

Student Accomplishments for 2007 - 2008

On Campus: Summer Undergraduate Research Program, Summer 2007

Mackenzie Esch

Mentor: Dr. Sudhir Nayak

"The role of ptp-3, a protein tyrosine phosphatase, in the modulation of GLD-1 protein levels in C. elegans"

Jing Jing Feng

Mentor: Dr. Amanda Norvell

"The role of microtubules in patterning the dorsal-ventral axis of the Drosophila melanogaster egg"

Carolyn Gray

Mentor: Dr. Amanda Norvell

"The role of the microtubules in gurken (grk) mRNA localization during Drosophila oogenesis"

Krysta Johns-Harris

Mentor: Dr. James Bricker

"Determining genetic variation of white-tailed deer populations in New Jersey throughout time"

Dipen Patel

Mentor: Dr. James Bricker

"Isolation and amplification of microsatellite loci in white-tailed deer"

Jim Hayes

Mentor: Dr. Sudhir Nayak

"Development of small molecule proteasome inhibitors"

Jaclyn Kahn

Mentor: Dr. Curt Elderkin

"Genetic variation within and among species of freshwater mussel, Elliptio complanata, in the Delaware, Raritan, and Susquehanna Watersheds"

Jason Lei

Mentor: Dr. Miriam Segura-Totten

"Phosphorylation regulates Barrier-to-Autointegration Factor (BAF) function during nuclear assembly"

Andrew Máthé and Alex Rass

Mentor: Dr. Curt Elderkin

"Assessing the impact of the Assunpink Creek Greenway Project"

Anjali Mone

Mentor: Dr. Marcia O'Connell

"Investigating homologs of the squid gene during zebrafish (Danio rerio) embryogenesis"

Stacey Novello

Mentor: Dr. Donald Lovett

"Changes in Na⁺-K⁺, ATPase expression and activity in the blue crab Callinectes sapidus in response to an increase in environmental salinity"

Emily Nowicki

Mentor: Dr. Janet Morrison

"Optimizing direct polymerase chain reaction (PCR) for germinated Sporisorium ellisii teliospores, mycelial ball cultures, and fragments"

Kimberly Parks

Mentor: Dr. Miriam Segura-Totten

"Mapping the binding region for histone H3 on Barrier-to-Autointegration Factor (BAF)"

Swapnil Patel

Mentor: Dr. Marcia O'Connell

"Investigating homologs of the squid gene during zebrafish (Danio rerio) embryogenesis"

Artur Romanchuk

Mentor: Dr. Janet Morrison

"Development of PCR markers for diagnosing Sporisorium ellisii infection within populations of A. virginicus"

Natalie Stabenow

Mentor: Dr. Sudhir Nayak

"Analysis of GLD-1 Protein Turnover in the Germline of Caenorhabditis elegans"

Jansen Weaver

Mentor: Dr. Donald Lovett

"Changes in Na⁺-K⁺, ATPase expression and activity in the blue crab Callinectes sapidus in response to an increase in environmental salinity"

Off Campus: Research Projects, Summer 2007

Alex Arnouk

Mentor: Dr. Christophe Depre, UMDNJ–New Jersey Medical School, Dept of Cellular and Molecular Biology
“The Effect of Statins on the Cardiac Proteasome during Hypertrophy by H11 Kinase”

Scott E. Blair

Mentor: Dr. Young-Mee Park, Roswell Park Cancer Institute
“The potential role of Peroxiredoxin 1 (Prx1) in immune regulation”

Ermal Bojdani

Mentor: Dr. D.P.Saha, Schering-Plough Molecular and Cell Biology, Biological and Sterile Product Development
“The effect of heavy and light chain copies on monoclonal antibody production”

Alysa Evans

Mentor: Dr. Pablo Kizelstein, Cook College, Rutgers University
“Effect of Compound X on high fat diet induced obesity and hyperglycemia in C57BL/6J mice”

Zach Goldstein

Mentor: Dr. George Studzinski, UMDNJ – NJ Medical School, Newark
“Cell death and cell cycle control in human leukemia cells”

Krista L. Greene

Mentor: Dr. David Tonjes, Cashin Associates, P.C.
“Population survey of the hard clam, Mercenaria mercenaria, in Oyster Bay Harbor, NY”

Vivian Ku

Mentor: Dr. Yale S. Arkel, Bio-reference Laboratories, Elmwood Park, NJ
“High prevalence of Anti-Z and Anti-S antibodies in patients with other serological markers for antiphospholipid antibodies”

Sara Jackrel

Mentors: Page Klug and Dr. Kimberly With, Kansas State University Division of Biology
“Habitat use by nesting grassland birds and their snake predators”

Jeffery Mojica

Mentor: Rodney Camire, PhD, Dept of Pediatrics, Children’s Hospital of Philadelphia and Univ of Pennsylvania
“Prothrombin activators in Oxyuranus scutellatus Factor X help understand Prothrombin regulation”

