to develop a policy for the use of rainwater catchment systems in New Orleans post Katrina, and conducted science labs for homeschooled children, among others. I have also been a very active participant in teaching workshops on campus and at national and international meetings – both as an attendee and a presenter.
NORMAL TEACHING LOAD

I normally teach three courses per semester with one course release for scholarly activity. In addition, I have mentored students in undergraduate research, usually 2-3 students per semester in my lab and additional students in off-campus labs. I am the instructor for these students in the proposal-writing course (Biol A400), the independent research course (Biol A401) and the thesis and presentation course (Biol A402) as well as several independent study courses (Biol A499 or A498). These latter courses are in addition to my usual load of three courses per semester. I am currently mentoring three undergraduates in my laboratory, and just completed my third graduate student committee.

EVALUATIONS (From students, will be supplied by the department).

COURSE DEVELOPMENT GRANTS / DIRECTED STUDENT RESEARCH

A) Course development/Faculty development grants
1. I was awarded a course development grant F97 for my proposal, "Development of new content and pedagogical approaches for Molecular Genetics" and produced a set of lecture notes during that semester with new references to current literature. I incorporated active and cooperative learning into the course (e.g. small group work, concept maps, reviewing each other’s papers) and exercises designed to increase student’s proficiency in oral and written communication (student presentations of original research papers and a review paper). In addition, the course connects them to the “real world” by requiring them to investigate jobs in genetics and products used in molecular genetics laboratories. All students submit a current résumé with their job investigation.

2. I was awarded a faculty development grant S11 to participate in the American Society for Microbiology / Joint Genome Institute Bioinformatics Institute March 9-12, 2011, in Washington, D.C. I learned to use molecular sequence data as a framework for developing classroom activities and research projects for undergraduate students and was shown some exciting ways that undergraduates can produce meaningful scientific results while learning course material. Through these four days the 20 participants and four facilitators met in plenary sessions and small working groups along with lots of “hands-on” practice of what we were learning. Through lectures and hands-on practice we learned to use databases and bioinformatics tools that we can use with our students in classroom and research activities.

2) Directed Student Research

I have mentored 35 undergraduate students and six graduate students in original research in my laboratory. I have a strong track record of training students traditionally underrepresented in the sciences. Of these undergraduate students, 77% were female, 49% minority (African American or Hispanic) and 14% foreign. I have also supervised 16 students working in laboratories off campus and 29 completed honors theses under my
direction during my time at Loyola. Nearly all research students have continued on in biomedicine including becoming physicians or current medical students (8), graduate students (10), dentists (3), physician’s assistants (2), a pharmacist (1), an optometrist (1), a clinical laboratory supervisor (1), and laboratory technicians (3). Many have achieved notable successes, e.g. one completed a prestigious NIH internship and another was flown back to Stanford Medical School for a second interview to try to convince her to attend there (she is now head of pediatrics at a health clinic in Haiti). The students have successfully competed for $48,756 in research funding.

Students supervised, funding obtained, projects, presentations and current positions:
Research presented at: ¹Loyola Undergraduate Research Symposium, ²Beta Beta Beta regional meeting, ³Senior Honors Thesis, ⁴Loyola Student Government Association funding.

Pre-Loyola:
Tuwanda Williamson (1993-1994) - "Molecular Diagnosis of Chagas Disease in Bolivia"
(worked with PI in Bolivia, summer 1993) presented at: Hope College Summer Student Research Symposium, currently a physician working in Bolivia.
Simona Selegean (1993-1994) - "Optimization of PCR detection of T. cruzi in vector samples"; attended School of Optometry, Indiana University.

