Biological Sciences

Lehigh University

Greetings to Alumni and Friends from the Department Chair

Jeffrey Sands, Ph.D.

Hello, everyone, and welcome to the first newsletter of 2006. I am both the new department chair and a former one. Some of you who are alumni from the 1980s and 1990s may remember that I served previously as chair (for six years, from 1988 to 1994), back when we were called "Biology" and "Molecular Biology". When we expanded to become "Biological Sciences" in 1995, Prof. Neal Simon became chair and subsequently served for over ten years. Under Neal's leadership, the department grew significantly in size, strength, and breadth, as has been apparent in some of the stories in this newsletter over the past year. Neal will be continuing to serve the department and the University by remaining a leader in the continued strengthening of Lehigh interactions with bioscience/biotechnology industries and biomedical institutions.

The Department is and will remain a very active place. We are all working hard to solidify our recent expansion (8 new faculty members within the past 7 years), while we continue to plan and build for an even brighter future. There is a lot of great research going on, with continual close interaction of faculty, graduate students, and advanced undergraduates. Exciting things are also happening in our classrooms. Although enrollments are at an all time high, we are committed to continuing the tradition of excellence in teaching. In the overall learning environment involving both research and teaching, I fully expect our dynamic new faculty members to help take us to even greater heights from here on.

We are all working hard to solidify our recent expansion... while we continue to plan and build for an even brighter future.

So, sit back and enjoy this edition of your newsletter, which our department coordinator Maria Brace has expertly put together.

There is a lot of interesting "stuff" that has been going on here. You'll read about a Lehigh research award to Prof. Saldanha, a major national award to Prof. Cassimeris, and a highlighting of Prof. Mendelson's research as part of the "breakthrough of the year" article in the journal *Science*. Meet (or re-meet) professors Kuchka, Skibbens, Swann, and Ware. Read first hand accounts from two students who presented their research in front of a Nobel Laureate. The student spotlight article describes the work of Ph.D. candidate Ryan Wynne in Prof. Saldanha's lab. And don't miss the article by Prof. Tami Mendelson about the exciting visit of Brown University Prof. Ken Miller to campus this past fall (standing room only in Packard Auditorium!).

The other major part of this newsletter is about our alumni. The most senior alumnus who has sent in a contribution is Dr. Willard Litzenberger, who received a BS in Biology in 1941. Don't miss his fascinating recollections about actually growing up on campus. Also, be sure to scan through the updates we've received recently from many other alumni, from 1958 to 2005. You'll probably find a few names you remember.

For those of you who are alumni who have not yet responded, let us hear from you so we can make you a part of the next newsletter. Personally, I find it very interesting to see what our many "progeny" have been doing since they left the Lehigh nest, either a few or many years ago.

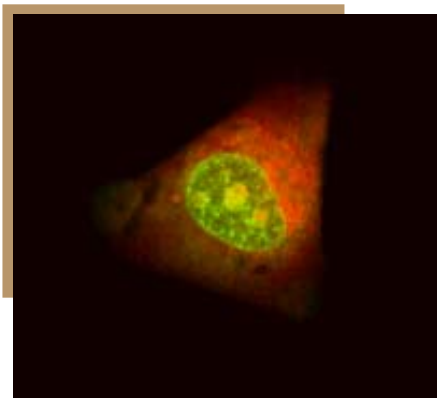
Happy 2006 to all alumni and friends of the Lehigh Biological Sciences community.

Jeff Sands
January, 2006

LEHIGH UNIVERSITY

Department of Biological Sciences
111 Research Dr.
Bethlehem, PA 18015
Tel: 610.758.3680
Fax: 610.758.4004
www.lehigh.edu/~inbios

In this issue.....



Direct visualization of mRNA and ribosomal RNA (red), and chromosomal DNA (green) in a living human HeLa cell stained with Acridine Orange. *Cells were stained and imaged in Lehigh's BioS 368 Cell Bio lab course in Fall 2005, instructed by Prof. Matthias Falk.*

Faculty members receive honors

Saldanha receives Lehigh research award

Assistant Professor Colin Saldanha was honored in early May when he received Lehigh University's Eleanor and Joseph F. Libsch Early Career Research Award. This award recognizes outstanding research and scholarly achievements among younger faculty.

