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Editors: Tara & Justin Ramsey
Photography: Cheeptip Benyajati
Phone: 585/275-8837
Fax: 585/275-2070
email: mfredendall@admin.rochester.edu

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# The Open Reading Frame

University of Rochester
Department of Biology
Newsletter

**Message from the Chair**

Speaking for the various members of the Biology Department I would like to congratulate our graduating seniors for the successful completion of their studies at the University of Rochester. It has been a distinct pleasure participating in the education of these young men and women. We in the Biology Department have learned to appreciate the capabilities and enthusiasms of our students and are confident they will achieve success in their future careers. I would also like to acknowledge their parents, family and friends for the support they have given these seniors. It is the rare person who travels the road alone and each of you can take pride in the role you have provided. Our students can take comfort in knowing that you will be there as they start this new phase of their lives.

This year we have a record 141 students obtaining a B.A. degree in Biology or a B.S. degree in Molecular Genetics, Cellular and Developmental Biology or Ecology and Evolutionary Biology. Interest in the discipline of Biology has never been as great as it is today and our graduating students can look forward to an exciting future filled with many opportunities and challenges.

As the variety of degrees suggest, the modern discipline of Biology embraces many areas of study. This department prides itself on being similarly broadly based with research interests that range from ecology to biochemistry. The faculty here are highly successful in their scholarly pursuits, last year having received over $7,000,000 in grants from the National Institutes of Health, the National Science Foundation as well as from private foundations such as the Ellison Medical Foundation and Alfred P. Sloan Foundation. You can learn more about the research in our department by going to our website (www.rochester.edu/College/BIO). This department takes equal pride in our ability to teach the breadth of courses needed by Biology students today. We believe this breadth has allowed us to provide a balanced education for our graduating seniors.

I would like to thank the seniors for their thoughtful and entertaining contributions to this newsletter and encourage all of our alumni to keep us informed of developments in their careers. You can place any information you would like to share on our website (www.rochester.edu/College/BIO/alumni_update.php). I would also like to thank Tara and Justin Ramsey and Mary Fredendall for assembling this newsletter, and to Cheeptip Benyajati, Marianne Arcoraci, Brenna Holik and Jenn Baylark for the efficient running of the Undergraduate Program in Biology and Medicine and for organizing our graduation ceremony.

Finally I would like to indicate that this will be my last year as Department Chair. This is a bittersweet time for me. It has been a pleasure and an honor working on a day-to-day basis with the highly talented faculty and staff of this department. I thank you for your help and support over these years. I hope that I am leaving the department stronger than when I accepted the position. I believe the outlook for the department is bright, and I am convinced that the new chair, Dr. Gloria Culver, will lead this department to an even brighter future.

–Tom Eickbush

# One Hundred and Forty-One Biology Majors Earn Degrees in 2010

The Department of Biology will be holding their 2010 Diploma Ceremony on Sunday, May 16th, 2010 at 11:30 a.m. in the Interfaith Chapel. Approximately 116 students will be participating in this year's event.

The Biology Department's senior class is made up of 123 students as well as an additional 18 students enrolled in the U of R's Take-5 and various fifth-year programs. These students have chosen to major in one of the following biological sciences: B.A. in Biology (BA BIO), B.S. in Biological Sciences: Cell and Developmental Biology (BS BCD), B.S. in Biological Sciences: Evolutionary Biology and Ecology (BS BEB), B.S. in Biological Sciences: Molecular Genetics (BS BMG). This year's senior class consists of 82 women and 59 men. Twenty-three students will earn double majors.

Dr. John Jaenike, Professor of Biology and Associate Department Chair, will be the Master of Ceremonies by welcoming students and guests.

The ceremony will begin with a student speaker from the class of 2010. The class speaker is chosen by the faculty for excellence in academics, research, and for service to the department. This year's student speaker is Justin Budnik (BS BEB), who will be introduced by Dr. James Fry.

Dr. Justin Ramsey will present the Ayman Amin-Salem Memorial Fund Prize. This is a College-wide award and is given each year to a member of the senior class who best evidences the qualities of good character and good citizenship, such as decency, reliability, responsibility, and congeniality. Ayman was a student in the Class of '87 who died in a car accident. His family established this fund in his memory. This year's recipient is Justin Budnik (BS BEB).

Dr. David Goldfarb will present The Donald R. Charles Memorial Prize. This prize is given annually by the Biology Department to students who show great potential and have exhibited excellence in science. The 2010 Donald R. Charles Award will be received by: Brad Albertson (BS BMG), Jarrod Bogue (BS BMG), Justin Budnik (BS BEB), Jeffrey Cohen (BA BIO), Tara Gelb (BS BMG), Katsiaryna Pleshankova (BA BIO), Rebecca Lu (BS BMG), Stephen Supoyo (BS BMG), and Martina Zink (BS BCD).

Dr. Richard Glor will present the students who have earned degrees with Distinction in Research in the BA BIO, BS BCD, BS BEB, and BS BMG majors. Students who have earned distinction in research this year are: Ankita Agarwal (BA BIO), Ritesh Agnihothri (BA BIO), Jarrod Bogue (BS BMG), Justin Budnik (BS BEB), Rebecca Domalski (BS BEB), Tara Gelb (BS BMG), Stephanie Herrlinger (BS BMG), Alison Ossip-Klein (BS BEB), Hannah Pullman (BS BEB), Benjamin Sabari (BS BMG), Jessica Sowa (BS BMG), Stephen Supoyo (BS BMG), and Laney Widener (BA BIO).

Dr. Cheeptip Benyajati will be presenting a special tribute to the undergraduate students who served as undergraduate teaching assistants in biology department courses.

The ceremony will culminate in the awarding of diplomas. Personalized messages written by graduates will be announced as the diplomas are distributed by: Dr. Cheeptip Benyajati, Dr. Alan Dietsche, Dr. James Fry, Dr. Vera Gorbunova, Dr. John Jaenike, Dr. Robert Minckley, Dr. Anthony Olek, Dr. Tara Ramsey, Dr. Andrei Seluanov, and Dr. Elaine Sia.

A reception will be held immediately following the ceremony in the Field House located in the Goergen Athletic Center.

**Graduating Class of the Undergraduate Program in Biology and Medicine (UPBM) 2010**

**Bachelor of Arts Biology (BA BIO):**

Mirjeta Abazaga
Ankita Agarwal ΦBK★★SCL
Ritesh Agnihothri★★CL
Daniel Berman
Christi Bottcher
Ryan Boulas
Joana Brenckle CL
Octavia Brooks
Katherine Brunson
Elizabeth Cavagnaro CL
Kelly Chen
Bohun Choi
Patrick Chung
Jeffrey Cohen ΦBK SCL
Joshua Cohen
Ronald Couri
Debarshi Das
Stephanie Diebold
Suman Gedala
Meryl Gold
Danielle Goldberg
Allison Guttmann CL
Sarah Hanna
Hayley Hoffman
Shobha Kaushik
Paul Lam
Rebecca Landzberg
Michael Langsdale
Valerie Lazickas
Andrew Lelchuk
Jessica Marino
Timothy McCarthy

Kenneth McKay ΦBK MCL
Nishi Mehta CL
Daniel Mooncai
Michael Mungillo CL
Julia Munteanu
Toni Muto
Jack O'Connor
Riley O'Neil CL
John Oakford
Danielle Pak
Indira Maria Pallaro
Katsiaryna Pleshankova SCL
Robert Policastro
Daniel Quintana
Mustafa Rehmani
Maja Rendic
Hillary Richards
Jeannine Rider MCL
Lauren Saylor
Elise Scheid
Rosemary Shojaie
Kristina Siliunas MCL
Nicole Socash
Sam Spinowitz ΦBK SCL
Michael Storonsky
Linda Thompson
Molly Tozier
Mohammed Tushar
Manling Wang
Jozal Waroich MCL
Laney Widener ★★
James Womer CL
James Wu
Michael Yee ΦBK
Adam Zayac CL
Katelyn Zelter

**Bachelor of Science Biochemistry (BS BBC):**
Sarah Ackroyd
Christi Bottcher
Erin Carballo
Edward Chi
Shanthi Chodagiri
Kathryn Harper CL
Jason Heath ΦBK ★★MCL
Charles Hinton
Min Hur
Aditi Kamat CL
Duk Soo Kim ★★MCL
David Kopin ΦBK ★★CL
Elizabeth Lane MCL
Mark Mendonca
Laura Nemeth ΦBK ★★CL
Ajit Rao SCL
Jessica Sheu
Kelly Sullivan CL
Sarah Sushchyk
Julie Tabroff ΦBK ★★MCL
Sarah Wessel CL
Amanda Ziegler CL
Daniel Zuch

**Bachelor of Science Cell and Developmental Biology (BS BCD):**
Kayla Anderson
Alyssa Berkowitz
Andrew Cannon
Cara Champion
Michael Chen
Rachel Chess
Jason Guattery
Diana Hartnett CL
Shafayat Moin
Krishna Upadhyaya MCL
Martina Zink ΦBK SCL

**Bachelor of Science Evolutionary Biology and Ecology (BS BEB):**
Evgeny Brud CL
Justin Budnik ★★MCL
Bhargav Chandrashekar
Benjamin Daigler
Katherine Davis ΦBK MCL
Rebecca Domalski ★★
Kristina Doyle
Lynna Gu
Rachel Ingutti
Jensen Kamiya
David Nager-Sadoff
Jennifer Okajima ΦBK MCL
Alison Ossip-Klein ★★ CL
Monica Patel
Deborah Philbrick
Hannah Pullman ★★ CL
Seth Rudman
Marya Shuksta
Maria Strangas ΦBK MCL
Miranda Uriell
Carolyn Vanalstyne

**Bachelor of Science Microbiology (BS BMB):**
Kamile Belle
Benjamin Lior CL
Andrew Bennett
Justin Boucher
Amanda Case
David Collins CL ★★
Owen Deland
Tara George
Heather Graham
Hilary Haefner
Julie Huang
Yiheng Jang
Edward Katich
Bumsoo Kim
Alvin Lee
Zhenghui Li CL
Kevin Lu CL
Alexandria Maurer CL ★★
Jennifer Mosher
Julianne Nelson ★★
Di Pan
Katelyn Patterson
Timothy Pestell
Jennifer Principio
Melissa Ruck
Mark Rudolph
Sumir Shah
Eliezer Sylvestre
Joseph Taran
Carol Tong
William Urciuoli
Victoria Vignare
Peter Yen

**Bachelor of Science Molecular Genetics (BS BMG):**
Brad Albertson ΦBK MCL
Shervin Badkhshan
Kevin Bain
Judson Belmont CL
Risa Bernstein CL
Jarrod Bogue ΦBK ★★ MCL
Andrew Bowman
Eric Chin
Christine Cleaver
Michael Cypress
Jillian Dann
Lena DeBaz
Sarah Dobrzynski
Nicholas Farris CL
Sandy Ferri
Tara Gelb ΦBK ★★ SCL
Xiaoge Guo CL
Catelyn Halusic CL
Stephanie Herrlinger ★★
Alexandra Horenstein
Malik Kabir
Asif Karim CL
Akaash Kumar

Rebecca Lu ΦBK MCL
Jessica Mastronardi
Theresa Milano MCL
Trevor Miller
Kathleen Mulvaney
Deborah Obebeduo
Avni Patel MCL
Paola Pinto
Sandhya Ramsook
Ananya Ray MCL
Benjamin Sabari ΦBK★★ MCL
Maya Silbert
Jason Solomon
Jaime Sorenson
Jessica Sowa★★
Christopher Storey CL
Hans Stumpf
Stephen Supoyo ΦBK★★
Rose Tsai
Lillian Wynn

**Bachelor of Science Neuroscience (BS BNS):**
Busra Altun
Michael Brown
Mihir Buch
Harris Chengazi
Oren Cohen CL
Juliana Debski CL
Aynsley Duncan MCL
Nicholas Gala
Brendan Guercio
Caroline Hong
Blake Hopiavuori
Moriah Jacobson
Hans Julianus
Doyoun Kim
Olga Krilova SCL
Timothy Lindsay
Diamond Ling MCL
Michael Melnick CL
Diana Navarro
Renee O'Toole MCL
Christina Poh
Amanda Pollock CL
Jennifer Rafferty
David Reiner CL
Lauren Reynolds
Cassandra Robinson
Katherine Rose CL
Kashika Sahay
Luke Shaw
Pari Shelat
Yaroslav Shtengrat
Elaina Stover CL
Aaron Varghese
Amanda Wright
Yeon Yoo
Jared York CL
Diana Yun

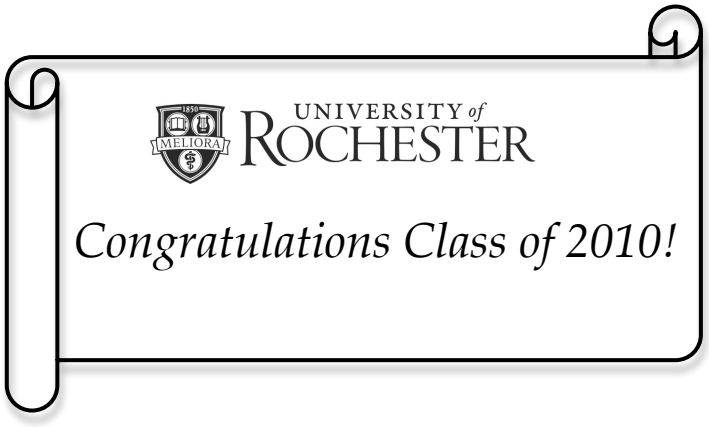
ΦBK: Phi Beta Kappa
★★: Degree with Distinction in Research
CL: Cum Laude
MCL: Magna Cum Laude
SCL: Summa Cum Laude

# National Honors & Awards

**JACK KENT COOKE CONTINUING GRADUATE STUDY SCHOLARSHIP 2010 SCHOLAR**
*Katsiaryna Pleshankova*

**FULBRIGHT U.S. STUDENT PROGRAM**
*Anysley Duncan*
*Anita Hargrave*
*Jason Lee (candidate)*

**NATIONAL INSTITUTES OF HEALTH UNDERGRADUATE SCHOLARSHIP 2009 SCHOLAR**
*Diamond Ling*



## Independent Research

In addition to being an outstanding undergraduate institution, the University of Rochester is also a major research university. One of the Rochester Advantages is the opportunity for undergraduates to gain hands-on experience doing modern biological research. Research opportunities are made possible by the enthusiasm of faculty for cooperative learning. A student's opportunity to do research is limited only by their talent and persistence to find faculty to sponsor research projects within their area of interest.