Loyola:
Nonhlanhla Majola¹,²,³,⁴(1995-1996) - Council for Undergraduate Research $3300 (one of 45 nationwide), SGA $100; "Biological Characterization of T. cruzi strain SO34, a major Bolivian Strain" presented at African Health Science Conference, Jan. 1997, South Africa, currently a laboratory supervisor in South Africa.
Cao, Jeanette¹,²,³,⁴(1995-1996) - Sigma Xi $500, SGA $100; "Possible interactions between T. cruzi and HIV"; graduated LSU Dental School, dentist in LA.
Daniel Salmeron⁴ (1996) "Possible interactions between T. cruzi and HIV"; graduated School at Tulane's School of Public Health and Tropical Medicine.
Monique (Guillot) Wood¹,²,³,⁴(1995-1997) Amer. Heart Assn. $1,600, SGA $100; "Detection of Trypanosoma cruzi in blood preserved in EDTA"; Graduated University of Minnesota for Dental School in 2000.
Debra (Engelke) Mattis¹,²,³,⁴(1996-1997) SGA $200, Tri-Beta $791, "Comparison of PCR and microscopy in the detection of T. cruzi in Guatemalan vectors"; currently a Physician's Assistant Anesthesiologist.
Bridget Brahney¹,²,³(1996-1998) Am. Heart Assn. $1600, Am. Soc. for Micro. $4,000 (one of 23 nationwide) "Rates of infection of vectors with T. rangeli in Guatemala"; Dentist in New Orleans.
Juan Flores¹,²,³,⁴(1997-1998) SGA $1467; "Comparison of fresh tissue and filter paper samples in the detection of T. cruzi by PCR"; Physician, graduated Loyola Chicago Medical School.
Candice Millro-Macklin\textsuperscript{1,4} (1998-1999) SGA $1214 "Population Genetics of Chagas Vectors"; currently a Pharmacist.

Jeff Cuppy (1998) "Isolation of Taq DNA Polymerase".


Astrid Gutierrez\textsuperscript{1,2,3,4} (1999-2001) SGA $1775 "Genetic structure of $Triatoma dimidiata$ within houses in Guatemala" Graduated Spring 2001, Lab tech position with Dr. Peter Doherty, Memphis. 2\textsuperscript{nd} place poster award at Tri-Beta meeting. Currently a Physician.

Sarah (Kott) Galfione\textsuperscript{1,2,3,4} (1999-2001) SGA $2100 "Genetic structure of $Triatoma dimidiata$ in a village in Guatemala" 2\textsuperscript{nd} place poster award at Tri-Beta meeting, Physician and Author, graduated Medical School Univ. of Texas Houston.

Crescent (Somers) Combe\textsuperscript{1,3} LAICU $2000 (2000-2002) "Genetic structure of $Triatoma dimidiata$ among departments in Guatemala" Currently a graduate student in neuroscience at Tulane University.

Debra (Salvia) Kime\textsuperscript{1,3} (2000-2002) "Genetic structure of $Triatoma dimidiata$ among departments in Guatemala" Currently a Physician’s Assistant.

Miriam Ducruet\textsuperscript{1,2,3,4} (2003-2004) Weilbacher grant $4000, SGA $427 “Population structure of $Triatoma dimidiata$ across morphotectonic units in Central America and Mexico” Currently a laboratory technician in LA.

Raquel Barrera\textsuperscript{1,3,4} (2003-2004) SGA $427 “Population structure of $Triatoma dimidiata$ across morphotectonic units in Central America and Mexico”. In graduate school.

Megan Daigle\textsuperscript{1,2,3,4} (2003-2005) SGA $1047 Serological survey of primates at the Delta Primate center for $Trypanosoma cruzi$ antibodies” Presentation at the Am. Soc. Tropical Med. & Hygiene meeting 12/2005 Wash, DC. Graduated LSUHSC, currently in Radiology Residency in New York.

Juan Calix\textsuperscript{1,2,3,4} (2004-2005) SGA $1548 "Population structure of $Triatoma dimidiata$", travel award and presentation at the Am. Soc. Tropical Med. & Hygiene meeting 12/2005 Wash, DC. Worked for Catholic Charities following hurricane Katrina, currently in an MD/PhD program at Univ. of Alabama Medical School.


Ashley Tate\textsuperscript{1,3,4} (2005-2007) SGA $1793 “Strains of $Trypanosoma cruzi$ circulating in Louisiana”, currently completing an MPH in graduate school at Emory University.

Leon Perniciaro\textsuperscript{1,4} (2005-2007) “New microsatellite primers for population genetics of $Triatoma dimidiata$” Currently a graduate student.

Kristina Cesa (2007) “Biology of $Triatoma sanguisuga$ in SE Louisiana” Completed MSc in International Health at Tulane School of Medicine including Peace Corp, currently working in Public Health at the CDC.

Lahra “Annie” Boitnot (summer 2007) Capstone project for her Master’s degree from Tulane Health Sciences Center “PCR detection of T. cruzi infection in non-human primates for Chagas vaccine study”.


Mary Spulak (2007) Genetic structure of Triatoma sanguisuga in SE Louisiana. Currently in a Medical Scientists training program at Stanford University.

Jonathan Kurtz1,3,4 (2007-2009) SGA $2,000 “Chagas in the southern U.S.” Currently a graduate student at Tulane University in Immunology.