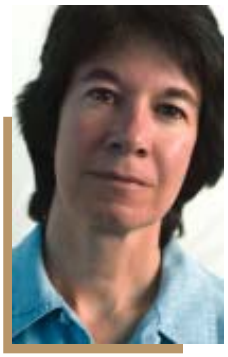
Saldanha joined the faculty at Lehigh in 2001 after serving as a research associate at the Brain Research Institute, UCLA School of Medicine. The overall goals of his research are to better understand the roles of the endocrine system in brain development, damage and repair. Saldanha's research has been funded by the National Institutes of Health, the Alzheimer's Association, and the Pennsylvania Department of Health. Dr. Saldanha was awarded the university's Christian and Mary Lindback Foundation Junior Faculty Award in 2002.

Assistant Professor Colin Saldanha with undergraduate students:

l to r: A. Intilli, J. Randall '04, C. Saldanha, Ph.D.,

K. Rohmann '05, N. Patel '04, R. Kullar '04

Cassimeris named Porter Fellow



Lynne Cassimeris, Ph.D.

Professor Lynne Cassimeris was named a Fellow of the Keith R. Porter Endowment for Cell Biology. The Porter Fellows Program was set up in 1999 to extend Keith Porter's substantial encouragement of young scientists. Two Fellows are appointed each year for a three-year period. Cassimeris shares this fellowship with Michael Glotzer, from the Department of Molecular Genetics and Cell Biology at the University of Chicago.

Fellows are selected near the middle of their careers. The selection is based on the recipient demonstrating unusual potential for an outstanding career in cell biology. Fellows are provided with funds and encouraged to use them in activities designed to help their career development and promote the field of cell biology. These activities include participation in the organization of small, focused meetings in a field of interest to the Fellow as well as visits to smaller colleges and other undergraduate institutions that may not have large, active graduate programs.

The namesake of this fellowship, Keith Roberts Porter (1912-1997) is considered by many as the "Father" of cell biology. Porter founded the first major journal in cell biology, now called the Journal of Cell Biology. He also participated centrally in the founding of the American Society for Cell Biology and was a member of the National Academy of Science.

Cassimeris received her Ph.D. from the University of North Carolina, Chapel Hill. Her post-doctoral research was done at the University of Pennsylvania. Cassimeris' research at Lehigh is funded by the National Institutes of Health.

Recent Publications by our Faculty

For a more in-depth listing of publications please visit our website www.lehigh.edu/~inbios and explore individual faculty members' information.

Bold=Faculty
Bold+Italics=*student/staff*

Behe, Michael J. Design for Living. New York Times, A21. 2-7-2005.

Kapitsky S., Zueva L., *Akbergenova Y.*, and Bykhovskaia, M. 2005. Recruitment of synapses in neurosecretory process during long-term facilitation at the lobster neuromuscular junction. Neuroscience. 134:1261-127

Becker, B.E. and Cassimeris L. 2005. Cytoskeleton: Microtubules Born on the Run. Current Biology. 15: R551 – R554.

Eastman, Stephen D., Chen, Tim H. Op, Falk, Matthias M., Mendelson, Tamra C., and Iovine, M. Kathryn 2005. Phylogenetic analysis of three complete gap junction gene families reveals lineage-specific duplications and highly supported gene classes. Genomics.

Itzkowitz, M. Santangelo, N, Cleveland, A. Bockelman, A., Richter, M. 2005. Is the selection of sex-typical parental roles based on an assessment process? A test in the monogamous convict cichlid fish. Anim. Behav. 69:95-105.

Koeris, M., Funke, L., Shrestha, J., Rich. A., and Maas, S. 2005: Modulation of ADAR1 editing activity by Z-RNA in vitro. *Nucleic Acids Res.*, 33 (16): 5362-70 (see cover image, page 9)

Mendelson, T.C. and Shaw, K.L. 2006. Close-range acoustic signaling and mate choice in Hawaiian crickets. Behavioral Ecology and Sociobiology. Available Online.

Saldanha CJ, *Rohmann KN, Coomaralingam L, Wynne RD.* Estrogen provision by reactive glia decreases apoptosis in the zebra finch (Taeniopygia guttata). J Neurobiol. 2005 Aug;64 (2):192-201. (see cover image, page 9)

Hu, S., Kaplan, J., Adams, M., and Simon, N. 2005. ERBeta protein expression in cynomolgus monkey and CF-1 mouse brain. J. Neurobiol., 64, 298-309.