One way students may gain research experience is through registering for Independent Research (395) Courses. Independent Research courses allow students in B.A. and B.S. tracks to gain research experience for academic credit. Several members of the 2010 Undergraduate Program in Biology and Medicine graduating class have done one or more semesters of Independent Research for credit.

The following is a list of students and faculty sponsors who have taken one or more semesters of independent research courses:

**RITESH AGNIHOTHRI BIO (5)**
Faculty Sponsor: Dr. Lisa Beck/Dr. Brian Poligone/Dr. Alice Pentland
Department: Dermatology

**KEVIN BAIN BMG**
Faculty Sponsor: Dr. Michael Welte
Department: Biology

**JARROD BOGUE BMG (2)**
Faculty Sponsor: Dr. Joseph Wedekind
Department: Biochemistry & Biophysics

**JUSTIN BOUCHER BMB**
Faculty Sponsor: Dr. Minsoo Kim
Department: Microbiology & Immunology

**MIHIR BUCH BNS**
Faculty Sponsor: Dr. Robert Doty
Department: Neorology & Anatomy

**JUSTIN BUDNIK BEB**
Faculty Sponsor: Dr. Justin Ramsey
Department: Biology

**AMANDA CASE BMB**
Faculty Sponsor: Dr. Mingtao Zeng
Department: Microbiology & Immunology

**DAVID COLLINS BMB (2)**
Faculty Sponsor: Dr. Timothy Mosmann
Department: Microbiology & Immunology

**MICHAEL CYPRESS BMG**
Faculty Sponsor: Dr. David Lambert
Department: Biology

**LENA DEBAZ BMG**
Faculty Sponsor: Dr. Hyun Koo
Department: Dentistry

**SARAH DOBRZYNSKI BMG**
Faculty Sponsor: Dr. Martin Gorovsky
Department: Biology

**REBECCA DOMALSKI BEB (2)**
Faculty Sponsor: Dr. Justin Ramsey
Department: Biology

**AYNSLEY DUNCAN BNS**
Faculty Sponsor: Dr. G. Edward Vates
Department: Neurosurgery

**NICHOLAS FARRIS BMG**
Faculty Sponsor: Dr. Vera Gorbunova
Department: Biology

**XIAOGE GUO BMG (2)**
Faculty Sponsor: Dr. Martin Gorovsky/Dr. Vera Gorbunova
Department: Biology

**JASON HEATH BBC (2)**
Faculty Sponsor: Dr. Clara Kielkopf
Department: Biochemistry & Biophysics

**STEPHANIE HERRLINGER BMG**
Faculty Sponsor: Dr. Abdellatif Benraiss
Department: Neurology

**JULIE HUANG BMB**
Faculty Sponsor: Dr. Harold Smith
Department: Biochemistry & Biophysics

## Independent Research (cont)

**MIN HUR BBC (5)**
Faculty Sponsor: Dr. Douglas Turner/Dr. Bradford Berk
Department: Chemistry/Health Sciences

**RACHEL INGUTTI BEB**
Faculty Sponsor: Dr. Justin Ramsey
Department: Biology

**MORIAH JACOBSON BNS**
Faculty Sponsor: Dr. Troy Zarcone
Department: Environmental Medicine

**YIHENG JANG BMB (2)**
Faculty Sponsor: Dr. Jose Lemos
Department: Microbiology & Immunology

**ADITI KAMAT BBC**
Faculty Sponsor: Dr. Elizabeth Grayhack
Department: Biochemistry & Biophysics

**ASIF KARIM BMG**
Faculty Sponsor: Dr. Lei Xu
Department: Biomedical Genetics

**BUMSOO KIM BMB**
Faculty Sponsor: Dr. Fred Sherman
Department: Biochemistry & Biophysics

**DOYOUN KIM BNS**
Faculty Sponsor: Dr. Joshua Munger
Department: Biochemistry & Biophysics

**DAVID KOPIN BBC (2)**
Faculty Sponsor: Dr. Harold Smith
Department: Biochemistry & Biophysics

**ZHENGHUI LI BMB**
Faculty Sponsor: Dr. Jacques Robert
Department: Microbiology & Immunology

**REBECCA LU BMG (3)**
Faculty Sponsor: Dr. David Pearce/Dr. Doug Portman
Department: Biochemistry & Biophysics/Biomedical Genetics

**ALEXANDRIA MAURER BMB (2)**
Faculty Sponsor: Dr. Deborah Fowell
Department: Microbiology & Immunology

**MICHAEL MELNICK BNS**
Faculty Sponsor: Dr. Duje Tadin
Department: Brain and Cognitive Sciences

**JULIANNE T NELSON BMB (2)**
Faculty Sponsor: Dr. Xia Jin
Department: Infectious Disease

**LAURA NEMETH BBC (2)**
Faculty Sponsor: Dr. Eric Phizicky
Department: Biochemistry & Biophysics

**RILEY O'NEIL BIO**
Faculty Sponsor: Dr. Douglas Portman
Department: Biomedical Genetics

**ALISON OSSIP-KLEIN BEB (3)**
Faculty Sponsor: Dr. Justin Ramsey/Dr. Richard Glor
Department: Biology

**AMANDA POLLOCK BNS**
Faculty Sponsor: Dr. Mark Noble
Department: Biomedical Genetics

**JENNIFER PRINCIPIO BMB**
Faculty Sponsor: Dr. Brian Ward
Department: Microbiology & Immunology

**HANNAH PULLMAN BEB (2)**
Faculty Sponsor: Dr. Justin Ramsey
Department: Biology

**AJIT RAO BBC (2)**
Faculty Sponsor: Dr. Harris Gelbard
Department: Chemistry

**ANANYA RAY BMG (3)**
Faculty Sponsor: Dr. Yi-Tao Yu/Dr. Elaine Sia
Department: Biochemistry & Biophysics/Biology

**DAVID REINER BNS (2)**
Faculty Sponsor: Dr. Suzanne Haber
Department: Pharmacology & Physiology

**SETH RUDMAN BEB**
Faculty Sponsor: Dr. Richard Glor
Department: Biology

**Independent Research (cont)**

**BENJAMIN SABARI BMG**
Faculty Sponsor: Dr. Vera Gorbunova
Department: Biology

**STACEY STAHL BMB (2)**
Faculty Sponsor: Dr. Wolfgang Haas
Department: Microbiology & Immunology

**KELLY SULLIVAN BBC**
Faculty Sponsor: Dr. Mark Dumont
Department: Biochemistry & Biophysics

**STEPHEN SUPOYO BMG**
Faculty Sponsor: Dr. Henri Jasper
Department: Biology

**SARAH SUSHCHYK BBC**
Faculty Sponsor: Dr. Edward Brown
Department: Biomedical Engineering

**ELIEZER SYLVESTRE BMB**
Faculty Sponsor: Dr. Brian Ward
Department: Microbiology & Immunology

**JULIE TABROFF BBC**
Faculty Sponsor: Dr. Melanie Wellington
Department: Infectious Diseases

**AARON VARGHESE BNS**
Faculty Sponsor: Dr. Raphael Pinaud
Department: Brain and Cognitive Sciences

**VICTORIA VIGNARE BMB**
Faculty Sponsor: Dr. Mark Sullivan
Department: Microbiology & Biophysics

**SARAH WESSEL BBC**
Faculty Sponsor: Dr. Mark Dumont
Department: Biochemistry & Biophysics

**LANEY WIDENER BIO**
Faculty Sponsor: Dr. Justin Ramsey
Department: Biology

**MARTINA ZINK BCD (2)**
Faculty Sponsor: Dr. Vera Gorbunova/Dr. Henri Jasper
Department: Biology

## Twenty-One UPBM Graduates Earn Distinction in Research

The Undergraduate Program in Biology and Medicine (UPBM) provides majors in the B.S. or B.A. tracks the opportunity to graduate with distinction in research. Students must achieve a minimum GPA of 2.7 and must defend their written thesis at a meeting of their advisory committee. Most students seeking a degree with distinction have worked on a research project for a year or more and have achieved significant results. They then immerse themselves in the time-consuming process of writing the thesis. Those who successfully complete their research and then push on to write the required paper are rewarded with the phrase "Distinction in Research" added to their transcripts.

The twenty-one members of the class of 2010 who have earned the honor of "Distinction in Research" are:

**ANKITA AGARWAL, BIO**
Title: "*Association of Trauma Induced Apolipoprotein A1 with Small, Lipid-Poor HDL Particles After a Mild Traumatic Brain Injury"*
Faculty Sponsor: Dr. Brian Blyth

**RITESH AGNIHOTHRI, BIO**
Title: "*The Role of Aldoketo Reductase 1C3 (AKR1C3) in Normal Skin and Squamous Cell Skin Cancer"*
Faculty Sponsor: Dr. Alice Pentland

**JARROD BOGUE, BMG**
Title: "*Structural Characterization of an Unusually Small Metabolite-Sensing Riboswitch Aptamer Specific for S-Adenosyl Methionine"*
Faculty Sponsor: Dr. Joseph Wedekind

**JUSTIN BUDNIK, BEB**
Title: *"Associations Between Stand Age, Edaphic Factors, and Disturbance History on the Composition of Plant Communities in an Urban Forest"*
Faculty Sponsor: Dr. Justin Ramsey

## Distinction in Research (cont)

**DAVID COLLINS, BMB**
Title: "*Investigating the Effects of Asthma Medications on Amphiregulin Expression by Human T Lymphocytes and Basophils"*
Faculty Sponsor: Dr. Tim Mosmann

**REBECCA DOMALSKI, BEB**
Title: "*Soil Characteristics of Primary and Second-Growth Forests in West Brighton, New York"*
Faculty Sponsor: Dr. Justin Ramsey

**TARA GELB, BMG**
Title: "*Golgi Stain Reveals Difference in Dendritic Development Between CBA and SJL Hippocampi"*
Faculty Sponsor: Dr. Mark Noble

**JASON HEATH, BBC**
Title: *"Small Angle X-ray Scattering and Thermodynamic Analysis of RNA Recognition by the Pro-Apoptotic Splicing Factor TIA-1"*
Faculty Sponsor: Dr. Clara Kielkopf

**STEPHANIE HERRLINGER, BMG**
Title: "*Tenascin R is Sufficient to Induce the Radial Migration of Neuroblasts into the Striatum and Their Differentiation into Medium Spiny Neurons"*
Faculty Sponsor: Dr. Benraiss Abdellatif

**DUK SOO KIM, BBC**
Title: "*Characterization of Eukaryotic $N^{\alpha}$-terminal Acetyltransferases"*
Faculty Sponsor: Dr. Bogdan Polevoda

**DAVID KOPIN, BBC**
Title: "*Molecular Mapping of APOBEC3G: A Mutagenic Study"*
Faculty Sponsor: Dr. Harold Smith

**ALEXANDRIA MAURER, BMB**
Title: "*Leukocyte Trafficking and the Wiskott-Aldrich Syndrome Protein"*
Faculty Sponsor: Dr. Deborah Fowell

**JULIANNE NELSON, BMB**
Title: "*Cytokine Modulation of Human T-Cell Proliferation in Vitro"*
Faculty Sponsor: Dr. Xia Jin

**LAURA NEMETH, BBC/GER**
Title: "*The Role of TRM1 in Saccharomyces cerevisiae tRNA Modification Through Analysis of Synthetic Genetic Interactions"*
Faculty Sponsor: Dr. Eric Phzicky

**ALISON OSSIP-KLEIN, BEB**
Title: "*Is Dewlap Coloration Associated with Reproductive Isolation in Anolis distichus?"*
Faculty Sponsor: Dr. Richard Glor

**HANNAH PULLMAN, BEB**
Title*: "Avian Diversity and Abundance in Rochester-Area Forests"*
Faculty Sponsor: Dr. Justin Ramsey

**BENJAMIN SABARI, BMG**
Title: *"Human Aging and the Efficiency of Non Homologous End Joining"*
Faculty Sponsor: Dr. Vera Gorbunova

**JESSICA SOWA, BMG**
Title: "*Evolution and Immune Function of Nonclassical MHC Class Ib Genes in Xenoponidae."*
Faculty Sponsor: Dr. Jacques Robert

**STEPHEN SUPOYO, BMG**
Title: "*Lifespan Extension by Preserving Somatic Stem Cell Function and Tissue Homeostasis in Drosophila Intestine"*
Faculty Sponsor: Dr. Henri Jasper

**JULIE TABROFF, BBC/CHM**
Title: "*Antifungal Activity of tamoxifen and it's analogs against the opportunistic pathogen, Candida albicans"*
Faculty Sponsor: Dr. Damian Krysan

**LANEY WIDENER, BIO**
Title: "E*cological Factors Mediating Plant Invasion in a New York Urban Forest"*
Faculty Sponsor: Dr. Justin Ramsey

### De Kiewiet Fellowship

The Undergraduate Program in Biology and Medicine (UPBM) has been awarding de Kiewiet Summer Research Fellowships since 1983 to UR students majoring in one of the UPBM tracks. Although the number of applicants is small compared to most summer programs, the competition is intense.