Nick de la Rua1,3,4 (2008-present) SGA $4,000 “Phylogeny of N. American Triatomines” and “Genetic structure of Triatoma sanguisuga at a single site in Louisiana” completing his Master’s degree at the University of Vermont

Gabriela Estrada1,3,4 (2008-present) SGA $4,800 “Trypanosoma cruzi infection in Triatoma dimidiata in Central America and Mexico,” Lab manager at Harvard’s Stem Cell Institute at the Center of Regenerative Medicine.

Jihan Shami (2009-2011) SGA $4,250, $1,000 Putnam Foundation, “Taxonomy and Epidemiological Importance of Divergent Chagas Disease Vector Taxa,” Applying for graduate school in Epidemiology


Bethany Richards (2011-present) Current student

Johana Maradiaga (2011-present) Current student

Julianne Suarez (2010-present) Current student

Collaborative Undergraduate & Graduate Research Sponsored by Dr. Patricia Dorn:

Greg Hansen1,3 "Primed In Situ Labeling for Genetic Diagnosis of Numerical Chromosome Abnormalities" (Chapman Institute of Medical Genetics, Oklahoma, Dr. Lee Rickords).

Juan Carlos Vargas1,3 "In vitro cultivation of the mosquito stages of the Plasmodium parasite" (Tulane School of Public Health and Tropical Medicine, Dr. John Beier).

Michael Termin1,3 "A PCR analysis for morphologically similar species of Ascogregarina in Aedes aegypti and Aedes albopictus" (Tulane School of Public Health and Tropical Medicine, Dr. Dawn Wesson).

Gianna Rossi1,2,3 "Estrogen and working memory" (Tulane University, Dr. Gary Dohonich).

Kelly Gabler1,3,4 (1999-2001) "Viral link to breast cancer" (Tulane Medical School, Dr. Robert Garry) 3rd place winner of poster contest Tri-beta meeting.

Catherine DiGiorgio1,3, (2001-2002) “Retroviral Oncogenesis” (Tulane Medical School, Dr. Laura Levy).

Paula Mischler (2006-present) “Chagas animal reservoirs in Louisiana” (Ph.D. Awarded, LSU Veterinary School, Dr. Jack Malone)

Thomas Shoultz\textsuperscript{1,3} (2006-2007) “Mitochondrial structure in hypoxia” (University of Alabama Medical School).

Kelsey Eliasson\textsuperscript{1,3} (2006-2007) “The bacterial profile in bacterial vaginosis” (LSU Health Sciences Center, Dr. Mike Ferris).

Kristina Cesa (2007-2008) “Entomological study of site of Chagas index case in New Orleans” (MPH from Tulane Health Sciences Center, Dr. Dawn Wesson, trained and conducted her research in my laboratory).

Annie McBride\textsuperscript{1,3,4} (2006-2007) “Health epidemiology in New Orleans Post Katrina” (Tulane University Health Sciences Center, Dr. Nancy Mock).

Poppy Markwell (2007-2008) Graduate student at Tulane Health Sciences Center, Dr. Dawn Wesson, trained in my laboratory.

Jaren Kennedy\textsuperscript{1,3,4} (2008-present) “Effects of stress on brain development” (Tulane University, Dr. Fiona Inglis)

Laura Duncan\textsuperscript{1,3} (2008-2009) “Seroprevalence of \textit{T. cruzi} infection in southeastern Louisiana” (Tulane University Health Sciences Center, Dr. Dawn Wesson)

Milad El Haij (2009-2011) “Developmental processes in sea urchins” (LSU Health Sciences Center, Dr. Judith Venuti)

**ACADEMIC ADVISING**

I have advised an average of 25 students per semester and written countless letters of recommendation during my tenure at Loyola University New Orleans. I work diligently with the students to encourage them to take full advantage of the opportunities offered at Loyola from completing honors in Biology (research-based program), to participating in the Biological Honors Society, to study abroad. I work with students to help them find their career path and have maintained contact and a mentoring relationship with many of our graduates.

**III. RESEARCH ACTIVITY – PEER REVIEWED JOURNAL ARTICLES AND BOOK CHAPTERS**

**PUBLICATIONS PRIOR TO JOINING LOYOLA’S FACULTY**


PUBLICATIONS SINCE JOINING LOYOLA (*indicates undergraduate researcher)


BOOK CHAPTERS AND MONOGRAPHS


SUBMITTED

Stevens L, Hicks R, Monroy MC, Rodas AG, Lyons L, Dorn PL. Molecular ecology detects high levels of movement among domestic populations of the Chagas insect vector Triatoma dimidiata. (In review).