Skibbens, R. V. 2005. Unzipped and Loaded: The role of DNA helicases and RFC clamp-loading complexes in sister chromatid cohesion. Journal of Cell Biology 169: 841-846.

Wood RI, Swann JM (2005) The bed nucleus of the stria terminalis in the Syrian hamster: subnuclei and connections of the posterior division. Neuroscience.135(1):155-79.

Basile-Borgia, A.E., Dunbar, D.A., and Ware, V.C. 2005. Heterologous rRNA gene expression: internal fragmentation of *Sciara coprophila* 28S rRNA within microinjected *Xenopus laevis* oocytes. *Insect Mol. Biol*. 14(5): 523-536.

Students present research to Nobel Laureate

Can you imagine standing in front of a Nobel Prize winner and presenting *your* research to *him*? Shouldn't it be the other way around? Not so for a handful of undergraduate and graduate students in the College of Engineering and the College of Arts and Sciences! Undergraduate student Julianna Harvey and graduate student Laura Szymanski recently had this once-in-a-lifetime opportunity. Ms. Harvey is a Bioengineering major doing research in Assistant Professor Kathy Iovine's lab; Laura Szymanski is a Ph.D. candidate studying with Professor Jill Schneider.

Alan Heeger, co-winner of the 2000 Nobel Prize in Chemistry, spent two days at Lehigh in 2005 as the keynote speaker for the Distinguished Lecture Series of the P.C. Rossin College of Engineering and Applied Science. He addressed the connection between creativity and risk-taking in scientific research and the development of technology. Heeger held a public master class for student researchers during his visit. A total of nine undergraduate and graduate students had the opportunity to present their research projects at Heeger's "Nobel Master Class on Research Strategy and Creativity."

What is it like presenting your research to a Nobel Laureate? Read on for Julianna's and Laura's reflections.

Julianna Harvey with Prof. Kathy Iovine

Julianna Harvey

Undergraduate student, Bioengineering

"Bone Growth in Zebrafish Fins"

When I first heard that I was invited to give a presentation on my research for Dr. Heeger, I was both excited and intimidated to be presenting in front of a Nobel Prize winner. I knew it was an opportunity most undergraduates would never be given, so I was determined to give the best presentation I could. As soon as I learned the general format it was to follow, I began discussing what I would include in it with my research advisor, Dr. Iovine. After our first conversation, I created a rough version of my final presentation, which was revised many times before we decided it was simple enough for a general audience to understand yet detailed enough for those who had a background in biology. I practiced giving the presentation a couple of times in front of Dr. Iovine, who then gave me feedback that enabled me to revise it even more.

Before I knew it, the day had arrived and I would be presenting my research within a few hours. The intimidation that I had experienced when I first learned of the presentation came back, causing me to feel slightly nervous. That all changed, however, when I listened to the first presentation and Dr. Heeger's response to it. I felt at ease and was confident in my knowledge of the subject, so when I heard my name announced, I was more than ready to present my research.

After I finished, Dr. Heeger asked me some questions and gave me some suggestions. Because most of his questions focused on the content of my presentation and I knew the subject well, they were fairly simple to answer. In addition to the questions, he gave me some suggestions on my research strategy that were very insightful and helpful. I would say that presenting to, and receiving feedback from, a Nobel Prize winner was a great experience and anyone given the opportunity to do so should take advantage of it.

Laura Szymanski

Ph.D. Candidate, Biological Sciences

"Role of Food in Fertility"

When I was invited to be a part of the Nobel master class, I was stunned. The prospect of presenting a portion of my research to a Nobel Laureate was exciting yet daunting, especially since the theme of the class was creativity in research. Until that point I had never really thought about how I used creativity in my research, creativity was just there. Creativity was necessary to think of a research question, formulate a hypothesis, and design an experiment to test the hypothesis. Then, the results of the experiment generate new questions and hypotheses, and the cycle repeats again and again. My biggest challenge was choosing which part of my work to highlight in the eight-minute talk. This was the first time that I had presented a portion of my research in such a short time and to an audience outside my field. I chose to present part of the work I did in collaboration with Dr. Iain Clarke in Melbourne, Australia. I focused on our finding that leptin levels do not increase in time to account for the restoration of reproductive function after food deprivation is ended. This result did not support our hypothesis and contradicts the current dogma concerning leptin as a reporter of energetic status to the reproductive system. I felt that this unexpected result was an ideal example of using creativity in developing alternative hypotheses after a previous hypothesis is not supported.