Students applying must already have a Faculty Sponsor and must submit a detailed research proposal. The summer fellows work full time in a lab for 10 weeks. Class of 2010 graduates who have been de Kiewiet fellows are:

**Brendan Guercio, BNS**
Title: *"Oligodendrocyte Lineage Sensitivity to Amyloid-Beta Induced Toxicity During Early Alzheimer's Disease"*
Faculty Sponsor: Dr. William Bowers

**Duk Soo Kim, BBC**
Title: "*Substrate Specificities of N- Acetyltransferases in Eukaryotes"*
Faculty Sponsor: Dr. Bogdan Polevoda

**Diamond Ling, BNS**
Title: *"Neural Control of Feedback-Driven Vocal Plasticity"*
Faculty Sponsor: Dr. Kathy Wrege-Nordeen

**Laura Nemeth, BBC**
Title: *"Investigation of TRM1 N Saccharomyces Cerevisiae & RNA Modification"*
Faculty Sponsor: Dr. Eric Phizicky

**Ajit Rao, BBC**
Title*:* "*Real-Time in Situ Kinetics of Dopamine Transporter Hyperactivity Induced by Platelet Activating Factor (PAF)"*
Faculty Sponsor: Dr. Harris Gelbard

**Seth Rudman, BEB**
Title: "*A Phylogenomic Approach to Evolutionary Questions of the Anolis Sagrei Group"*
Faculty Sponsor: Dr. Richard Glor

**Benjamin Sabari, BMG**
Title: "*DNA Aging and Repair: Does NHEJ Efficiency Decrease as a Result of Organismal Aging?"*
Faculty Sponsor: Dr. Vera Gorbunova

## Alumni Update

**Jenie George (B.A. 2009 Biology)** is being kept very busy by her first year at the University of Rochester School of Medicine. This summer she will be doing research with Dr. Arthur Moss, a cardiologist working at the URMC.

**Celine Leung (B.S. 2009 Molecular Genetics)** will be attending New York College of Osteopathic Medicine (NYCOM) for medical school.

**David Liebers (B.S. 2009 Ecology & Evolutionary Biology)** is at the National Institutes of Health for a fellowship at the Human Genome Research Institute. He is using genome-wide association studies and fine mapping to identify genes that influence body size in dogs. This summer he will move to Warsaw, Poland, as a "Humanity in Action" fellow.

*Ariel Simons (2009)*

**Ariel Simons (B.S. 2009 Ecology & Evolutionary Biology)** is currently a Peace Corp volunteer in Lesotho, Africa—which she describes as "the little blob of a country inside South Africa." Ariel was renamed Palesa Matsoso, meaning "flower", by her host family, and that is what everyone calls her. Ariel is a high school math and science teacher, and has side projects aimed at forging sustainable changes to improve education in her area. She's also worked to get the school laboratory functional, made school-wide creativity contests, and coached girls' volleyball. Her service officially began in January, so this winter has been a time of adjusting to her village and school. Recently, Ariel adopted a puppy, and getting rid of fleas and finding veterinary care has been a real adventure for her!

# Life-Shaping Experiences and Future Plans

## Ritesh Agnihothri (BA BIO)

When I was five, my parents gave me one of the coolest presents ever – a set of varying sized magnifying glasses. I brought these magnifying glasses with me all the time, simply amazed at how the lens would allow me to get a closer look at the world around me. I sometimes wonder if that fascination foreshadowed my future pursuit of a career in basic-science research. In fourth grade, I was given an illustrated anatomical encyclopedia. I remember being incredibly fascinated by all the muscles and complexities of the body. As a freshman in high school, I took my first biology class and my teacher, Mr. Philipson, instilled a desire to learn more about the biological sciences in college.

My experiences here at the University of Rochester have shaped who I am, allowing me to explore my passions in and outside science. I will be leaving UR with many fond memories. I began my independent research experience my sophomore year in the Department of Dermatology at the UR Medical Center. Thanks to a supportive research mentor and staff, my transition into the world of wet-lab work was hardly painful and actually fun. I found the experience so rewarding in fact, that six semesters later, I am still doing independent research and plan to pursue a career in research. In addition, I joined the Medical Emergency Response Team (MERT) my first year, and it was my experiences there that inspired me to become certified as an Emergency Medical Technician. Sleepless nights spent responding to MERT calls have become a part of my college experience, and it is an aspect of UR that I will surprisingly miss. I am also thankful for the many musical opportunities I found: playing in a string quartet, performing in the Symphony Orchestra, and taking lessons at the Eastman School of Music. I found that music briefly releases me from the pressures of impending deadlines, and is crucial to my successes.

I would like to thank all my research mentors at the University of Rochester – Drs. Alice Pentland, Lisa Beck, and Brian Poligone for their encouragement, guidance, and for providing inspiration to become a physician-scientist that will make valuable contributions to the world of science. I also want to thank my professors in the Biology Department, particularly Dr. Goldfarb, for making classes enjoyable despite the occasionally dense material. Finally, I want to thank my parents and brother for their unfaltering dedication and support over the years. I am excited and looking forward to applying what I have learned at UR to my work next year at the National Institutes of Health, where I will be conducting research pertaining to nuclear structure and cell-cycle regulation.

## Risa Bernstein (BS BMG)

The human body is an amazing thing because, as Aristotle said, the whole is more than the sum of its parts. I have always loved biology because of its ability to logically explain so many of the seemingly magical processes and systems which make up the parts. And yet so many of these parts are still a mystery to us. Finding the answers and context to these mysteries is an exciting and rewarding field in which I knew I wanted to partake. Four years ago as a freshman in a chemistry course of nearly three hundred people, or in a competitive biology course composed of what had to be the most intelligent students, I could only have been described as intimidated. I quickly realized that compared to what lay ahead of me, high school had been a breeze; with a little self-discipline I had successfully made it through. At the University of Rochester, however, I struggled to keep up with my amazingly talented classmates. I hindered my own progress by refusing to let go of my proclivity towards independent learning and self-teaching by avoiding office hours. I told myself that my professors were probably only teaching so that they could continue their research and to them I was just one face in a very large crowd which they would not prefer to see at their door asking for help.

It took awhile for me to realize how incredibly wrong I was in my estimations of the professors. I was able

to get to know many of them more familiarly by working to redesign the experiments and curriculum of the upper level genetics and developmental laboratory course under the leadership of Dr. Benyajati and through the workshop leader program of Dr. Platt. Everyday I saw how much they truly care about the students – their looks of worry on an exam day, excitement when a student becomes extremely engaged in the material, and interest in our extracurricular and future activities says it all. I am lucky to have had the support of such great faculty and when I leave I will take with me all that they have taught me - not only about biology but also about learning, teaching, and working hard.

## Jarrod Bogue (BS BMG)

My time as an undergraduate at the University of Rochester has been truly amazing. I came from a small town in Connecticut to college with medical sugarplums dancing in my head and the ambition of pursuing a course of study somewhere in the natural sciences, but without a definite idea of where. Neuroscience held my interest, as did Chemistry, and for a time I had inklings of studying Anthropology and History.

I enrolled in Bio 112 as a first semester freshman and Professor Platt's lectures were what first began to show me that I belong somewhere in the biological sciences. I found the material being covered to be extremely interesting and Professor Platt was an excellent instructor for a freshman class. His expectations were very high, but he was also incredibly supportive and open to give advice on the collegiate experience.

As a result of Bio 112 I became very interested in Biochemistry, and with Dr. Platt's help, in the spring I became a member of the Culver Lab assisting a graduate student with real biological research. I couldn't believe it--I was amazed at what I had already been able to do as a mere freshman. I kept taking Biology courses and the next one that really left an impression was Dr. Sia's Genetics course. I learned about genetic inheritance and different genetic diseases including diseases that cause developmental delays.

In part from my study of Genetics, I was propelled into pursuing my building interest in developmental disease. The summer after my freshman year of college I had worked as a special education teacher in my local public school system, and I chose to do that again following my sophomore year. I also sought out a Developmental Pediatrician at Strong Memorial Hospital and worked on a clinical research study dealing with the diagnosis of Autism. As a junior I took a Human Genetics class with Dr. Fry which further allowed me to pursue my academic interest in developmental diseases.

However, junior year I developed another interest--multiple resistance bacteria and bacterial gene regulation. This grew out of the study of riboswitches in Bio 202 with Dr. Benyajati. I became so interested that I sought out the Breaker Lab at Yale University where the term riboswitch had been coined and asked if I could work in the lab for the summer. I went to the lab armed with a solid biology background, and I was able to really shine. My knowledge of experimental techniques obtained in Bio 202 came in very handy--thank you Dr. Benyajati--and my work has subsequently been published in the journal Genome Biology. I am now continuing the research I began at Yale with Dr. Joseph Wedekind at the University of Rochester Medical Center.

I have spent a lot of my undergraduate career studying Biology, but I also did manage to complete a minor in History focusing on the British and their relations with India and Ireland. One other area that I was able to study while an undergraduate was the music and literature of African-Americans, taking courses on Jazz, Blues and African-American literature. Overall, I have had a great opportunity to begin to satisfy my academic thirsts here as an undergraduate at the University of Rochester, and I credit the Department of Biology faculty for introducing me to diverse areas of Biology and for consistently being there to advise me along my journey. I also have to send a big thank you to my mom, dad, sister and the rest of my family for constantly supporting me in all of my academic endeavors and for making it possible for me to attend the University of Rochester.

I will enter the University of Rochester School of Medicine and Dentistry to begin four years of study to become a physician in August of 2010. I am confident that the knowledge I have amassed and the skills I have developed through my study of Molecular Genetics will carry over and help me greatly in medical school.

## Justin Budnik (BS BEB)

I arrived at the U of R in August 2006 with aspirations that were as humble as the circumstances of my upbringing. I knew only one thing for sure—that in order to subsist here I needed a job to pay my way. Because of this, my first day on campus was spent at the student employment fair where one job listing really stood out to me. That particular job listing was posted by the Biology Department for a technician in the laboratory of Dr. James Fry. I thought to myself at the time, "Well working with fruit flies must be better than shoveling dung." So cynical was I then that I failed to see how great the opportunity was that lay before me.

Dr. Fry hired me and it wasn't long thereafter that I was hooked on the whole enterprise of evolutionary genetics research. Growing up in the country, I was always tacitly interested in biology, having spent much of my free time in nature hiking, camping, fishing, and hunting. Working in research, for me, came to be a natural extension of my own curiosity and fascination with the natural world—an occupation both intellectually fulfilling and downright enjoyable.

As time progressed and I was granted a more intimate role in various projects, the Fry lab became a home away from home for me. Dr. Fry and his lead technician, Kathy Donlon, have always cultivated an inclusive and fun environment. I am especially grateful to them for the responsibilities they have entrusted me with, the techniques they have taught me, and the support they have given me otherwise. My laboratory job is what eventually prompted me to declare Evolutionary Biology and Ecology as my primary major, and in the pursuit of this major I have gleaned a great deal of invaluable knowledge.

In my third year Drs. Justin and Tara Ramsey issued a call for interested and intrepid students to come and work for them in the woodlands on U of R's South Campus. I jumped at the opportunity to both take my education outside and to supplement my experience in evolutionarily-focused research with some good ole' fashioned community ecology. In working with the Ramseys, I have been afforded a rare opportunity at U of R—to work with plants. I've always loved plants—and have always recognized that they are inherently superior to animals! Performing understory herb and tree censuses in the U of R woodlands has been a wonderful experience and has spawned a senior thesis for me and fostered the prospect of an actual publication.

Participation in research has defined my time at the U of R. It has enriched my life, enhanced my education, and made my affiliation with the Biology Department even more meaningful. I would like to thank Dr. Fry and the Ramseys, as well as all of my biology professors and the department staff, for all their help and hard work.

Beyond graduation I can only speak to my plans and prospects for the next year or so, but I am happy to report that I will be spending that year here in the service of the Fry lab and the Ramsey lab continuing to be engaged in the fields of scientific inquiry that I have come to love.

## Rebecca Domalski (BS BEB)

When I was a little girl, my parents used to tell me to "be really smart" so that I could go to the University of Rochester. My acceptance letter truly was celebrated. After becoming a freshman, I knew that I wished to pursue a B.S. degree of some sort. I found the perfect major when I came across Ecology and Evolutionary Biology. I have to say, I have not been disappointed. My major has combined my love for the always-exciting field of biology with my passion for the Earth Sciences.

After succeeding in the introductory biology courses, I determined that I wished to share the subject I love with other students, as well as serve as a mentor to my peers. I am so thankful for the wonderful opportunities I had to be a workshop leader for Dr. Olek, as well as a recitation leader for Dr. Minckley. I have gained so much through the process of teaching others.

As I progressed with a deeper understanding of Biology, I became interested in conducting independent research. I spoke with my Ecology professors, Dr.'s Justin and Tara Ramsey, and became involved in their lab conducting a project concerning the hybridization of red and silver maple trees. Later, I began a study concerning understory vegetation distribution as compared to soil texture, nutrient availability, and land-use history. I have found that research has been an incredible part of my

undergraduate experience, and I am very grateful for the opportunity to have learned how to put my knowledge into practice.

Upon graduation, I plan to go to medical school after taking the next year to conduct research with the University of Rochester Medical Center. Though I am sad to see my undergraduate career come to a close, I know that I will carry with me many valuable lessons, as well as great knowledge that will serve as a vital stepping-stone toward my future aspirations. I feel extremely blessed and honored to be graduating from the University of Rochester.

I would like to thank all of those that I hold dear to my heart; the love and guidance from my family and friends have been wonderful. I would also like to express my gratitude to Justin and Tara Ramsey, as well as Bob Minckley, for being my mentors as well as my friends. Thanks also to Jenn Baylark for helping to keep everything running smoothly. I give my best wishes to all of the faculty and staff in the Biology Department.

## Nick Farris (BS BMG)

Science was always a passion of mine, so it only seemed natural to start studying for a Biology degree once I got to the U of R. Beginning with the introductory classes Bio 110 and 111, I got my first real taste of higher-level biology since my last Biology class had been back in freshman year of high school. College classes weren't exactly a breeze, but I enjoyed the work and the material seemed quite interesting to me.

As I progressed, I was introduced to Genetics and Molecular Biology. I found that I wanted to major in Molecular Genetics because I really like Biology on a molecular level. I like learning about proteins and gene expression with their types of interactions and regulations. Two classes of note after Genetics that I really enjoyed were Molecular Biology and Cell Biology. The material was hard, as most U of R classes are, but you could tell that both Professor Benyajati and Goldfarb really enjoyed this material and wanted to be able to get their students to understand and like this material as well. Lastly I wanted to expand to some other areas of Biology, and I found that I also really liked the material in my Evolution class.