MANUSCRIPTS & BOOK CHAPTERS IN PREPARATION:


B. Richards*, N. de la Rua, C. Monroy, L. Stevens, P. Dorn New approach to determine Triatominae ITS2 group in degraded samples. (In preparation)


PAPERS READ/ POSTERS PRESENTED/CO-AUTHORED ABSTRACTS SINCE JOINING LOYOLA
(*Undergraduate researcher, #Professional Presentation)


5. P. L. Dorn#, L. Stevens, D. Wesson, N. de la Rua*, “Two sympatric taxa of the Chagas disease insect vector, Triatoma sanguisuga, are revealed by mtDNA


12. **Patricia Dorn#**, Claudia Calderon, Sergio Melgar, Barbara Moguel, Elizabeth Solorzano, Eric Dumonteil PhD, Carlota Monroy PhD, “Cryptic *Triatoma dimidiata* species supported by cyt b data and found In sympatry with others in Guatemala and Mexico” Centenary of Chagas Disease 1909-2009 International Symposium, Rio de Janeiro, Brazil, July 8-10, 2009.


22. K Cesa, PL Dorn, D Wesson, "High numbers of the Chagas vector, Triatoma sanguisuga, found with high prevalence of Trypanosoma cruzi at site of autochthonous human Chagas case in New Orleans, LA, USA”, American Society for Tropical Medicine and Hygiene meeting, Philadelphia, PA, November 4 - 8, 2007.


25. **Patricia Dorn**, Leon Perniciaro, Frank Steurer, Gena Lawrence, Gary Balsamo, James Diaz and Dawn Wesson, “First report of autochthonous transmission of *Trypanosoma cruzi* in Louisiana and sixth in United States” Presented at the American Society for Tropical Medicine and Hygiene meeting, Nov. 12-16, 2006 Atlanta, GA.


27. **Patricia L. Dorn** “ITS2 sequence divides *T. dimidiata* into three clades from Mexico through Central America” University of Vermont, Burlington, VT, Oct. 16, 2006.


32. **Patricia L. Dorn**, Antonieta Rodas, Sergio Melgar and Carlota Monroy “Preliminary Analysis of Microsatellite Markers for Population Genetic Studies of the Chagas vector, *Triatoma dimidiata*” Presented at the Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases (MEEGID) Society meeting, Valencia, Spain, July 18-23, 2004 Published *Infection, Genetics and Evolution.*


38. Brahney*, B; C Monroy, A Rodas, and **P Dorn**. "Detection of *Trypanosoma cruzi* and *Trypanosoma rangeli* inVector Samples from Guatemala. Presented at the American Society for Microbiology meeting, May 1998, Atlanta, GA. A C-321.


40. Majola*, N and **P Dorn**. "Biological Characterization of *Trypanosoma cruzi* strain SO34, a major Bolivian Strain", presented at the African Health Science Conference, Feb., 1997 Johannesburg, South Africa.

41. **PL Dorn#** and M Guillot*. "Preservation of *T. cruzi* DNA in blood for PCR amplification". Presented at: American Society for Tropical Medicine and

42. **PL Dorn**# and M Guillot*. "Preservation of DNA in blood and optimization of a PCR assay for detection of *T. cruzi*." Presented at the International Workshop on Molecular Epidemiology and Evolutionary Genetics of Pathogenic Microorganisms, Centers for Disease Control, June 17-19, 1996. Atlanta, GA.

**RESEARCH PROPOSALS AUTHORED OR CO-AUTHORED**

**EXTERNAL FUNDING:**

As PI, I have written the proposals and successfully competed for $871,755 in external grant funding.

Funded:
5/1/2009-4/30/2012
National Institutes of Health, R15, Administrative Supplement
Role: PI
“Taxonomy and Epidemiological Importance of Divergent Chagas Disease Vector Taxa”
Funded: $13,618

5/1/2009-4/30/2012
National Institutes of Health, R15
Role: PI
“Taxonomy and Epidemiological Importance of Divergent Chagas Disease Vector Taxa”
Funded: $186,464

1/1/2008-12/31/2010
Tulane University Health Sciences Center
Role: Co-Investigator, PI: Dr. Dawn Wesson
“Serosurvey for Human Exposure to Chagas Parasite in Southern Orleans Parish”
Funded, $50,000