Divya Nadkarni

Mentors: Drs. Ekaterina Breous and James Wilson, University of Pennsylvania School of Medicine
“Liver-resident Trigs in AAV8-induced tolerance to α -1 antitrypsin”

Michaela Olsavska

Mentor: Dr. Scott Greenfeder, Schering-Plough, Dept of Cardiovascular and Metabolic Diseases
“Effects of caloric restriction in wild-type and GPR109A-deficient mice”

Priya Patel

Mentor: Dr. Aaron Shatkin, UMDNJ, Center for Advanced Biotechnology and Medicine
“Expression, purification, crystallization, and structural characterization of recombinant human mRNA capping enzymes”

Dan Plaska

Mentor: Dr. M. Palladino, Monmouth University
“Identification of Toll like Receptors in male spermatozoa”

Purak C. Purikh

Mentor: Drs. David Stern and Gregory David, Princeton University Dept of Ecology and Evolutionary Biology
“Targeting the cis-regulatory elements of the Drosophila gene shavenbaby”

Silvano Samartine

Mentor: Dr. Miriam Segura-Totten, The College of New Jersey

"Biochemical interaction between Barrier-to-Autointegration Factor (BAF) and Mixed-lineage leukemia 3 (MLL3)"

Steven N. Steinway

Mentors: Howard Laten, Dept of Biology; and Chandra Sekharan, Dept of Computer Science, Loyola University

"In silico retrieval and cataloging of Genbank DNA sequences adjacent to interspersed repetitive elements"

Tina Varghese

Mentors: Steven Keller, PhD, UMDNJ-NJMS; and Dr. Marilyn Pierre-Louis MD, Hoboken University Medical Ctr

"Physician definition palliative care and its potential effects on patient care"

Kliment Verba

Mentor: Dr. Greg Burhman, North Carolina State University, Raleigh, NC

"Multiple solvent crystallization of BAF"

On-Campus Research – Academic Year (Fall 2007 – Spring 2008)**Anari, Jason**

Mentor: Dr. A. Norvell

The protease rhomboid and how interactions with colchicine affect appendage formation

Bendor, Liron

Mentor: Dr. C. Elderkin

Population genetics of freshwater mussels in Maine

Bielejewski, Jessica

Mentor: Dr. D. Lovett

Evaluation of elongation factor-1-alpha as a housekeeping gene in Callinectes sapidus

Cedeno, Natalie

Mentor: Dr. M. Segura-Totten

Testing the interaction between MLL3 and BAF-L

Cherla, Deepa

Mentor: Dr. M. Segura-Totten

Investigation of the binding of MAASQ mutant BAF protein to emerlin

Cornacchia, Michelle

Mentor: Dr. A. Uzwiak

In vivo study of single unit neurons in rat hippocampus

Corbett, Brian

Mentor: Dr. J. Morrison

The allelopathic potential of an invasive species, Microstegium vimineum, and a native species, Eupatorium rugosum, and the effects of microbial organisms in allelopathic studies

Curcio, Christian

Mentor: Dr. D. Shevlin

Examination of the early life cycle of the plant parasitic fungus Sporisorium everhartii

Davila, Ramon

Mentor: Dr. J. Erickson

Is serotonin neurotransmission required for normal ventilatory responses to elevated environmental CO₂ in newborn mice?

De Sousa, Jennifer

Mentor: Dr. K. Pecor

Hydrodynamics and crayfish chemical ecology

Egizi, Andrea

Mentor: Dr. C. Elderkin

*Phylogeography of the freshwater mussel, Elliptio complanata (Bivalvia: Unionidae)**