When I talk to friends who are not Bio majors and tell them what I am learning, you can see their eyes start to glaze over as I ramble on about amino acids and transcription factors but to me this stuff is fascinating. All the classes I have taken seem integrated and I am able to see connections now that I wouldn't have thought were possible. For example, an evolution discussion about adaptation and a protein that showed up on a gel provide information that is useful in the other realm in an attempt to understand the whole picture. Overall, the biology that I have learned here seems truly applicable and relevant, something that I will be able to use in the future. Lastly, I would like to thank the U of R professors for their teaching, help and enthusiasm for what they do: as cliche as it may sound, it makes learning fun. Thank you very much!

## Tara Gelb (BS BMG)

When I first came to U of R, I was interested in everything! I changed my major from Biology, to Psychology, to Neuroscience in my first year. Once I took Genetics with Dr. Sia, I was confident that I had found the subject that I wanted to pursue. I enjoyed all of my classes in the Molecular Genetics major with some of my favorites being Molecular Biology and Eukaryotic Gene Regulation with Dr. Benyajati and Dr Bi. My passion for genetics as well as other aspects of molecular sciences continued to grow.

It was not until this year that I discovered that I loved not only learning about genetics in classes, but that I also had a passion for research. I was lucky enough to end up in Dr. Noble's lab under the guidance of a great mentor, Dawn Lee, where I finally had the opportunity to use everything I had learned. In this lab, my interests became even

broader as I explored neuroscience and developed a strong interdisciplinary background.

I am now graduating and once again I am interested in everything! I am continuing my research in graduate school, and I plan on finding a way to integrate pharmacology, genetics, and neuroscience in the future.

## Tara George (BS BMB)

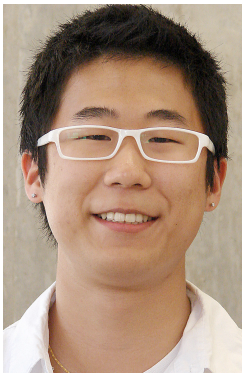
As my time at the University of Rochester comes to a close, I am saddened to leave the place I have come to call home. However, this journey has taught me many lessons that I will never regret, most of which come from my decision to pursue a degree in Microbiology & Immunology. This pivotal decision molded the way that I have come to view myself, my life and the world around me.

When I first came to the university, I like most of my peers, had little direction as to which major I wished to pursue. Luckily, the affirmation of my decision to pursue a degree in the sciences occurred in my first day of class as a freshman. On the first day of his course, Dr. Terry Platt, shared words of wisdom to explain that science was much more than memorizing facts and regurgitating them for an exam. He went on to further clarify that science is a field in which challenges are constantly being presented and the parameters are constantly changing. New information is acquired each day and the field never remains static. This is when I knew that there was no other major I would rather pursue. My decision to pursue Microbiology and Immunology as my major has been one of the best decisions I have made while being a student. Through the Microbiology department, I was able to gain experience in the laboratory as well as reconcile my deep interest in scientific research through the classes I took and the independent studies I participated in. It was complete with topics that consistently leave me amazed and intrigued.

More than anything, my undergraduate career has been a time of tremendous personal growth. In these years, I was able to find out what it means to truly love what you learn. When graduating from Rochester, I leave with much more than a degree. My desire to learn more stems from the great experiences I had while I attended this university. These experiences could solely be attributed to the phenomenal people that I have met along my way. My professors, peers, friends and family have all shaped the essence of the exceptional time that I have had in these past four years. I would like to take this opportunity to thank each and every one of them, for without them I would not have been able to achieve all that I have. To my professors, thank you for sharing your love of education with your students and teaching that there is more to academics than getting a good grade. To my friends and family, thank you for your support and shoulder to lean on during those late-night hours studying for an exam the next day. To my parents, thank you for the endless amounts of love and encouragement that you have provided me with and for believing that all my dreams would one day become a reality.

I feel both honored and grateful to be graduating from this University and I hope to take every lesson I have learned here with me wherever I go.

## Duk Soo Kim (BS BBC)



When I came to the university, I thought of majoring in Chemical Engineering or Chemistry. That plan, however, was turned down. I realized that I was not competitive enough to major in Chemistry or Chemical Engineering. I did not have any AP credits for Chemistry nor for Physics; therefore, I could not start my freshmen year with Organic Chemistry. Then I said to myself, Biology is an option. I knew that Bio 112 takers do not have much advantage over Bio 110 takers; they are at more or less the same level after the second year. In conclusion, I chose Biology as my major.

Then I decided to major in Biochemistry because I was generally interested in protein--not really proteomics but protein-related work. In addition, I saw these fancy ribbon models of proteins in different text books. Let me tell you, they are colorful! Then I started thinking, "How do people get this picture?" I thought it would be done by some sort of electron microscope, but I was WRONG!!! It was actually done

by X-ray crystallography or NMR. In Bio 202, I learned about Roger Kornberg's Nobel Prize work on eukaryotic RNA polymerase II, and then I knew I wanted to get some crystals for structural studies. Unfortunately, I never got to do this.

During my first summer in Rochester, I volunteered at the Sherman lab, under the supervision of Dr. Bogdan Polevoda. It was very challenging. At that time, I had only taken Bio 110 and Bio 111. Despite of my lack of knowledge, Dr. Polevoda gave me a book to read which was about basic yeast genetics, plus he gave other scientific journal articles to read. To be honest, I think I understood only 20% of the material at most. But, I could not complain because I put myself into this. I emphasized to him that I wanted to learn how to conduct research, and not wash dishes (that was why I volunteered). In addition, I told Dr. Polevoda that I was interested in protein study. Over the summer, he demonstrated the difficult nature of protein work including solublizing and purifying protein. I think he wanted to see whether I was really up for it.

In the following years, contrary to his point on protein work, my biggest challenge was rather in genetic work rather than protein work. I have to admit this was primarily due to switching the expression system from the bacterial system to yeast system, from which I have overcome the solubility problem. The great expression vector, provided by Erin Quartly, Eric Phizicky, and Beth Grayhack from Biochemistry and Biophysics department, was the other factor. I was able to obtain good amount of highly purified protein using the eptitope tag engineered in the vector.

## Alexandria Maurer (BS BMB)

The summer before I started college, I began reading about the courses offered through the U of R's undergraduate Biology program. Several classes, in particular, caught my attention, and I began compiling a list of those that I definitely wanted to take, like Immunology, Virology, and Mechanisms of Microbial Pathogenesis. I soon realized that I had unwittingly compiled a list of classes all from the Microbiology and Immunology department, and that is how I realized that Microbiology and Immunology was the area in which I would major. I think the most amazing thing about my MBI classes has been that, while I have learned a great deal about the rigorous scientific backgrounds of microbiological study, the most fascinating things that I have learned actually have to do with everyday life and common sense. I had never before realized how ubiquitous bacteria and germs are, or that in addition to bad bacteria that make us sick, there are countless bacteria that live on our skin and in our gut without which we would be even sicker! I continue to be amazed at how much we take bacteria for granted.

Perhaps the most valuable experience I have had during college is the opportunity to pursue undergraduate research. My work doing research in an immunology laboratory has taught me not only about the project I am studying, but more importantly about how to be a good scientist and a good investigator. I have learned, and am still learning in fact, how to ask good questions and how to formulate methods to adequately answer those questions. The most exciting thing is that once one question has been answered, that answer provokes still more questions! The process of science can never be complete because there is always so much more to learn, and I cannot wait to investigate further.

Based on my experiences during college, I have decided to pursue a career in medical research. I will be attending both medical and graduate school, and I intend to become a physician who is able to recognize clinical questions that need to be answered and then use my skills as a scientist to design a way to answer those questions. My experiences in the U of R undergraduate Biology program have reinforced my love for biomedical science, and during college my analytical skills as a budding scientist have grown. I know that the invaluable experiences I have had at the U of R will continue to help me far into my future.

## Alison Ossip-Klein (BS BEB)

It is 5:00am. I peer out over the misty forest canopy from the bird-watching tower and eagerly await the sunrise. The Amazon rainforest is alive with brilliant songs, colors, and textures. I gaze in awe at this sight that few have beheld, and marvel at the intricate signals and displays around me. This was when I knew that I wanted to research the evolution of these signals. I have always been fascinated with animal behavior, and how sexual selection drives the evolution of vibrant coloration, exaggerated signals and speciation. My summer study abroad experience

in Ecuador further amplified my fascination and curiosity in these areas, and I am now confident that I want to spend my life doing research.

Ecology and Evolutionary Biology is my passion and my experience at the University of Rochester has been amazing. I have appreciated the opportunity to work with outstanding research faculty in the Biology Department. The two semesters I spent in the Ramsey lab gave me exposure to studying large tree diversity in the UR Woodlands. My three years in the Glor lab have given me the opportunity to develop my academic focus on animal signaling and speciation. Being involved in all aspects of research from start to finish gave me the depth of experience that allowed me to pursue my honor's research project on dewlap coloration and reproductive isolation in Anolis distichus in this lab. The wonderful mentoring I have received from the Ramsey lab, the Glor lab, and my academic advisor, Dr. Jaenike has set the bar for excellence that I hope to perpetuate in ultimately running my own research lab. Next year, I will be continuing my studies through the doctoral program in Ecology, Evolution and Behavior at Indiana University. I'd like to thank my friends, family and professors for the unparalleled support that they have provided throughout this amazing four-year experience.

## Seth Rudman (BS BEB)

I have always found learning about the natural world and the organisms that populate it fascinating. After expressing this strong and completely undeveloped interest to Dr. Rich Glor as a freshman, he allowed me to join his lab for weekly readings. As a lab member I began learning about the processes that have shaped the earth's rich biodiversity. Under Dr. Glor's tutelage, I completed a review of the existing work that sought to correlate organismal characteristics with increased rates of evolution. This project was truly unsatisfying (on an intellectual level), as I had naively imagined a far richer literature on the topic than actually existed. This sparked me to begin my own research projects, which have been the most gratifying experiences of my undergraduate education.

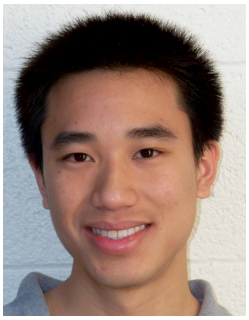
In the summer following my sophomore year, I was incredibly fortunate to embark on a National Science Foundation Research Experience for Undergraduates (REU) under the guidance of Dr. Robert Powell, an enthusiastic herpetologist (person who studies reptiles and amphibians). As an REU participant I was free to design my own field-based project and implement it on the beautiful Caribbean island of Dominica (clearly a horrendous summer job). Spurred on by my wonderful experience with Dr. Powell, I embarked on a semester abroad with the Organization for Tropical Studies (OTS) in South Africa. OTS is a group dedicated to educating students in ecology and conservation through field work. My OTS course traveled through many of South Africa's national parks and was based upon field lectures and learning through short independent projects. Living and learning in beautiful South Africa was enough to hook me on ecology and evolution research forever.

Upon my return to the U of R, I rejoined the Glor lab with the intention of undertaking my own molecular lab based research. With continued help from Dr. Glor, I wrote a successful proposal for the biology department's summer de Kiewiet fellowship. My project focused on resolving the evolutionary relationships of a group of Caribbean lizards (Anoles) that have rapidly split from one species to twelve. I hoped that by resolving the relationships of this group with the latest molecular and computational techniques that I would be able to answer some long-standing methodological questions about accurately determining evolutionary relationships. I also returned to South Africa (another REU program) to conduct some conservation-based research to inform national park decision markers about the impact of elephants on other species.

I plan to continue studying the forces that generate biodiversity and how these processes can help inform conservation decisions. On the short term, I will continue working with Dr. Glor whose excellence as a

mentor has been paramount to my education. In the fall, I will continue my education at the University of British Columbia where I will pursue a PhD in Zoology with Dr. Dolph Schluter.

## Stephen Supoyo (BS BMG)



Some teachers have a knack at leaving a great impression on you no matter how long it's been since you took their class, and throughout my time here at the University of Rochester, there has been no shortage of them coming from our wonderful undergraduate Biology Department. I can't even begin to imagine what college would have been like without the fun, caring, and hardworking faculty and staff members of UR Biology, and I am absolutely sure that they have all played a most valuable and instrumental role in my development, both academic and personal, and in my college success.

It all began with Professor Terry Platt, who gave me one of my first and most lasting impressions of U of R's quality teaching in his freshman biology course, "Principles of Biology I" (better known as BIO 112). I'll always remember when he sang for us the steps of the TCA cycle to the tune of "Waltzing Matilda," and when he dressed up as a pirate for Halloween so he could utter "Arrr!" with every mention of (Arr)RNA. Dr. Platt showed us that he truly cared about our learning and our individual successes when he managed to know each and every one of us by name and by showing us the great things we were all capable of. The material he covered was incredibly complicated for us freshman, but I'm sure many of us have found that his material continues to show up, even in our most advanced biology courses today - clearly Dr. Platt had high expectations and believed in all of us.

In my later college years, I had the honor of leading several of Dr. Platt's innovative small-group, problem-based workshops, which I think really define the unique spirit of collaborative learning at Rochester. My experience as a workshop leader inspired me to believe in everyone's unique potential and gave me the confidence I needed to assume future leadership roles.

There are many other professors in the biology department to whom I also owe a great deal of gratitude for sharing with us their enthusiasm and knowledge, and for so greatly shaping my college experience: I thoroughly enjoyed Dr. Minckley and Dr. Jaenike's eccentric obsessions over bees and *Wolbachia*. Dr. Sia made me love genetics, and the ever-so-cool Ramseys taught an amazingly fun and informative Ecology class that has turned me into a more knowledgeable environmentalist. Dr. Benyajati and Dr. Bi taught me to think like a true scientist by always questioning me (and always catching me off guard!) and Dr. Gorbunova reminded me to always question others in the constantly evolving field of Biology. Last, but not least, Dr. Jasper and the members of his research lab (special shout outs to Christine, Daesung, Ellen, Jason and my extremely French research mentor: Benoit) showed me the wonders of research over the two and a half years I worked there studying the role of stem cells in aging.