9/1/2007-8/31/11
Board of Regents, Research Commercialization and Educational Enhancement,
Role: PI
“Chagas disease in southeastern Louisiana”
Funded: $498,000

2002-2007
Role: Collaborator, PI: Dr. Frank Cogswell
National Institutes of Health, R01
“Survey of enzootic and arthropod vectors”.
Funded: $573,381
Jan. 2001
Role: Co-author
Louisiana Board Of Regents
"A Proposal to the Louisiana Board Of Regents for Matching Funding for the Reverend John H. Mullahy, S.J., Eminent Scholar Chair In Environmental Biology"
Funded, $400,000

8/1/9999-7/31/2002
Role: PI
National Institutes of Health, R15
"Genetic Structure of Chagas' Disease Vector in Guatemala”
Funded, $89,489

7/1/95-6/30/96
Role: PI
American Heart Association, Beginning Grant-In-Aid
"Cloning virulence factors from Trypanosoma cruzi"
Funded, $24,184

Pre-Loyola:

1989-1992
Individual National Institutes of Health Post-Doctoral Fellowship
Role: PI
$60,000, funded

Proposed But Not Funded or Pending:

12/1/2010
Role: PI
NSF “Collaborative Research: Assessment of transmission of vector borne disease: An integration of genetics and geospatial technologies using complex systems modeling”
$2.5M, Not funded.

5/6/2009
Role: Instigator and contributor.
National Institutes of Health “Facility Renovations to Expand Biomedical Research at Loyola University New Orleans,” $3,908,906, not funded.

10/25/2007
Role: PI
“Population Genetics of Chagas Disease Vectors in Central America and Mexico”
National Institutes of Health, R15, $150,000, not funded

5/2008
Role: Co-Investigator, PI: Dr. Dawn Wesson
“Enhanced Capacity for Chagas Disease Research Toward Development of a Regional Center of Excellence”
Tulane University Health Sciences Center, $150,000, not funded

National Science Foundation Major Research Instrumentation, PI, “Acquisition of a Genetic Analyzer for Student/Faculty Research” $181,748, not funded.

Exxon-Mobil “Enhancing undergraduate science education” Assisted grant writer Kim Waggoner with the proposal. $223,564, not funded.


Howard Hughes Medical Institute, PI, Co-author, “Making the connections between disciplines,” $1,166,604, not funded.


American Association of Colleges and Universities, co-author, Oct. 1996, “Transforming science learning, a focus on women” $20,000, not funded.

American Heart Association Continuation Grant, PI, Nov. 1995, Complete rewrite, not submitted because institution lacked appropriate approvals for use of animals, $24,400.


National Institutes of Health, PI, AREA grant, June 1995, "Cloning virulence factors from Trypanosoma cruzi", PI, $92,718, not funded.

INTERNAL FUNDING:

Course Development/Faculty Development Grant, Spring 2011, “Participation in American Society for Microbiology / Joint Genome Institute Bioinformatics Institute” ($2,937, funded)

Course Development/Faculty Development Grant, Spring 2007 “Proposal Writing Institute – Council on Undergraduate Research” ($1,700, funded).

Dean’s Distinguished Teaching Professorship, 1/2004-1/2007 ($12,000 awarded).

Loyola Faculty Research Grant, Fall 2003, "Test of microsatellite sequences as genetic markers to study a Chagas disease vector in Guatemala" ($1,905, funded).

New Orleans Consortium for Technology Integration and Implementation in Teacher
Education, 2000-2001 ($3,000, funded).

Loyola Faculty Research Grant, Fall 1998, "Genetic structure of *Triatoma dimidiata* in Guatemala" ($2,500, funded).

Loyola Course Development Grant, Spring 1997, “Development of new content and pedagogical approaches for Molecular Genetics” ($2,000, funded).

Loyola Faculty Research Grant, Fall 1997, "Genetic structure of Chagas' disease vectors in Guatemala" ($2,500, funded $750).

Loyola Faculty Research Grant, Fall 1996, "Appropriate technology transfer to assist Guatemala in a national survey of Chagas disease" ($2,500, funded).

Loyola Faculty Research Grant, Fall 1994, "Development of a nucleic acid-based diagnostic assay for *Trypanosoma cruzi* in vectors and chronically-infected patients" ($2,500, funded).

Pre-Loyola:
Hope College-Howard Hughes Medical Institute Award, Fall 1994 ($5,000).

Hope College-Howard Hughes Medical Institute Award, Fall 1993 ($5,000).

Knight Foundation Award, Hope College, Summer 1993 ($6,000).