Laura Szymanski with Nobel Laureate, Alan Heeger, Ph.D.

I thoroughly enjoyed all of the other presentations, and Dr. Heeger's commentary after each was invaluable. He gave tips on engaging the audience with a story, not being afraid to teach and being able to discuss unanswered questions in research. I felt that my own presentation went well, even after an initial bout of nervous jitters. Dr. Heeger gave me some positive comments, and my presentation sparked a lively conversation about generating and testing hypotheses in science, and how results that do not support a hypothesis can be just as useful as results that do support a hypothesis. Overall, I am glad that I had the opportunity to be a part of the Nobel Master Class. The presentations gave me a chance to learn about research in other departments at Lehigh, and how each discipline approaches research questions differently. It was definitely a worthwhile experience as a presenter as well as a member of the audience, and I hope to attend any future Nobel Master Classes.

A Journey Through Time

Since its inception, Lehigh University has been "home" for many students and faculty. Very rarely can a former student claim that Lehigh truly was home. An alumnus of the department, Willard Litzenberger ('41), is one of the rare exceptions. Litzenberger's father, Andrew W. Litzenberger, served as resident architect at Lehigh for many years. Young Willard, just 12 years old, moved on campus in 1931. A house at the corner of Packer and New became his home until 1943.

Andrew Litzenberger

My father became an architect the hard way. He served a preceptorship, took and passed his state boards. Employed by the Bethlehem Steel Co., he spent a year or so for the company in Argentina and Chile. At the Steel, Dad became noticed by the President, Mr. E.G.Grace. Dad had a habit of quickly drawing likeness cartoons of people he saw. Mr. Grace walked into the room where Dad and other architects labored over drawing boards and Dad, not knowing who Grace was, drew his cartoon-likeness on the side of his paper. Mr. Grace walked the aisles, saw his face, demanded to know who Dad was, and hired him to oversee his mansion's renovation. Then Mr.Grace, also president of the Board of Trustees at Lehigh, asked Dad to become resident architect and head of Grounds and Buildings at Lehigh University. The year was 1931. What a way to weather the Depression!

For an inquisitive child of 12 or so, Lehigh was a treasure chest. What wonderful huge Gothic buildings with mysterious "cellars"! The Lehigh Chapel alone had vast cellars hardly anyone knew existed. Also, one could spend an entire day walking the many steam tunnels carrying the high pressure steam pipes for heat to the various campus buildings from the powerhouse. What a maze of ducts in the "attics" of these immense gothic buildings—a world unknown to students and faculty, but known to me because my father had to care for, and I worked in, some. Later, as a teenager, I was employed in various departments of the grounds and buildings department. The pay was 42 cents an hour. On the paint gang I started as a "rough" painter eventually graduating to the Gothic window painting and finally wainscot striping with a 4-inch brush. I "hated" sheet metal duct work in the hot building attics in summertime. Beginning as a "rough" carpenter, I graduated to the "shop" doing cabinet carpentry. I had to spend time in the machine shop and even was subjected to paving roadways. Although I was "the boss's son," I believe the various foremen had been told by Dad to "lay it on" and they did.

All a person has to do is walk the paths of the Asa Packer Campus to learn the names of the founding "fathers" of Lehigh University. The buildings broadcast their names to all who will listen. Chandler....Ullmann....Trembley.... Coxe.....Drown....you can almost hear them lecturing to the eager students. Willard Litzenberger can honestly say that he DID hear some of their voices—in person!