My journey through the undergraduate biology program has been fun and rewarding, but also difficult. Thanks to the rigors of UR Biology, I feel prepared to tackle the real work before me: to find a cure for diseases and to make the world a better place. Based on my experiences with fellow biology graduates, I feel sure that they too feel prepared to make a big difference out there in the "real world." Good luck to everyone and thank you UR Biology!

## Julie Tabroff (BS BBC)

My greatest scientific achievement before college was winning the 7th grade science fair studying how smell affects taste. My love for the intricacies of science has continued to this day. Before coming to college, I always knew I was going to major in either Biology or Chemistry. My freshman year, after taking biology and chemistry courses, I still couldn't make a decision, so I decided to major in both! I am getting a BS in Biochemistry and a BA in Chemistry.

I am so grateful for the opportunities that the University of Rochester has provided me. I was able to get involved in research and extracurricular activities that provided important opportunities that shaped my future career goals. This included my

experience participating in independent research at the medical center in Drs. Damian Krysan and Melanie Wellington's laboratory. My project involved discovering and classifying new antifungal therapies for human fungal pathogens. I have been a member and president of the club water polo team. I have also tutored Turkish refugees in math and science. In addition, I participated in summer research with the FDA on the NIH campus in Bethesda, MD. My junior year I was awarded the Catherine Block Memorial Prize for outstanding achievement in the field of science.

One of the most influential parts of my undergraduate career has been the workshop program. As a workshop leader, I have developed my self confidence as well as learned that you don't truly understand a subject until you can teach it. I have been a workshop leader in the Biology and Chemistry departments for Dr. Olek, Professor Farrar, Professor Goodman and Professor Frontier. I love helping students gain confidence and take away a conceptual understanding from my workshops and hopefully becoming workshop leaders themselves.

I am sad to see my four years at Rochester have come to an end, but I am excited for the future. This summer, I am finally getting my chance to study abroad. I am going to Malawi, Africa, with the Anthropology department to do ethnographic research on the education system. This program blends language training and cultural immersion in a memorable trip. In the fall, I will be attending the University of Massachusetts medical school.

I would like to thank my family for all their love and support, my friends for making the past four years so memorable, Professor Farrar for his support and encouragement, Dr. Olek for always believing in me, Dr. Krysan and Dr. Wellington for their mentorship and friendship, and Lou DiDone and everyone in the Krysan/Wellington lab for making my lab experience fun and rewarding.

## Laney Widener (BA BIO)

Out on the farm where I grew up, the Norway Maple (*Acer platanoides*) in the side yard was measured to be one of the largest in New York State. It was not unusual around the farm for my parents and me to identify trees and understory herbs that were in nearby corridors of woods, or to experiment with different plants and vegetables in the garden. Yet caring for the animals and participating in 4-H Club was also a large part of living on the farm, and both aspects of growing up cultivated my interest in biology.

My interest in the natural world did not leave me as I came to the University of Rochester, and I decided to major in Biology my sophomore year. One of the best experiences I have had as an undergraduate was doing research in the Ramsey Lab, both on the demography of remnant American Chestnut (*Castanea dentata*) populations, and looking at invasive vines and perennial plants in local Rochester-area forests. From my interest in conservation and ecology, I found my niche in biology by conducting this research. Ecology and biodiversity became important focuses in my biology degree, and was the division of biology I wanted to explore further. My research with invasion defined my decision to continue studying ecological communities in pursuit of a graduate degree.

I was also a very active student on campus, and found that my interest in conservation was nurtured further through active participation in the student environmental group Grassroots and in the Kauffman Entrepreneurship Year (KEY) Program at the University of Rochester. My KEY project focused on the entrepreneurial abilities of environmental sustainability programs and initiatives implemented at universities. The program trained me to confront the challenges and methodologies of creating and pursuing a self-conducted project relating to sustainability and conservation. My participation in the Grassroots club allowed me to understand the importance and application of research to conservation and ecological sciences.

I cannot express enough gratitude towards the Ramseys and graduate students I worked with who helped me test the waters of conducting research and guided me through graduate school applications. The experience in the lab made me realize what I want to do in my life, and encouraged my fascination with ecology and conservation. Moving on to graduate school I hope to continue conducting interesting projects and research relating to ecology and conservation.

# In memory of

# Annie Le

*(July 3, 1985 - September 8, 2009)*

Annie Le died tragically while a graduate student at Yale University. She was an undergraduate at the University of Rochester from 2003-2007. Annie was a whirlwind of energy and engagement. She not only worked in research labs, but she also was a note taker for Learning Assistant Services, a biology lab assistant and a recitation leader. She received a prestigious undergraduate summer research scholarship from the National Institutes of Health, completed a senior thesis for her work in the laboratory of Professor Zuscik, and received a BS in Cell and Developmental Biology. Although impressive, these achievements alone are not what made Annie such a remarkable person. Those of us in the Biology Department who knew Annie mourn her loss. We would like to share with you some remembrances that capture Annie's vitality and unique personality. **–John Werren**

**Beverly Mihalenko** (Biology Lab Manager): Annie started working for me as a student lab prep assistant in the fall of her sophomore year and stayed until her graduation from the university. Annie was full of energy, gregarious, funny, and smart. She was wise beyond her years... and silly, self-confident... and overanxious, bubbly... and pouty. In short, she was perfect in all her contrasts and imperfections. Annie was meticulous in her appearance and in her work. She buzzed around the teaching labs in her homemade apron (she preferred it to her lab coat), cleaning, setting up, and organizing. I would jokingly refer to Annie as "my girlie girl." She tried her best to convert me – gave me French manicures, convinced me to wear dangly earrings, and even dyed my hair red. When she was preparing her senior defense, she agonized over what to wear during her presentation. Once she decided on her outfit, she designed the PowerPoint slides so the colors in the slides were coordinated with what she was wearing. Annie combined in a wonderful way a scientific mind and femininity.

**Tip Benyajati** (Professor Biology): I knew Annie from her freshman year when she declared her major in Cell and Developmental Biology--way early. I learned that this was a typical Annie way, organized, always preplanning her future. Annie was omnipresent in Hutchison Hall. Among my favorite recollections is the sound of Annie approaching. We always knew when Annie was coming down the hall in her four-inch high heels. She performed her teaching lab duty (pushing carts, autoclaving) and her lab classes in high heels.

**Linn Sajdak** (Biology Lecturer): What I remember about Annie is that once she spoke to you about anything, you never forgot her face or her bubbly personality. My deepest regret is that the world of science has lost a fine mind. But she also had her feet firmly in the real world. She was smart (academic and real world), classy, feminine, funny, happy, and dedicated ... the list of adjectives goes on and on but they do not capture the essence. There is a term in biology called the "emergent property." That is, the outcome is greater than the sum of the parts. Annie was an "emergent property."

**Amanda Avery** (Class of '07): Annie was an amazing friend, roommate, and colleague. I have never met anyone as determined, intelligent and kind. If Annie wanted to accomplish something, she put her entire heart and soul into it. I was amazed, and a little jealous, at what she was able to accomplish every single day. She not only crushed the curve every test because she was able to remember every detail, but worked in labs, helped the biology department and still found time to be a good friend. Whether I needed her to help me pick out an outfit for a big date or just needed someone to listen and give advice, she was there. Annie could have been conceited and arrogant because of her intellect and accomplishments; however, she seemed more humbled and determined with every success that came her way. I will always remember the clicking of her high heel shoes and her smile that would light up a room.

## In Annie's words:

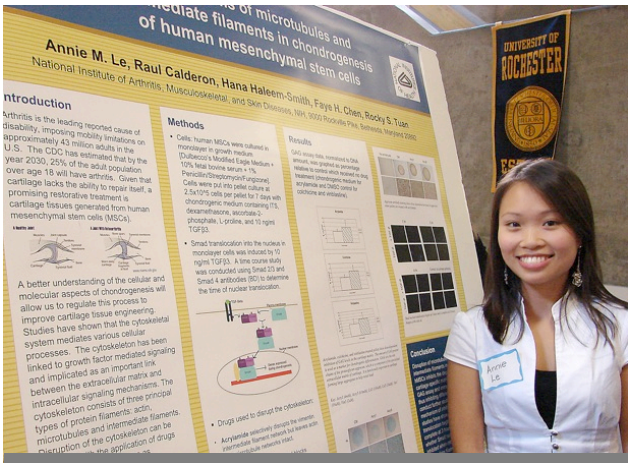
*(from The Open Reading Frame 2007)*

As a high school senior, I was accepted into the NIH Undergraduate Scholarship Program, an academic program for students dedicated to careers in biomedical research. It is the program's hope that my fellow scholars and I will take up the cause of the NIH and study "science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability."

My research career unfolded in college. I entertained my interests in evolution in Professor Jack Werren's lab, where I studied the genetics of Nasonia. The UGSP then sponsored my first biomedical research experience at the NIH. My research experience in Dr. Rocky Tuan's lab introduced me to the world of stem cell research and its potential to cure diseases. For the past three summers, Dr. Tuan and Dr. Faye Chen have mentored me in scientific thinking and helped me to see how basic science contributes to improving the quality of life. During the school year, I conduct research under Dr. Michael Zuscik at the University of Rochester Medical Center. With my background at the NIH, I was entrusted with mapping out and running my own experiments. Dr. Zuscik inspired me to pursue a senior thesis investigating the effect of Smurf1 on chondrogenic differentiation and its relevance to osteoarthritis.

My studies in anthropology have highlighted issues of health disparities in our communities. We often forget that those who seemingly lack the ability to make important decisions on healthcare are simply not provided with the proper tools to do so. My grandmother is a personal example. She continues to accuse [her doctors] of performing unnecessary procedures and believes that she is the expert on the correct combinations and dosage of medications that make her feel better. My grandmother simply does not accept that her actions are detrimental to her health. My experience with her has taught me that cultural and language barriers can impede medical treatments. It is important that the work I do translates well to elderly, underprivileged, or culturally diverse patients. With this and my research interests in mind, I will begin my PhD research in Molecular Pharmacology at Yale University this coming fall.

The University of Rochester offers excellent teaching opportunities and training with formal studies of pedagogy, which I have actively participated in because I would like to become a professor. This career goal stems from the fact that an important part of my development has been my excellent mentors. My personal goal is to become a good mentor as well, because I believe that mentorship is imperative to the continuation of science and is conducive to advances in medicine.




Annie Le

*July 3, 1985 - September 8, 2009*

Annie Le

*July 3, 1985 - September 8, 2009*

From Annie's memorial program:

*Annie filled our lives with love,*
*Laughter, and warm memories*
*Let us always*
*Remember for all that she*
*Gave to this world as a scientist,*
*Friend, and daughter.*
*We will rejoice in knowing that*
*She led an amazing, inspiring, and*
*unforgettable life that touched us*
*and the world*
*in so many wonderful ways.*

# Congratulations to the following students for defending their Ph.D. theses this past year!

**Jianquan Chen** (Adviser Rulang Jiang): Investigating the roles of Wnt/β-catenin signaling in craniofacial development.

**Han Liu** (Adviser Rulang Jiang): Cleft palate pathogenesis in mutant mouse models.

**Zhiyong Mao** (Adviser Vera Gorbunova): Roles of cancer, aging, cell cycle and telomere associated proteins in mammalian DNA double strand break repair.

**Leah Pogorzala** (Adviser Elaine Sia): Maintenance of the *Saccharomyces cerevisiae* mitochondrial genome through BER and associated proteins.

**Biswajoy Roy-Chaudhuri** (Adviser Gloria Culver): A role of ribosomal protein S5 in bridging ribosome biogenesis and translational fidelity.

**Deborah Stage** (Advisor Thomas Eickbush): Genomic studies of the ribosomal RNA gene locus and the evolution and retrotransposition mechanisms of its mobile elements.

**Jun Zhou** (Adviser Thomas Eichbush): The changing landscape of the rDNA locus and the regulation of its mobile elements.

**Yanfei Zou** (Adviser Xin Bi): Mechanism and regulation of the functional yeast silencers in the formation of transcriptionally silent chromatin.

# Ph.D. Alumni Update

**Andrea Betancourt (Ph.D., Orr lab, 2005)** is completing a post-doc in Edinburgh, Scotland, this summer, and will then move to Vienna to start a two year career track postdoctoral researcher position.

**Harmit Malik (Ph.D., Eickbush lab, 1999**) is an Associate Member of the Fred Hutchison Cancer Research Institute, Basic Sciences Division, in Seattle, and an Adjunct Assistant Professor at the Department of Genome Science, University of Washington. This has been a very successful year for Harmit. He won a Presidential Early Career Award in Science and Engineering, for which he was flown to Washington, D.C., where he met President Obama. He also won a Howard Hughes Medical Institute Early Career Scientist Award, which provided him with research money. Finally, he won a Vilcek Prize for Creative Promise in Biomedical Science. He, his family, and several guests (including Tom and Danna Eickbush) were flown to New York for an elegant banquet at Mandarin Oriental Hotel in Manhattan. Harmit was also introduced to Nobel Prize winner David Baltimore and received a $25,000 prize.

# Science in Action: Graduate student and postdoctoral research

## LeAnn Lovato

(grad student Garrigan lab)

I was born and raised in Albuquerque, New Mexico. I am not sure how deep my roots go, but my family has been in New Mexico for many generations. As

a result the capsaicin tolerance gene(s) has been fine-tuned. I am also the youngest of four and the only girl in the bunch. Since I am very close to my family, I decided to attend the University of New Mexico for undergraduate where I earned a BS in Biology and Anthropology. For undergraduate research work in Dr. Ulfar Berthorson's lab, I studied the rate of evolution and the extent of RNA editing in paternally transmitted plant mitochondrial DNA.

My inspiration and interest in biology stems from my inquisitive nature and need to know about the inner workings of life. From a young age I remember going camping with my dad and brothers and being utterly fascinated with the local wildlife and natural landscapes. Similarly, as I began to take upper-level anthropology courses, I started to think about the genetics of speciation and the processes that led to the extinction of other hominids. I felt there were many questions that anthropology alone cannot answer and supplemented my studies with biology. In addition, the Summer Program for Undergraduate Research (SPUR) at the University of Oregon truly motivated me to pursue a Ph.D. in evolutionary biology. In Dr. Patrick Phillips's lab, I was delighted to explore the genetic variation and mating dynamics of *Caenorhabditis remanei*.