McCormick Award for Women in Science and Medicine, Stanford University, Fall 1991 ($908).

Grants Obtained by my Undergraduate Research Students:

I have assisted my undergraduate research students in writing grant proposals to: the American Heart Association, Sigma Xi, the American Society for Microbiology, the Louisiana Independent Colleges Foundation, the Council on Undergraduate Research, the Biology Honors Society Beta-Beta-Beta, and the Loyola Student Government Association Richard Frank Grant Program. They have successfully competed for a total of $48,756 from these sources, monies that have helped to fund our research.

SEMINARS ON OR OFF CAMPUS IN WHICH YOU WERE AN INVITED PARTICIPANT

March 2011 Invited Presentation, “Understanding the taxonomic subdivisions and their epidemiological importance in a Chagas Disease insect vector,” University of Vermont.


Sept. 2008 Invited Presentation, “Chagas Disease: From New Orleans to Central America”, Tulane University, New Orleans, LA.

Nov. 2007 Invited Presentation, “First report of locally-acquired Trypanosoma cruzi in a human in Louisiana”, to Biology Freshman Seminar, Loyola University New Orleans


Oct. 2006 Invited presentation, “ITS2 sequence divides T. dimidiata into three clades from Mexico through Central America” University of Vermont, Burlington, VT.


March 2004 Invited presentation, “Following the kissing bug: a personal research odyssey” Women’s Center Brown Bag seminar series, Loyola University New Orleans, LA.


Oct. 2002 Invited presentation, “Population genetics of T. dimidiata in Guatemala by RAPD-PCR”, Univ. of Calif. School of Veterinary Medicine, Davis, CA.
March 2001 Invited presentation, "Control of Chagas' Disease in Guatemala", LSU Health Sciences Center, New Orleans, LA.

March 2001 Invited presentation, "Population genetics and parasite identification in Chagas' vectors": Netropica, First International Meeting on Tropical Diseases, Antigua, Guatemala.

March 2001 Invited presentation, "Control of Chagas' Disease in Guatemala", LSU Museum, Baton Rouge, LA.

Nov. 2000 Invited presentation to Tri-Beta, Biological Honors Society "Efforts towards the Control of Chagas' Disease in Guatemala" Loyola University New Orleans, LA.

March 2000 Invited presentation to Tri-Beta, Biological Honors Society "PCR Diagnosis and Population Genetics of Chagas' Disease Vectors in Guatemala", Loyola University New Orleans, LA.

Dec., 1998 Invited presentation, "Control of Chagas' Disease in Guatemala", Tulane Primate Center, Tulane University School of Medicine.

July, 1997 Invited talk on Chagas' disease and PCR diagnosis to Genetics students, University of San Carlos, Guatemala.

Spring 1994 Presentations of research at: Loyola Marymount College, Seattle University, Cal State Fullerton, California Polytechnic Institute and Loyola University New Orleans.

FILM AND/OR VIDEO PRODUCED

2005 In collaboration with Dr. Bob Thomas "Production of Taq DNA polymerase", in Spanish, provided to Latin American investigators.

Interviews:

CONVENTIONS ATTENDED

* = PROFESSIONAL PRESENTATION

* NIH Collaborators Symposium, Antigua, Guatemala, June 1-2, 2011.


* Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases, Amsterdam, The Netherlands, Nov. 3-5, 2010 (2 presentations).

* Public Health Research Scholars Symposium, Antigua, Guatemala, June 7-8, 2010.

* American Society of Tropical Medicine and Hygiene, New Orleans, LA December 7-11, 2008 (3 presentations)

* VIII Congreso Argentino de Protozoología y Enfermedades Parasitarias, Nov. 2-5, 2008, Rosario, Argentina, (two presentations including invited plenary lecture)

* American Association for Clinical Pathology, Oct. 18-21, 2007, New Orleans, LA (invited presentation)


* American Society for Tropical Medicine and Hygiene meeting, Nov. 12-16, 2006 Atlanta, GA. (brought two Loyola students).

Southeastern Society for Parasitology meeting, March 29-31, 2006, Gatlinburg, TN

* American Society for Tropical Medicine and Hygiene meeting, Washington, D.C., Dec. 11-15, 2005 (brought 1 Loyola student).

* Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases (MEEGID) Society meeting, Valencia, Spain, July 18-23, 2004

Developing a comprehensive program of institutional effectiveness implementation including assessment and improvement of student academic achievement and services in administrative and educational support units, New Orleans, LA July 26-28, 2004

Annual Conference for Undergraduate Educators, American Society for Microbiology, New Orleans, LA May 21-23, 2004

* Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases (MEEGID) Society meeting Paris, France, July 23-27, 2002.