To a 12 or 13 year old Dr. Fran Trembley, the" snake man," held a special attraction and there was no doubt I wanted to become a biologist exactly like him. Occasionally going with him in the summertime to capture a "wild" snake was simply great. Later, as a student, I discovered he was an excellent teacher, making his subjects very interesting and pertinent. He was an even better role model than I had thought as a kid. When I decided to become a physician, he was my inspiration. Dr. Thomas, head of the department always had time to talk to me as I prowled the halls of Williams Hall as a youngster. (The vivarium held a special attraction.) Dr. Ullmann, the head of the Chemistry Department, was doing research on paints for the US Navy. He painted my little wooden wagon with some of the research product to see if it was truly trustworthy against wind, rain, wear and tear. It held up quite well. Dr. Hughes, head of the Philosophy Dept., became known to me before I was a student. His son was a classmate. Dr. Palmer, Professor of German lived on campus. Two of his three sons were close friends and we visited each other frequently. One of our "projects" was making a wild-flower garden in the meadow at the top of South Mountain. It turned out very well. Did you know that one could "run like the wind" from the top of South Mountain to my house at the corner of Packer and New Street in 8 minutes? I did it more than once, making it "on time" for supper to avoid a mother's ire for tardiness. Of course roads and steps were ignored. If you are "in shape," try it. Dr. Shields, head of the Department of Music and known to all students as "Pop" Shields, would occasionally hear a "screech" when depressing one of the organ keys. He would then send me back to the large wooden "vanes" activated by the keys, tell me under which vane to place a penny to stop the "screech". Of course later, as a student director of the Glee Club, I became quite fond of Dr. Shields.

Willard Litzenberger evolved from a youngster living amongst university students, to sitting in the desks, hearing the lectures for himself. Dr. Trembley was able to bring the wonders of Biology to life in a young boy, and subsequently mentor the student to successfully complete his undergraduate degree in Biology. Lehigh became the foundation for a successful career in medicine.

Special thanks to the staff of The Epitome for providing digital images from the 1941 issue of the yearbook!

I believe our faculty consisted of 3 professors. The biology department must have been quite good, even with only 3 professors. There were 9 "pre-medical" students in my graduating class. Four of us sent applications to Harvard Medical School. All four were accepted, went to Harvard and graduated "on time". "On time" meant three years, since wartime demanded an accelerated program at Harvard. Fellow Lehigh graduates attending Harvard were George Gabuzda, Frank Hertzog, Fred Gilmore. The other 5 pre-meds all went to the graduate school of their first choice.

Following medical school I interned at Geisinger Memorial Hospital. I later had residencies at Kennedy Veterans Teaching Hospital (Memphis, Tennessee) and still later at St. Luke's Hospital, (Bethlehem, Pennsylvania). My last year at St. Luke's was as Chief Resident for the previously unheard of salary of $100/month, plus room and board. (Residents previously had received NO salary. In most sought-after training hospitals in this country at that time neither interns nor residents received monetary compensation.)

Then I was "called up" for active duty in the Navy. (At Lehigh I had 4 years in the ROTC and received commission as 2nd Lieut., Infantry, US Army.) The then Secretary of Defense informed me by letter "the Army has enough physicians and it will be to your distinct advantage to transfer to the US Navy." What I knew about the Navy wouldn't have filled the bottom of a thimble! Starting as a Lieut.JG, I finally became Lieut. CMDR. Navy life was good and I particularly liked sea duty. (First in the Caribbean in 1944, later the Pacific, including Hawaii, Japan and Korea in 1954) My first tour of active duty was approximately two years, and the same for the second tour—all as a physician. Stateside I was stationed at St. Albans Naval Hospital and for the second tour at San Diego Naval Hospital. All "good duty." The Navy has cots and hammocks; the Army has fox-holes !!

Willard as a new graduate of Lehigh

After the first tour of active duty I attended the Graduate School of Medicine (Internal Medicine) at the Univ. of Pennsylvania. There I met an older student from Kentucky. His "dream" was to set up a clinic in a small town in Kentucky and staff it with well-trained physicians of all disciplines. In 1954 he began realizing his "dream". He built a small one story clinic building opposite the rear of the newly constructed Hardin Memorial Hospital. By mid-1955 he had convinced me to leave California and join him in the "Elizabethtown Clinic". The "clinic" building is now the two story "Cardinal Building." I guess we all did something right. The hospital has enlarged from its initial 86 beds, the number of physicians in the community has increased from the 15 in 1955, to over 200 today. Radcliff grew from about 1,500 people to over 20,000 and Elizabethtown from 9,200 to over 20,000. All of this in 50 odd years! Fort Knox remains and is very important to our community, but it no longer assumes the "sole" importance it once did. We have found that native Kentuckians, regardless of formal or lack of formal education, have a very strong sense of honesty and integrity, especially in somewhat rural areas, as Elizabethtown has been.