Moreover, my passion for evolutionary biology and the highly accomplished faculty lured me to the University of Rochester. Although I miss home from time to time, Rochester has begun to feel like home. Now in my second year I feel I have made the best possible decision and continue to develop as a scientist.

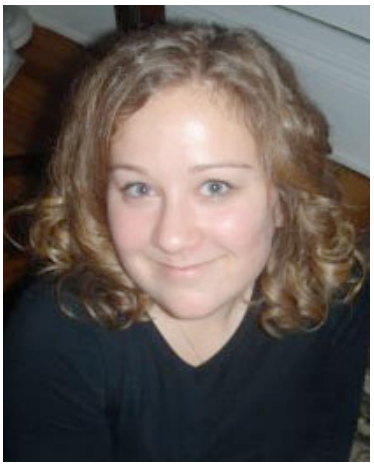
Currently I am studying differences in male and female allele frequencies. I hope to identify regions of the genome that are involved in sex-specific processes in humans. Additionally, for my dissertation work I will empirically demonstrate the importance of mating system in the efficiency of sexual selection. I also intend to do a series of simulations that disentangle the dynamics of sexual selection and sexual antagonism.

Once my Ph.D. is completed, I would like to apply for a postdoctoral fellowship that not only refines my computational skills, but involves some aspect of ecological field work. At some point I hope to return to New Mexico and give back to my community.

In my free time, I enjoy exploring the numerous bikes paths of Rochester. I also enjoy snowboarding and being in the mountains. I have yet to explore vertical drop here, but I hope to soon.

## Christine Hochmuth

(grad student Jasper lab)



My parents were both educators. When I took a liking to Science, my mother, a Spanish and English teacher, and my father, a History teacher, were surprised, as they both thought that "science skills didn't seem to run in the family." (My labmates might still agree with this comment, but that's another story.)

Despite the lack of familial scientific aptitude, I continued to pursue my interest in science by attending a high school program, New Visions, which allows students to take advanced biology courses while experiencing various occupations in the medical profession.

Although the high school program was designed to groom future physicians, I was not entirely convinced that this was the career path for me. I decided to attend the State University of New York at Brockport on a full scholarship to major in Biology. Unlike, most graduate students, I did not have a life changing research experience as an undergraduate. I spent most of my time playing soccer, tutoring, studying, and working at the student health center. After finishing my bachelor's degree, I realized I had been a passive learner for years, and I needed to explore the 'other side' of science and get my hands into some real research. For this reason, I decided to stay at Brockport to work on an independent research project while obtaining a Master's degree.

Finally! My eureka moment. I loved being in the lab, designing experiments, analyzing data, getting results, and attending conferences. At this point, there was no question that I wanted to enter a Ph.D. program. I was familiar with the University of Rochester and the research that was happening here, and I was excited to be granted an interview. During my visit, I was immediately drawn in by its friendly, community vibe.

The rest, as they say, is history. I am now in my fourth year of the program. I joined Henri Jasper's lab in May 2007. The lab focuses on signaling pathways that regulate stress, metabolism, and aging. I study Intestinal Stem Cells in the adult *Drosophila melanogaster* midgut. Specifically, I am trying to understand how the redox environment can control proliferation and differentiation of these tissue specific stem cells.

Over the last four years, I have settled into my niche at Rochester, both in the University and in the community. I have met some amazing people and had many wonderful experiences. I enjoy my research and I love the Biology department, but I am at the stage in my grad school career where it is time to start thinking about the future. At this point, it's too early to tell what that future holds. But I've come a long way from where I started, and I think I may have finally convinced my parents that there might be some "scientific ability" in our family after all.

# Faculty Hellos

## Andrei Seluanov, Assistant Professor

*Submitted by Elaine Sia*

Dr. Andrei Seluanov, Assistant Professor of Research, has been half of a dynamic research team in the Biology Department for the last 6 years, working with his wife, Associate Professor Vera Gorbunova. This summer, Andrei will join the ranks of tenure-track faculty and establish his own research group in the department.

Andrei grew up in St. Petersburg, Russia (although it was Leningrad at that time). He remembers becoming interested in science by the 10th grade, when he attended a program for high school students at St. Petersburg State University, called Small University. In this program, students attended seminars and then broke out into small problem-solving groups. Andrei particularly enjoyed this experience, since it taught the students to think critically about scientific questions. He also first met his future wife and scientific collaborator, who was a member of the same small group. Both ultimately enrolled in a five-year Master's program in Biology at St. Petersburg State.

Andrei and Vera left Russia for Israel in 1991. Andrei entered the PhD program at the Weizman Institute, in the Biochemistry Department, working on the biogenesis of membrane proteins in E. coli under the supervision of Eitan Bibi. After completion of his doctoral degree, Andrei reached a turning point in his career, in which he and Vera decided to focus on related scientific problems. During their time at Weizman, both had become interested in the molecular basis of cellular aging, and they decided to combine forces to pursue this interest. To this end, Andrei completed a brief post-doctoral fellowship with Varda Rotter, also at the Weizman Institute, studying the role of p53 in human cellular senescence.

Interests in aging research have since led Andrei and Vera across the globe. As post-doctoral researchers, they studied aging in the nematode, *C.elegans*, at McGill University in Montreal with Dr. Siegfried Hekimi. Deciding that they wished to pursue their studies using human cells in culture, they moved to Baylor University where they worked, first with Olivia Pereira-Smith and then John Wilson. It was at Baylor where they began to study the mechanisms governing cellular senescence and the decline of DNA repair pathways in aging.

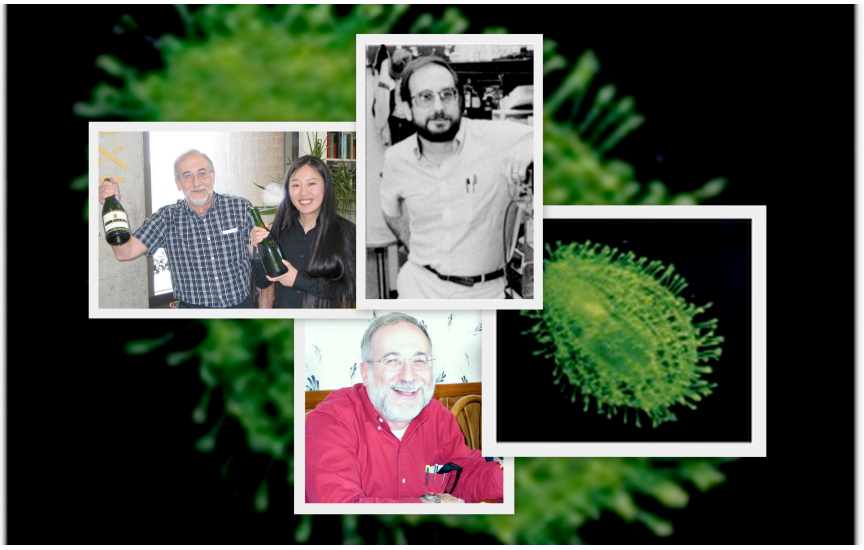
In 2004, Andrei and Vera brought this exciting research to the University of Rochester Biology Department. Their research here has included a comparative study of aging in rodents. This group includes member species with very short life spans (house mouse), and some fairly similar species with long life spans (naked mole rat). Of particular interest is developing an understanding of the cellular differences that contribute to the longevity of some species. Andrei will focus the work of his research group on studies with the naked mole rat and other long-lived species, to understand why these animals live so long and why, unlike humans, these animals don't get cancer. Andrei and Vera have already been recognized for their early work with the naked mole rat, with the awarding of a 2009 Cozzarelli Prize from the National Academy of Sciences for papers published in the Proceedings of the National Academy of Sciences "reflecting scientific excellence and originality".

*Naked Mole Rats in the lab of Dr. Andrei Seluanov*

In their free time, Andrei and Vera enjoy camping and hiking with their three sons, Michael, Moshe, and Aron.

# A Symposium Celebrating Martin A. Gorovsky: A Legacy of Excellence

*By Thomas Eickbush*



A symposium will be held August 6, 2010, to recognize the impact of Professor Martin "Marty" Gorovsky's research career. Marty accepted a faculty position at the University of Rochester in 1970 and rapidly progressed through the ranks of Assistant and Associate Professor. He was promoted to Full Professor in 1980. Within two years he was selected to be the chair of the department, a position he held for the next 12 years. Marty led the Biology Department into the modern age of recombinant DNA technology and the application of genetics to the fields of cell and developmental biology.

Professor Gorovsky is a cell biologist whose research has focused on the same model organism, the ciliated protozoan *Tetrahymena*, throughout his career. Marty's early research efforts were focused on the ribosomal RNA genes of this organism. However, with the advent of recombinant DNA technology, Marty's laboratory shifted its focus to two other multigene systems: histone genes and tubulin genes. He also played an important role in the recent sequencing of the *Tetrahymena* genome. Through his long career, Marty has published over 140 peer-reviewed articles. In 2003, he received the University of Rochester Cancer Center's Davey Memorial Award for outstanding cancer research.

Professor Gorovsky has been very successful as a teacher and mentor. Marty has to date trained more than 60 postdoctoral fellows and graduate students, including many leaders in the field of molecular genetics and two inductees to the U.S. National Academy of Sciences. In 2003, Professor Gorovsky received the University Award for Excellence in Graduate Teaching.

The August symposium will bring together former students, post-docs, colleagues and friends to celebrate Marty's legacy.

Speakers include: Joseph Gall, Carnegie Institution; Joel Rosenbaum, Yale; Meng-Chao Yao, Hutchison Cancer Institute; Alan R. Kimmel, NIDDK, NIH; Diane J. Mathis, Harvard; C. David Allis, The Rockefeller University; Jacek Gaertig, University of Georgia; Xuetong Shen, University of Texas; Yali Dou, University of Michigan; Kazufumi Mochizuki, IMBAS.

Peter Bruns, Vice President for Grants and Special Programs at the Howard Hughes Medical Institute, will be serving as Master of ceremony during dinner.

The symposium will be held August 6, 2010. Talks will be held from 9:00 a.m. until 5:00 p.m. in Goergen 101. Dinner will begin at 7:00 p.m. More information is available at the following link:

http://www.rochester.edu/College/BIO/symposium/index.htm

# FACULTY HIGHLIGHTS

**Gloria Culver** and her lab reported significant, novel findings on ribosome development in the Proceedings of the National Academy of Science, which revealed the importance of 30S subunit maturation to ribosome translating function. Gloria attended ribosome biosynthesis meetings in Regensberg, Germany, and Orvieto, Italy, where she was an invited speaker and session chair. Additionally, the Culver lab was awarded funding by the National Institutes of Health to continue work on ribosome biogenesis in bacteria.

**Tom Eickbush** was funded by the National Institutes of Health to study the expression of retrotransposons within ribosomal gene loci. The most significant finding published this year was the discovery that one end of the R2 RNA transcript is a self-cleaving ribozyme. Tom gave the keynote address at the FASEB Summer Research Conference on Mobile Elements in Snowmass, Colorado.

**John Jaenike** was funded by the National Science Foundation and the Gates Foundation to study the effects of *Spiroplasma* (maternally-transmitted bacteria) on pathogenic nematodes. John continues to enjoy teaching BIO 113 ("Perspectives in Biology II") and has given up pole-vaulting in hope of saving his knees for a hike of the Grand Canyon.

**David Goldfarb** was awarded the Focused Giving Award by Johnson & Johnson in recognition of outstanding research toward the advancement of science and technology in health care. David founded Calorics LLC, a company whose mission is to develop novel anti-inflammatory drugs. These drug leads were discovered in a high throughput screen of small molecules for those that extend the lifespan of yeast. In the classroom, David won a grant to integrate hands-on clay modeling into his molecular cell biology course BIO 210. These workshops, developed with the assistance of **Terry Platt**, help students grasp the complex topology of cellular structures.

**Vera Gorbunova** received a Senior Scholar Award in Aging from the Ellison Medical Foundation. Vera and **Andrei Seluanov** published a high-profile paper on anti-cancer mechanisms in the naked mole-rat, which was recognized by a Cozzarelli Award from the National Academy of Science. Vera and Andrei are excited by their recent discovery of a novel chemical compound, naturally secreted by naked mole-rat cells, that protects from oxidative damage.

**Rulang Jiang** and colleagues discovered the genetic mechanism that patterns teeth into a single row in mammals, a finding that was published in Science. Rulang's group recently generated several unique mutant mouse models and revealed the developmental basis of cleft palate pathogenesis in recent publications. These research projects are funded by the National Institutes of Health.

**Daven Presgraves** received an Alfred P. Sloan Research Fellowship in Molecular Biology. Along with his collaborator, Soojin Yi (Georgia Tech), Daven contributed to the recent debate about the historical details of speciation between humans and chimpanzees. Daven spoke about the genetics of speciation at two symposia celebrating the sesquicentennial of Darwin's Origin of Species.

**Justin Ramsey** was funded by a National Science Foundation CAREER award, which will support Ramsey lab studies of polyploidy (genome duplication) in flowering plants as well as conservation efforts in Rochester-area forest habitats. Justin is busy preparing a new field course, BIO 264 Ecological Communities, which will be taught for the first time in May 2010.

**Elaine Sia** was funded by the National Science Foundation to study the repair of double-strand breaks in mitochondrial DNA. The Sia lab has found that a number of proteins previously implicated in nuclear DNA repair are also important for mitochondrial repair events. This research was presented at a DNA repair conference in Whistler, Canada, last summer.

**Jack Werren** published several high-profile studies in the field of evolutionary genetics, including genome descriptions of three parasitic insects (*Nasonia* spp.) that recently appeared in *Science*. The Werren lab coordinated sequencing and analysis of the *Nasonia* genomes, which has led to discovery of novel venom proteins, evidence of gene transfer between bacteria and eukaryotes, and demonstration of epigenetic gene regulation (methylation) that was heretofore unknown from insects. Jack is excited that *Nasonia* has emerged as a new model of genetic research.