**Recipient of a Phi Kappa Phi Student-Faculty Research Award*

Feng, Jing-Jing

Mentor: Dr. A. Norvell

The role of nuclear positioning in Gurken signaling during Drosophila oogenesis

- Fox, Daniel** Mentor: Dr. A. Norvell
The role of squid isoforms in Drosophila oogenesis
- Ganza, Amanda** Mentor: Dr. J. Erickson
Effects of methysergide maleate, a serotonin receptor antagonist, on autoresuscitation capability in serotonin-deficient neonatal mice
- Ghamandi, Dave** Mentor: Dr. M. O'Connell
Analysis of the role of the zebrafish squid protein; A potential function in the notochord
- Gray, Carolyn** Mentor: Dr. A. Norvell
The effects of colchicine on nuclear placement and gurken mRNA localization during oogenesis in Drosophila melanogaster
- Harris, Amanda** Mentor: Dr. J. Erickson
Environmental temperature and autoresuscitation capability during early postnatal development: An analysis of serotonin-deficient Pet-1 knockout mice
- Hayes, James** Mentor: Dr. S. Nayak
JCoDA: A visualization tool for multiple sequence alignment
- Johns-Harris, Krysta** Mentor: Dr. J. Bricker
Determining genetic variation of white-tailed deer populations in New Jersey throughout time
- LaBonte, Susan** Mentor: Dr. D. Lovett
The sequence of the ribosomal protein S9 gene of the blue crab, Callinectes sapidus, and its potential use as a housekeeping gene
- Ligocki, Ann** Mentor: Dr. J. Morrison
Three years of change in a natural plant-pathogen interaction
- Máthé, András** Mentor: Dr. C. Elderkin
Population genetics of the yellow lampmussel, Lampsilis cariosa: A comparison of four microsatellite loci in Pennsylvania and Maine
- Mecker, Samantha** Mentor: Dr. J. Erickson
Effect of prenatal nicotine exposure on autoresuscitation responses to hypoxia-induced apnea in neonatal serotonin-deficient Pet-1 knockout mice
- Mocete, Yvette** Mentor: Dr. K. Pecor
Chemical ecology of the signal crayfish (Pacifastacus leniusculus)
- Mojica, Jeffrey** Mentor: Dr. S. Nayak
Barrier to autointegration factor is required for C. elegans mitosis
- Mone, Anjali** Mentor: Dr. M. O'Connell
Early development in zebrafish (Danio rerio): The search for a homolog of Drosophila localization gene squid
- Nowicki, Emily** Mentor: Dr. J. Morrison
Three years of change in a natural plant-pathogen interaction
- Olsavska, Michaela** Mentor: Dr. J. Bricker
Extraction and amplification of diatom DNA as an indicator for water quality
- Parks, Kimberly** Mentor: Dr. M. Segura-Totten
Mapping the binding region for histone H3 on Barrier-to-Autointegration Factor using site-directed spin labeling

- Rass, Alex C.** Mentor: Dr. Elderkin
*Genetic dissimilarities among populations of *Elliptio complanata* in the Delaware, Raritan, and Susquehanna Rivers*
- Ruzi, Daria** Mentor: Dr. G. Lipton
*The peripheral nervous system of the eastern cicada killer wasp, *Sphecius speciosus*, in select pregenital abdominal segment*
- Schoenfeld, Joshua** Mentor: Dr. A. Norvell
*The role of the oocyte nucleus in gurken mRNA localization during oogenesis in *D. melanogaster**
- Senatore, Frank** Mentor: Dr. S. Nayak
*The tumor suppressor *gld-1* protein has a high turnover rate in the germline of *C. elegans**
- Shah, Sagar** Mentor: Dr. J. Bricker
Isolation and amplification of microsatellite loci in white-tailed deer
- Silverman, Amanda** Mentor: Dr. J. Bricker
*Analysis of microsatellite DNA in *Elaphe guttata**
- Speert, Tory** Mentor: Dr. G. Lipton
*The nervous system of the pre-genital abdominal segment of the bess beetle, *Passalus cornitis**
- Stabenow, Natalie** Mentor: Dr. S. Nayak
Development of novel small molecule proteasome inhibitors
- Sullivan, Meghan** Mentor: Dr. A. Norvell
*SqdA/orb interactions in *D. melanogaster* oocyte development*
- Verba, Kliment** Mentor: Dr. M. Segura-Totten
Assaying the interaction between Barrier-to-Autointegration Factor Like (BAF-L) and Mixed Lineage Leukemia 3 (MLL3)

2008 Awards

The Biology Department congratulates the winners of the following departmental awards for 2008:

Alumni Award

Presented to **Purak Parikh**, with Ron Golan receiving Honorable Mention

Wyeth Award

Presented to **Carolyn Gray**, with Brian Sposato receiving Honorable Mention

Vena Award

Presented to **Josh Schoenfeld**, with Jason Lei receiving Honorable Mention

Uyhazi Award

Presented to **Jason Anari**, with Ermal Bojdani receiving Honorable Mention

Moran Award

Presented to **Mackenzie Esch**, with Amit Shah receiving Honorable Mention

Other Biology students who have recently won awards include:

Sara Jackrel, sophomore, who was awarded the Morris K. Udall Foundation's Environmental Scholarship Prize for commitment to the study of environmental issues, and nominated for the award by Dr. Janet Morrison;

Carolyn Gray, senior, one of two recipients of this year's Dr. Harold W. Eickhoff Outstanding Senior Scholar-Athlete Award, for her academic and athletic excellence;

and **Daniel K. Fox**, **Ermal Bojdani**, and **Jason Lei**, all seniors, who each won top honors recently at the Beta Beta Beta National Honor Society Convention for their research presentations.

More detailed stories on these students' commendable achievements can be read by visiting the School of Science home page, www.tcnj.edu/~science, and selecting the appropriate news article.

The Biology Department is so pleased with and so proud of ALL our students, especially as typified by these outstanding young scholars. We heartily congratulate them for their hard work and excellent achievements.