As a medical student, Willard met Constance, a graduate of Simmons in Boston, who corrected grammar, syntax, and punctuation for many of the manuscripts written by prolific young and old professors at Harvard Medical School. Dr. Litzenberger, known as "Dr. Litz" in Kentucky, married Connie in 1943 and they boast three children. Their children have become professionals like their father. The oldest son, Willard, Jr., is a neonatologist in North Carolina. Their daughter, Sue, and her husband run a fitness center, also in North Carolina. And their youngest son, John, is an international businessman, currently working for Marriott, living in Zurich, Switzerland.

Willard Litzenberger, MD

I attended Harvard for a medical education, received that and, more importantly, found a wonderful wife! All of our three children are blessed with "children" now grown. As "unemployed people" my wife and I try to travel some each year. I retired from the practice of Internal Medicine in 1986 after over 40 years of practice. We have had an interesting, though non-spectacular, life to date. Health has been fairly good and we're all ambulatory. The kids are grown, are healthy and the same for the seven grandchildren.

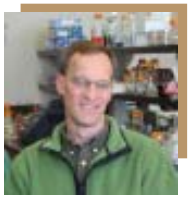
Every former Lehigh student has his or her memories. Not many, however, are able to reach back in time over 70 years (more than one-half of Lehigh's total years of existence!) to remember the faces and the names that built Lehigh University and this department. Dr. Litz IS a truly spectacular person!

Do you remember .....?

Biological Sciences
Jeffrey Sands, Ph.D. Chair
Barry Bean, Ph.D.
Michael Behe, Ph.D.
Maria Bykhovskaia, Ph.D.
Lynne Cassimeris, Ph.D.
David Cundall, Ph.D.
Matthias Falk, Ph.D.
M. Kathryn Iovine, Ph.D.
Murray Itzkowitz, Ph.D.
Steven Krawiec, Ph.D.
Michael Kuchka, Ph.D.
Linda Lowe-Krentz, Ph.D.
Stefan Maas, Ph.D.
Jutta Marzillier, Ph.D.
Tamra Mendelson, Ph.D.
John Nyby, Ph.D.
Colin Saldanha, Ph.D.
Jill Schneider, Ph.D.
Neal Simon, Ph.D.
Robert Skibbens, Ph.D.
Jennifer Swann, Ph.D.
Vassie Ware, Ph.D.

Michael Kuchka, Ph.D.

Michael Kuchka, Ph.D. earned his Bachelor's degree in 1978 from the University of Pennsylvania and then went on to study at Carnegie-Mellon University, where he earned his Ph.D. in 1984. He then spent four years as a postdoctoral fellow at the University of Geneva in Switzerland. Kuchka was promoted to Associate Professor at Lehigh in 1994. Professor Kuchka's research in the laboratory concerns the communication and interaction between three spatially discrete genetic compartments within a eukaryotic plant cell: the nucleo-cytoplasm, the mitochondrion, and the chloroplast. His research efforts are directed at understanding the mechanisms by which these three genomes signal one another and influence the expression of each other's genes. Until recently, Dr. Kuchka served as the Graduate Program Coordinator for the department. He currently serves as co-coordinator of the Distance Education program, with Professor Ware. Dr. Kuchka teaches a wide range of courses, from the introductory level Cell and Molecular Biology, to advanced level and graduate special topics courses in molecular biology and genetics.



Robert Skibbens, Ph.D.

Robert Skibbens, Ph.D. is the department's newest associate professor, having been promoted by the Board of Trustees in June of 2005. Skibbens earned his bachelor's degree from Ohio State University and Ph.D. from the University of North Carolina at Chapel Hill. He then did his postdoctoral research at Johns Hopkins School of Medicine and the Carnegie Institute of Washington, Baltimore. Professor Skibbens arrived at Lehigh in 1999. The research in the Skibbens lab focuses on Ctf7p/Eco1p, an essential component of the sister chromatid pairing pathway found in both humans and yeast. In the classroom, Professor Skibbens topics are focused on cytoskeleton, signal transduction, cell identity, and lipid asymmetry. Dr. Skibbens serves on the department's Graduate Committee and the university's Nanotechnology Committee.