# Staff appreciation: Hiram Lyon

By David Goldfarb

Our department is blessed with a talented and committed staff, several of whom have served for decades. These individuals not only maintain continuity and support our generally high productivity, but just as important, they contribute to our culture of collegiality. In this article, I highlight Hiram Lyon, who has worked as a technician in our department for over 30 years, and who is universally recognized as the prototypical good guy. In the words of Professor and Dean Joanna Olmsted, who should know: "*Hiram was the mainstay of my lab for over 23 years. He fearlessly tackled any technique, designed his own experiments, stayed current with discoveries that could be applied to our work, and kept the lab stocked and running smoothly. Many of the reagents he developed and characterized have been distributed throughout the world. But the attributes I most admire about Hiram are personal: his intelligence is coupled with great generosity and kindness. He trained multiple undergraduates, graduate students and other researchers about the workings of the lab, but was also a wonderful exemplar of how to maintain high professional standards and be part of a cooperative enterprise. I'm delighted that he remains an important contributor within the Biology Department!*"

Hiram Lyon was raised with his younger brother Richard on his family's dairy farm in Aurora, New York, near Cayuga Lake. They milked 24 cows and made creamery butter. His father, also Hiram, grew corn, oats and wheat, and red kidney beans as a cash crop, on 200 acres. His mother drove the tractor, ran the milking machines, and the household. Dairy families have few vacation days, and Hiram was picking stones out of the fields and operating heavy machinery at the age of five. Hiram's experience growing up on a farm was both difficult and, at the same time, deeply satisfying in the sense that he went to bed every night knowing that he had provided a hundred households with bread and milk. This sense of devotion to service is a character trait that has defined much of Hiram's adult life.

Funny thing, Hiram now works with Gloria Culver, who is set to become the next Biology Department chair. Coincidentally, Gloria's father Asa owned the seed company, AgriCulver, which sold seed to the Lyons while Hiram was growing up. Moreover, Gloria's grandfather Alton Culver and his sons owned the fields adjacent to the home of Debbie Rumsey, who was to marry Hiram and together raise two sons Hiram and Ethan.

Hiram became a Life Scout in Aurora—there were few other games in town—and he was nuts about building and sending up model rockets. He wrestled at a sinewy 95 pounds in high school. Hiram was fascinated by science from an early age. He remembers being exposed around the age of four to the Time Life books "*Life on Earth*" and "*Geology*". A hands-on guy, he worked his way up through various beginner kits to the "deluxe" Gilbert Chemistry Set, which he succeeded in using to eat the enamel off a section of the kitchen sink.

After high school Hiram attended Tomkins Cortland Community College for two years, where he met Debbie, who was earning a business degree. Hiram moved on to SUNY Geneseo and a B.S. in Wildlife Biology. At 21, he and Debbie married and both continued their education at Geneseo. Hiram earned a Master's degree in cell biology and Debbie a Master's in library science. For his thesis, Hiram studied heliozoan cells, which are freshwater protozoa decorated with fantastic star-like projections called axopodia. Hiram demonstrated that the movement of microscopic particles within the axopodia is directed by a nonactin-based mechanism. This project might have been what caught the eye of Hiram's future employer Joanna Olmsted. Joanna studied microtubules, which comprise the tracks on which the axopodial likely moved. While endeavoring to complete his thesis work, Hiram continuously taught 16 contact hours/week in courses such as general biology, invertebrate zoology and microbiology. By comparison, our own Ph.D. students teach in only two classes their entire time in the department.

For a year after graduating Hiram and Debbie were unemployed. Debbie sold Avon products and Hiram chopped and sold firewood—three to four face cords/day—from the family farm. Hiram might be skilled enough with a Pipetman, but you should see him wield an axe, which I have. Then in 1979, Hiram was recommended to Joanna by a technician working in then Biology Professor Karl Dilica's lab, and Hiram came on board. He worked with Joanna until 2002, then joined Elaine Sia's group for a couple of years before joining Gloria Culver's group.

Gandhi said, "*The best way to find yourself is to lose yourself in the service of others.*" This is how Hiram has lived his life. While raising two boys, Hiram and Ethan, Hiram served extensively in the Boy Scouts, including stints as den leader, cubmaster, and scoutmaster. Over the years, he supervised a number of Eagle Scout projects, served on various scouting commissions, led training programs and treks, and now leads a co-ed Venturing program for young adults (14-21 yrs). His oldest son Hiram rose to become an Eagle Scout. The younger son Ethan became a Life Scout

I have gone hiking and canoeing twice with Hiram, the last time just a couple of years ago. The presumed purpose was to scout out the route for a six-day canoeing venture he was to lead across a number of Adirondack lakes. Hiram wanted to complete the scouting in just over two days. The real purpose was to exhaust me. Hiram loves nature, and is irrepressibly curious. I grew up climbing mountains with my father, whose goal was to get from point A to point B as quickly and efficiently as possible. Hiram, who sat in the back of the boat and steered, would veer off across a lake just to look at an unusual tree, or at a possible campsite that might be of use on another trip. Here I am staring down the distant point of land we are aiming at, and all of a sudden Hiram takes us off on a severe tangent toward the vast expanse of the open lake. For the first day all the meandering drove me crazy, at least until I mellowed out and settled into the moment. I fully intend on using the Hiram random-walk method to introduce the wilderness to my kids.

Hiram is an expert woodworker, as is Bill Burke, Technical Associate in the Eickbush lab, and has for the last 10 years taught Continuing Education classes on bowl turning and spindle veneering in Rush-Henrietta. These two built the glass cabinet housing the Howard Bryant exhibit in the Howard Bryant room (HH316). He helped to build the large playground in the Henrietta Town Park on Calkins Road. This time of year, Hiram contributes a lot of effort to the annual Howard Bryant Golf Tournament, which is coming up again in June (register now!).

One of his passions for over 20 years has been the reenactment of American Revolution battles. His group was featured in the History Channel's series on the "American Revolution," and on a Granada TV special on the Battle of Oriskany. A high point was a role in many of the battle scenes of the movie "The Patriot" staring Mel Gibson. Talking with Hiram you would be fascinated to learn how many subtleties distinguish the buttons on various 18th century uniforms.

In addition to his work as a research technician in the department, Hiram has served as a utility handyman to repair gel boxes, electrical equipment and other lab stuff. Mary Bissell, department facilities manager, relates that, *"Hiram is not very excitable. I have only witnessed Hiram run one time that I can recall…and no, it was not the time his wife called to inform him that she had gone into labor with their first child. On his way to be with her, he stopped in the Stockroom to have a cup of coffee and inform us of the news. And no, it was not the time that I ran as fast as I could from the Barry Hall lab to get him in the Sia lab because I had set fire to a constant temperature box. He calmly kept going with his computer work until I insisted that I needed him NOW. He did walk fast down the hall, but did not run. The only time he ran was when I asked him to investigate a powerful electrical burning smell in the autoclave room. The reason he ran? He knew exactly what the problem was and feared that he, himself, had caused it!"*

*Hiram Lyon*

# ACHIEVEMENTS AND MILESTONES

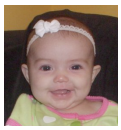
**Andy Cannon** is an undergraduate researcher in the Goldfarb lab. Besides his skills in the classroom and at the bench, Andy is a top performer on the University baseball team. With one game to go, Andy is batting .321 and is second on the team with 48 runs scored in 37 games. He has recorded 45 hits, including 8 doubles, 3 triples, and 1 home run. Most remarkably, Andy has remained error-free for while playing in left field. The team is an outstanding 28-9, and will host the Liberty League Conference tournament the weekend of graduation. Andy was named the Male Scholar-Athlete of the senior class at the Athletic Awards Banquet.

**Michael Clark** taught in a High School Outreach workshop at the Marine Biology Laboratory. The workshop introduces methods developed in the Werren lab for using symbiotic bacteria to teach discovery-based science to high school students.

**Chris Desjardins**, who helped lead the *Nasonia* genome effort, has taken a prestigious position at the Broad Institute at MIT.

**Holly Kuzmiak-Ngiam** from the Bi lab won one of two graduate student poster prizes at the 22nd annual Genetics Day for her poster, "SUMO-like domain containing Esc2p regulates global protein sumoylation and transcriptional silencing."

**Mary Fredendall** became the proud Grandma of Loreli Grace Ryan, born December 28, 2009.



**Dan Garrigan** and **Sarah Kingan** welcomed their baby girl, Adeline Kingan Garrigan, on February 25th, 2010, at 12:55pm. She weighed 6lbs, 15 oz and was 19 inches long. Dan's genome appears dominant over Sarah's (N=1).

**David Goldfarb** organized and mounted a Science Cafe in Rochester this academic year in collaboration with Joshua Faber, a mathematician at RIT. Science cafes are live events that involve face-to-face conversations with scientists about current science topics. The cafes were held in the evenings at the Pittsford Barnes & Noble store, and attracted 50-60 people per event. Rich Glor gave the first cafe on evolution. The last cafe of the season, which was in April was, presented by Richard Williams, current President of the International Astronomical Union. Other presenters spoke about stem cells, gravitational waves, energy, and the influenza pandemic. The cafes will start up again in the fall.

**Rob Laport** received the Biology department's graduate student teaching award. Rob has TA'd four times, most recently as one of the TA's who helped get the new EEB lab course up and running.

**Jeremy Rabinowitz** is happily engaged to **Raina Kinner**! Also, while he has considered them his for quite some time, it is now official that he has two step-dogs - Miller and Reese. They were the first to find out about the engagement and both seemed quite pleased.

**Tara** and **Justin Ramsey** (along with their two Siamese cats and border collie) spent much of March living out of their truck camper while collecting plants in NC, TN, AR, MO, IA, MN, and IL. Oddly, they had to head north to get away from the snow. Justin dug through two feet of snow to reach his plants in TN, and they had to stop in AR due to an enormous snowstorm.

**Four graduate students have been awarded doctoral dissertation improvement grants:**

**Victoria Cattani (Presgraves lab),** "Genetics of a hybrid incompatibility between *Drosophila mauritiana* and its sibling species."

**Rob Laport (Ramsey lab)**, "Polyploidy and reproductive isolation in the North American creosote bush (*Larrea tridentata*, Zygophyllaceae)."

**David Loehlin (Werren lab),** "Microevolution of cell size and cell number regulation in *Nasonia*."

**Rob Unckless (Orr/Jaenike labs)**, "An Assessment of horizontal and vertical transmission of endosymbiont infections in *Drosophila* and bee species."

# In Search of the Haitian Cascade Lizard

By Rich Glor

"Anderson, can you hear me? Are you OK?" I heard my answer through the crackling connection between my cell phone in the Dominican Republic and that of Anderson Jean, a colleague across the border in Les Cayes, Haiti: "Yes, I'm OK, but I don't think now is the best time for a visit to Haiti." It was the Summer of 2008 and less than 24 hours before I was scheduled to fly into Port-au-Prince for a two week expedition with my colleague Luke Mahler to assess the status of Haiti's endemic *Anolis* lizards. It was also just one day after Haiti had been struck by the fourth of four devastating hurricanes that had killed hundreds and left cities and roads submerged.

Luke and I had been discussing a trip to Haiti for years, but it was only over the preceding year that we were able to secure funding and orchestrate all the necessary preparations. Reluctant to abandon our plans even in the face of natural disaster, we asked Anderson if we'd be able to drive the road to the Citadel - an old fort and the only known locality for *Anolis koopmani,* one of the rare endemic anole anoles we hoped to rediscover. Anderson's reply sealed the fate of the expedition: "That road? It is like a river now."

Although a busy academic schedule would force us to shelve our Haiti plans for nearly a year, we resolved to return the following summer. (As it turned out, our visit in 2009 would coincide with a mercifully brief period during which nature spared Haiti from major calamity.) We arrived in Port-au-Prince (PauP) early in August of 2009, where we were greeted by our contact Philippe Bayard, President of the Haitian Audubon society[1]. We were eager to leave PauP as soon as possible because our first target species would be one of the most unusual lizards in the world: the Haitian cascade anole (*Anolis eugenegrahami*), a semi-aquatic, waterfall-dwelling species known only from a few streams in northern Haiti. Before we could begin our hunt for the cascade anole, however, we had a few logistical details to take care of. Most importantly, we needed to acquire a vehicle.

Because our visit happened to correspond with a major festival, none of the major car rental agencies had 4x4s available (one cannot travel far in Haiti with two-wheel drive). Our host and his resourceful assistant, however, managed to secure a 4x4 from a small, lesser known agency. They also found us a driver; although Luke and I have driven through a fair share of challenging situations, we agreed that the labyrinthine and potentially dangerous streets of Port-au-Prince required the services of a professional local. The trip to the rental agency on the outskirts of PauP with Philippe's driver was enough to convince us that we'd made the right decision. Some roads in the capital were so long-neglected that they had been rendered impassable by rubble or potholes. Other streets were made difficult to navigate by throngs of pedestrians, often spilling out from one of the Haiti's innumerable roadside markets. Even if we had been able to successfully navigate to the rental agency's address, its unlikely we would have recognized it as our destination.

There were no signs, or parking lots packed with cars for rent; instead, the agency's compound resembled a small urban goat farm adjacent to Brasserie Nationale D'Haiti, the factory responsible for Haiti's most popular domestic beer. Adjacent to a crumbling building and a ragged yard populated by no fewer than a half dozen goats, we noticed some Haitian men standing around a truck that matched the description of the one we were to rent. Although we weren't immediately told which of these men would be our driver, I quickly identified the one guy I was hoping it would not be: a slender, mustached Haitian whose left eye was directed about 20 degrees off from his right.

After being introduced to a white-haired gentleman who ran the rental agency we quickly set about inspecting the truck. Neither Luke nor I is a mechanic, but years of experience had taught us to check for obvious problems. Perhaps most importantly, we wanted to make sure the tires were in good shape and that we had everything we needed to replace inevitable flats. After noting that some of the tires were threadbare, we requested that they be replaced before we departed. As some of the men set to work on this task, we were introduced to our driver; as it turned out, the fates were against us and the fellow with the bum eye was going to

[1] Little known fact: John James Audubon, the famous French-American naturalist, was born in Les Cayes Haiti in 1785.

be the one driving us north (although we were in no mood to be discriminatory, we would come to realize over the coming days that it would be prudent to disqualify visually impaired drivers on future expeditions).