* American Society of Tropical Medicine and Hygiene, Nov. 11-15, Atlanta, GA 2001 (brought 2 Loyola students).


Course: Updates in Arthropod Borne Diseases of the New World, Oct. 28-29, 2000, Houston, TX; 7.75 hrs. Continuing Medical Education Credit.
American Society of Tropical Medicine and Hygiene, Oct. 29-Nov. 2, 2000, Houston, TX. (brought 2 Loyola students).


* May 1998, American Society for Microbiology Meeting, , Atlanta, GA. (Brought 1 Loyola student).

* Dec. 7-11, 1997, Annual Meeting of the American Society for Tropical Medicine and Hygiene, Orlando, FL.


* Dec. 1-5, 1996, Annual Meeting of the American Society for Tropical Medicine and Hygiene, , Baltimore, MD. (brought 1 Loyola student)


June 17-19, 1996, International Workshop on Molecular Epidemiology and Evolutionary Genetics of Pathogenic Microorganisms, Centers for Disease Control, GA.


EVALUATIONS BY COMPETENT AUTHORITIES (Will be supplied by the department)

IV. SERVICE TO THE COMMUNITY

SERVICE ON UNIVERSITY, COLLEGE AND/OR DEPARTMENTAL COMMITTEES

Member, Internal Grants Committee (F11-present)

Member, SORC (F11-present)

Member, Faculty Search Committee (F11-present)

Associate Chairperson of Biological Sciences (F07-S09)

Chair, Departmental Assessment Committee (F04-present)
Chair, Faculty Search Committee, (F08- S09)

Excellence Awards Committee (F08-F09)

Ex-Officio Member, Faculty Excellence Awards Committee (S08)

Member, University Rank & Tenure Committee (F05-F09)

Member, University Honors advisory board (F04-F06)

Member, Departmental Search Committee new Staff Position supporting major’s core labs (F04)

Member, Ad Hoc Committee to review Weibacher summer research fellowship applications (S04, S05)

Member, Departmental Equipment Committee (F03-S04)

Member, Faculty Search Committee (F03)

Chair, University Biever Guest Lectures Committee (F01-F02)

Member, Departmental Search Committee (F01-S02)

Member, Service Learning Advisory Board and Faculty Development Subcommittee (F01-S02)

Member, A & S Strategic Planning Committee (S01-F01)

Presenter, Advising Workshop (F00)

Member, University Integrated Marketing Advisory Board (S00-S02)

Chair, Departmental Search Committee (F99-S00)

Member, University Latin American Studies Committee (F99-F04)

Member, University Biever Guest Lectures Committee (F99-F01)

Participant, University LaCEPT (F98-F03)

Member, University Women’s Studies Committee (F97-F99 active; F99-S02 associate)

Member, University Clare Boothe Luce Foundation Scholarship Committee (F97-S01)
Member, Departmental Ad Hoc Curriculum Committee, Cell and Molecular "wing" (F98)

Member, University Task Force on Retention, Advising Subcommittee (F98-S99)

Member, University Honors Advisory Board (F96-F98)

Departmental Coordinator for Undergraduate Research Symposium (S96)

Departmental Supervisor of Biological Sciences Instrumentation Laboratory (95-02)

Member, Departmental Ad Hoc Curriculum Committee (94-95)

SPECIAL SERVICE FOR THE BENEFIT OF LOYOLA UNIVERSITY NEW ORLEANS

>10 press reports of my work published in Loyola Publications and local press (Baton Rouge Advocate) and shown on local TV.

Discussed my and my students’ use of the library to Library visiting committee, 2/19/2008

Presented recent data at HuNS visiting committee meeting, Oct. 2007

Participated in dinner with major benefactors.

Met with Alumni Club and a potential donor in San Diego during Hurricane Katrina evacuation (Fall 2005)

Participated in a photo shoot for Loyola’s webpage featuring my honors student’s work on bioremediation.

Met with board of trustee member and three local CEOs of biotechnology firms to promote Loyola and strengthen University-Business links.

Several presentations by myself and my research students at President’s Open Houses.

Interviews by myself and several of my research students at “Science Matters”, weekly radio show hosted by Dr. Craig Hood.