The next day we packed the truck and ventured out into the Haitian countryside for the first time. Our destination was the type locality (i.e., the site from which the first specimens were collected) of the cascade anole, just outside the town of Plaisance along the dangerous mountain road between Gonaive and Cap Haitian. We would make the trip to Plaisance over two days, spending our first night in the coastal city of Montrois to meet up with one of the Haitian colleagues helping to organize our trip. After our brief overnight layover in Montrois, we passed through the city of Gonaive, a city in the middle of a low-lying plain that was devastated by the 2008 hurricanes. When we arrived nearly a year after these hurricanes, we saw that portions of the highway into town had been reclaimed by the ocean. Further inland, bulldozers and levelers were still busy removing mud from major roads. After a circuitous route through the roads that remained passable, we began to ascend into the mountain highway toward Plaisance. The ill-kept, guard-rail-less road was populated primarily by trucks packed with agriculture products and busses jammed full of travelers. The bus drivers took pride in the speed with which they could navigate the road between major destinations, often painting images of jetliners and rockets on the sides of their repurposed school buses.

Roads dominated by bus drivers trying to emulate jet pilots and astronauts not withstanding, we reached Plaisance early in the afternoon. Plaisance was a small city of some 80,000 souls, which served as a hub for surrounding agricultural activity. Shortly after arriving, we made contact with a Haitian scientist working on watershed management who had agreed to help us with some basic logistical details. First, he helped us get settled in a simple hotel on the edge of town. Rooms were in short supply, so Luke and I ended up sharing a dark room with a tiny window and a single bed. Although the place may have been less than ideal, we were just happy to find someplace that offered running water and power from a diesel generator (Plaisance has been without centralized electricity for over four years).

**One of the many deforested streams we came across during our hunt for cascade anoles**

Because our local contact's work would prevent him from venturing out with us over subsequent days, and because our driver spoke about as much English as we did Creole (i.e., virtually none), we arranged to hire a local guide. Our contact had a friend who spoke a bit of English, and a bit more Spanish, that was willing to help show us around. At the urging of our local contact and guide, our next stop was the police office; apparently its a good practice to alert the authorities about the presence of foreigners in this part of Haiti. Although the police captain had only 18 officers under his command he assured that we'd have no trouble in the area. Apart from some difficulty finding cascade anoles, he was right; Plaisance was a quiet, welcoming community that seemed more amused by our presence than anything else (one day the kids at the tire repair stand across from our hotel broke out in fits of laughter punctuated by shouts of "blanc" when they observed the paleness of my torso as I changed my shirt in front of our truck).

Even after getting settled in our hotel, hiring a guide, and meeting with the police, enough light remained in the day to begin our hunt for the cascade anole. There wasn't enough daylight left to scout the east side of town, closer to the type locality, but we had identified a few spots on the drive in on the west side of town. Of course, the streams we had seen looked nothing like the teaming streams running through gallery forest that were crawling with cascade anoles in the 1970s. All of this forest had long since been destroyed. Where they crossed the road, most streams were now home to wallowing pigs, bathing Haitians, or some combination of the two.

Nevertheless, we had reports that some populations of cascade anoles were clinging to existence even in the face of large-scale human disturbance.

The first stream we returned to that first day in Plaisance at least had a bit of shade near its base. We got there in the afternoon and wasted no time initiating a hike upstream, carefully scanning the streamside rocks for cascade anoles along the way. The stream was little more than a trickle in places, and often overgrown with thick grass and shrubs. It was also flanked on both ides by agriculture and plenty of habitations. We were quickly joined by nearly a half dozen Haitian children who were fascinated by our presence. Their fascination only grew when we showed them images of themselves in the viewfinders of our digital cameras. (Before we left, they insisted that we shoot dozens of photos of them striking poses emulating their favorite actors and musicians.) Although we may have made some new friends, we didn't find any cascade anoles that first day.

An active charcoal pit adjacent to a deforested stream.

On our second day, we scouted the road east of Plaisance, hoping to find the type locality or other nearby streams that might still be home to cascade anoles. Although there were numerous streams crossing the road, each one was almost completely deforested (the trees that were present tended to be recent imports). We began working our way up one stream after stream, hoping we might eventually find some relatively undisturbed pockets of stream flanked by something resembling the gallery forest reported by our predecessors. We had no such luck; we climbed nearly to the top of some half dozen streams, encountering only low scrub, agricultural fields, and cows after every bend. Along several streams, we saw the smoking mounds of dirt that indicated whatever small trees remained in the region were meeting the same fate as the giants that preceded them: charcoal. Cooking in rural Haiti is done almost exclusively with charcoal, which is typically generated in smoldering mounds packed with freshly cut trees and dirt.

We eventually came upon a stream that we initially considered too disturbed to have any potential. Although the mouth of the stream was reasonably well-shaded, it ran directly in the middle of a small Haitian community. There were never fewer than a half dozen Haitians using the stream to wash clothes or bathe themselves where it formed a small pool just before crossing the road. As soon as we got out of our truck we were surrounded by a small army of Haitians. The children came first, but the adults weren't far behind. As I was making my way up a trail along the stream's right bank (with a gaggle of Haitians in tow), Luke took a more direct route by wading directly up the stream.

Toward the end of the footpath, I noticed a large rock with a flat vertically oriented surface streaked with running water in a shaded patch just above a small pool of stagnant water. I saw the silhouette of a slender gray anole perched almost directly in the center of this rock, but was already diagnosing it as a common trunk-ground anole as I called down to alert Luke. Luke looked up and knew instantly that I was wrong. The little beast had the unmistakable spider-like limbs and short snout of a cascade anole. We quickly spotted a smaller animal nestled in the same rock face and knew we had succeeded in finding one of the last remaining populations of cascade anoles. We quickly set up our video camera to record the animal's behavior, unsure of whether we or anyone else would ever have a chance to do so again.

The first locality where we found the cascade anole (note the bathing Haitians and creole pig in the foreground).

As the day came to an end, we knew it was time to pack up our cameras and make an attempt to catch the animal. We were interested in bringing some live animals back to the United States for further study, and

potentially to establish a captive colony of survivors. We generally capture anoles using a small lasso made of dental floss attached to a telescoping fishing rod. Once we were both in position, I began creeping slowly toward the anole with my lasso extended some 14 feet in front of me. Given that the rock face was riddled with crevices, I knew I would have only one chance before the animal darted out of reach. Directing a lasso over a lizards neck from 14 feet away is never any easy feat, but my efforts were further complicated in this case by the fact that I was working in front of a crowd of more than 20 curious, and often rambunctious, Haitians. As I crept slowly toward the lizard, a local man with a guitar even showed up and began to entertain the crowd with music. Fortunately, the lizard seemed more curious than afraid, even mistaking my lasso for a prey item and attempting to eat it during my first approach. I took a deep breath, steadied my hand, and slowly brought the lasso over the lizard's head; as soon as the lasso passed the lizards jaws I flipped my fishing rod away from the rock, taking the lizard with it and directly into Luke's waiting hands.

The scene when I turned around after having caught our first cascade anole.

We were elated to have found a population of cascade anoles clinging to existence, but we recognized that the species's situation was precarious. Were the last few remaining individuals really clinging to existence in the middle of a disturbed stream adjacent to the highway? We vowed to spend the next day searching all of the streams in the vicinity for more viable populations.

We spent the whole next day wandering the streams around Plaisance, but didn't find any more animals, or even streams that seemed like they might be suitable. Although the species appears capable of surviving in some heavily disturbed streams, it seemed unlikely it would be able to tolerate the exposed conditions that characterized most streams in the area; the surface temperature of exposed rocks was reaching 120 degrees before noon, hardly suitable for a black anole adapted for shady forested conditions. Knowing that we would need to begin our journey back to PauP the following day, we were beginning to get depressed about the fate of the cascade anole.

Late in the day, however, our guide began talking of a stream with a series of impressive waterfalls just southwest of Plaisance. It sounded like a long shot, especially given that we only had another half day to spend in the region. Our guide, however, assured us that we'd have time to visit the falls on our way out of town the next day and still have plenty of time remaining to make the drive back as far as Montrois before nightfall. We woke before dawn the following day, first traveling to the locality where we had found a few cascade anoles two days previously so that we could release our captive animals. Although we had hoped to bring these animals back to the United States alive, neither Luke nor I were prepared to permanently remove the few remaining specimens of the cascade anole from their native habitat.

The Haitian market at the trailhead.

After releasing these animals, we headed for the falls. Just southwest of Plaisance, we arrived at a dirt parking area beside a small local market where basic necessities like rice and plantains were being sold by a dozen or so vendors. We grabbed some water and set out for a walk to the falls that we were told would last about a half hour. The trail we set out on was an old road that ran along a river and through the Haitian countryside. Relative to other places we'd been, the little villages along this trail seemed idyllic. Kids played marbles in the dirt

road as women washed clothing in the stream. We passed a large congregation of churchgoers, all dressed in their Sunday best; the men in ill-fitting suits and the women in lacy dresses and impressive hats. We also came across a few mobile church services, which involved groups of Haitians wandering the trail singing spirituals under the leadership of an itinerate preacher. Evidence of the locals' voodoo practices were also in evidence. At one stream crossing we found a hand written note adjacent to a burnt fish offering and a bottle of clarin (a locally made cane-based liquor that is seeped in herbs and has the flavor of licorice).

A voodoo offering placed along the trail to cascade anole shangri la.

About a mile into our hike, we stopped at a small shack that served as headquarters for the local head of government. The leader of this community wasn't exactly dressed the part; he was wearing a tattered shirt and a black fedora. Although a guide didn't seem necessary given that the river was our obvious path, we didn't seem to have any other option than to hire this gentleman and a few of his friends to accompany us for a small fee.

By this time we realized the hike was going to take considerably longer than we expected, but we were too far in to turn back now. We ended up hiking for over two hours before we saw the first sign of a waterfall. Although a two-hour hike isn't normally a big deal, we had little drinking water and were worried about making it back to Montrois before it was too late. We were feeling pretty disheartened by the whole experience by the time we reached the first falls. Once there, however, it didn't take long for exhaustion and despair to give way to one of the most satisfying moments of my career as a herpetologist. As soon as I spotted the first cascade, I raised my binoculars and began scanning the slick rocks adjacent to a surging channel of whitewater. As I scanned one crevice something caught my eye and I steadied the binoculars to focus and get a better look. My heart started racing when the image came into focus; it was an adult male cascade anole proudly perching just inches from the rushing water!

A cascade anole perched adjacent to a small crevice.

We took a few photos before scrambling a bit further up the stream to a larger waterfall adjacent to a a large rock-face that ended in a deep pool. Once there, we found ourselves in cascade anole shangri la. The rocks around the pool were crawling with cascade anoles of all sizes, as was the face of the waterfalls itself. We watched in awe as lizards rushed up and down the falls snatching up tiny insects as quickly as the falls would deliver them. These lizard's ability to quickly scramble up and down the slick rock surfaces was remarkable. So too was their ability to swim, and even to cling to the rocks under the waters surface when alarmed. We took all the time we could taking photos and getting video of the animals, but knew that we had little time to linger if we were going to make it back to Montrois on schedule.

Although we were riding high after having found a large, viable population of cascade anoles our adventures for the day were not quite finished. Although we made it back to our truck and even as far as Gonaive without incident, our luck came to an end when we were about to leave the town of Saint-Marc. At the edge of town, our vision-impaired driver tried to skirt around a truck stuck in traffic and ended up slammed sidelong onto and over the road's raised edge. Although the truck kept going, it wasn't more than a few moments before Luke and I sensed that we had a flat tire (although it took some convincing to get our professional driver to believe us). Night was beginning to fall when we pulled over to the side of a muddy dirt road flanked by darkened homes and empty market stalls to repair our tire. Although we had been careful to check our rental vehicle for a nice spare and the equipment necessary to change it, we failed to test the jack, which turned out to be too small to actually lift our truck off the ground. Our driver seemed to have little idea about how to proceed, suggesting at one point that Luke and I lift the vehicle ourselves while he changed the tire! With the aid of a helpful pedestrian, we

located a large rock that could be placed under our jack, which elevated it just enough to lift the truck high enough to change the tire.

A new locality for the cascade anole.

Our tire fixed, we would have to complete the drive to Montrois under cover of darkness. It was a long day with a stressful end, but also one of the most memorable of my career. We had found cascade anoles alive. We had even found a new locality that was home to an abundance of animals, and seemed at least a bit more off the beaten path than previously reported localities. To this day, however, my excitement about finding cascade anoles is tempered by concern over its future. Even without the massive exodus from the capital following the earthquake, the limited natural resources of communities like Plaisance were stretched to their limits. With the new refugees, I worry that they will be brought to the breaking point. Plans to conserve cascade anoles and their habitat have been placed on hold as the country attends to more pressing matters.


# The Howard Bryant Memorial Golf Tournament

## PLEASE JOIN US!

Thursday, June 17, 2010

| | |
|---|---|
| Registration: | 10:00 AM |
| Shotgun Start: | 11:00 AM |
| Dinner: | 5:30 PM |

Fee: $90.00
*Fee includes golf, lunch, and chicken/rib dinner.*

## PRIZES

- Closest to Pin
- Longest Drive
- Raffles
- Doorprizes

**All registered golfers will receive one free golf pass ($30 value) for the Brockport Country Club!!**

**Brockport Country Club**
3739 Monroe Orleans County Line Rd, Brockport
www.playbrockport.com

**NOT A GOLFER?**
"Dinner only" fee is $30.00 (kids free)

Free Chicken Wing Bar
before Dinner!

Open Bar after Dinner!

HOWARD BRYANT
*Howard was a beloved member of the Biology Department at the University of Rochester for over 40 years.*

*All proceeds from this tournament benefit The Howard Bryant Memorial Scholarship Fund. The Fund was established in 2004 to honor Howard's legacy of caring and support by providing aid to students in need of financial assistance and who are interested in pursuing a career in Sciences or Engineering.*

Register at www.rochester.edu/College/BIO/HB/HB.htm

UNIVERSITY of ROCHESTER