SERVICE AT THE STATE OR NATIONAL LEVEL
On-site Organizer for Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases (MEEGID) Conference to be held at Loyola University New Orleans Oct. 31-Nov. 2, 2012 (Summer 2011-present)

Co-Organizer for Bolivian Studies Association Conference (F01-S02)

Tri-Beta Representative and On-site Organizer for Association of Southeastern Biologists meeting (F00-S01)

CONTRIBUTIONS TO THE PROFESSION

Ad Hoc Review of Grant Proposals:
• Member, Scientific Review Group National Institutes of Health, Special Emphasis Panels, Tropical Medicine Research Centers, Sept. 2011
• Member, Scientific Review Group National Institutes of Health - NIAID, Fellowship Applications, July 2011
• American Heart Association, Feb. 1997
• American Society for Tropical Medicine and Hygiene, Gorgas Awards, 2008-2010

Other Proposal Review
• Reviewed proposal for the National Geographic Society (10/2011)
• Member Gorgas Grant Committee for American Society for Tropical Medicine and Hygiene (2008-2011) Review and recommend grant awards. 2010 reviewed and rewrote selection criteria.
• Reviewed grant for American Heart Association (2/97).

Graduate Student Committees
• Currently serving on one Master’s committee (University of Vermont), and one licenciada committee (Universidad de San Carlos, Guatemala). Previously served on two PhD committees (LSU School of Veterinary Medicine).

Review of Journal Articles and Book Chapters

• Reviewed book chapter for Genetics Text for Genetics, third Edition Published by WC Brown Publishers (S96).

International Service
• Hosted seven Guatemalan and one Japanese colleague in my laboratory 2000-2005, trained them in laboratory techniques, data analysis and scientific writing
(two week to three month stays).

- Regularly critique and revise scientific articles for limited-English speaking colleagues 1999-present.

Scientific Societies
- Member – Sigma Xi, Science Honorary Society
- Member – American Society for Tropical Medicine and Hygiene
- Member - Association of Southeastern Biologists
- Member – American Society for Microbiology
- Member – Council on Undergraduate Research
- Member – Southeastern Society of Parasitologists
- Member - Editorial Board of the Bolivian Studies Review

DEPARTMENT INFRASTRUCTURE GRANTS

- Board Of Regents, (Jan. 2001), Co-Author "A Proposal to the Louisiana Board Of Regents for Matching Funding for the Reverend John H. Mullahy, S.J., Eminent Scholar Chair In Environmental Biology", ($400,000, funded).

- Howard Hughes Medical Institute, (2003) PI, Co-author, “Making the connections between disciplines” ($1,166,604 not funded).

- National Science Foundation Major Research Instrumentation, (Jan. 2004) PI, “Acquisition of a Genetic Analyzer for Student/Faculty Research” ($181,748, not funded).


OTHER SERVICE TO THE NEW ORLEANS COMMUNITY AND BEYOND

- Conducted workshop on Scientific Writing for Guatemalan students, Antigua, Guatemala, June 2011.


- Conducted a workshop on use of personal response system in teaching at the Salk Institute, San Diego, CA, Nov. 2005 ~30 students and faculty in attendance.

  Conducted workshop on active and collaborative learning at the University of San Carlos, Guatemala, July 2005 ~20 students and faculty in attendance.

  Conducted a workshop on scientific writing at the University of San Carlos,
Guatemala, summer 2002. Approximately 15 students from the Laboratory of Entomology and Applied Parasitology participated.

- Co-instructor in workshop present at University of San Carlos, Guatemala entitled: "Generalidades de PCR-RAPDs para genética de poblaciones y producción de Taq polimerasa" (Use of RAPD-PCR for the study of population genetics and the production of Taq polymerase). July 10-13th, 2000. 40 students in the lecture and 12 students in the laboratory from Guatemala and El Salvador.

Co-instructor in workshop presented at University of San Carlos, Guatemala entitled: "Entrenamiento teoría-practico en tecnicas moleculares de PCR" (Theoretical & Practical training in PCR molecular techniques). July 2 - Aug. 2, 1999. 35 students from Guatemala and El Salvador participated

- I routinely invite and host 1-4 speakers annually for our departmental faculty research seminar series. I have also obtained Biever Guest Lecture Series funding and hosted visits by two internationally known researchers: Dr. Carlota Monroy in May of 2004 and Dr. Michel Tibayrenc in April of 2005.


**ADVISING STUDENT GROUPS**

- Faculty Advisor for Biology Honors Society, Tri-beta (F96-S97)

- Faculty Mentor for residents of 7th floor of Buddig Dormitory (F04-S05)