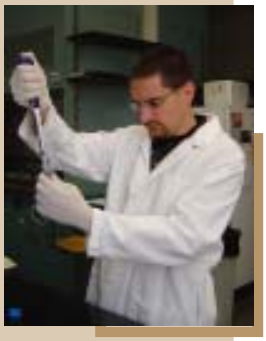
Jennifer Swann, Ph.D.

Jennifer Swann, Ph.D. received her Bachelor's degree from Penn State University in 1976 and her Master's degree in Psychobiology from Florida State University in 1979. With a research focus on reproductive neuroendocrinology, Swann was awarded her Ph.D. from Northwestern University in 1984. Her postdoctoral research time was spent at the University of Michigan in the Department of Anatomy and Cell Biology. Prior to her arrival at Lehigh in 1995, Swann was an assistant professor at Rutger's University. She was named Associate Professor at Lehigh in 1996. Dr. Swann's research focus is on sexual differentiation and neuroendocrinology. Dr. Swann's teaching responsibilities include courses related to neuroanatomy, anatomy and physiology, and neuroendocrinology. She serves on the department's Graduate Committee.

Vassie Ware, Ph.D.

Vassie Ware, Ph.D. earned her Bachelor's degree from Brown University in 1975. She then went on to Yale University where she was awarded a Masters degree ('78) and her Ph.D. ('81). Ware then returned to Brown to do research as a postdoctoral fellow. Dr. Ware arrived at Lehigh in 1985 and was named Associate Professor in 1991. She served as chair of the Department of Molecular Biology ('94-'95), prior to the department merging to become Biological Sciences, and interim chair of the newly created department ('96). The research in the Ware laboratory is centered on understanding the molecular biology of ribosome biogenesis in eukaryotes. Using molecular genetic and biochemical approaches, Ware studies several post-transcriptional events in ribosome maturation, including rRNA-ribosomal protein interactions, rRNA processing, and ribosomal subunit transport. Dr. Ware is the co-coordinator (with Prof. Kuchka) of the department's Distance Education program. She also serves on the department's Graduate Committee. Prof. Ware's teaching focuses on subjects related to molecular genetics and cell biology.

Student Spotlight



Ryan Wynne
Graduate Student

Ryan Wynne's research focuses on the regulation of glial aromatase gene expression following injury to the zebra finch brain. The vertebrate brain responds to several forms of neural insult in a well defined manner by regulating specific levels of cell death and cell recruitment to the site of injury. These processes re-establish general homeostasis at the site of injury. In the Saldanha lab, Ryan has demonstrated that local inhibition of glial aromatase increases the size of neural damage and programmed cell death without an apparent effect on nearby pools of constitutively expressed neuronal aromatase. Further, estrogen replacement rescues this effect without a detectable effect on neuronal aromatase. Thus, glial and neuronal aromatase may be different in sequence and regulation. Although numerous studies have characterized the cellular response to brain injury, little is known as to how glial aromatase is activated and regulated . Ryan plans to sequence the aromatase transcript in glia revealing its transcription initiation and consensus regulatory sites. These studies will potentially establish aromatase as a new molecular target for the prevention of neurodegenerative conditions such as Parkinson's, Stroke, and Alzheimer's disease. To learn more about research in the Saldanha lab, please visit www.lehigh.edu/~inbios/saldanha/INDEX.HTM

Science magazine's Breakthrough of the Year is "Evolution in Action."

According to Science, "2005 stands out as a banner year for uncovering the intricacies of how evolution actually proceeds". One of the articles highlighted is by lead author Lehigh Assistant Professor Tamra Mendelson, "Sexual Behaviour: Rapid Speciation in an Arthropod" published in Nature (Jan. 27, 2005).

For more information visit www.sciencemag.org

Our recent graduates

Congratulations to those who received their degrees on May 23, 2005. Please keep in touch!

Doctor of Philosophy

Molecular Biology

Lisa Morgan Antoniacci – *Characterization of a Novel Protein Found to Interact with the Saccharomyces cerevisiae Cohesion Establishment Factor Ctf7p*

Masters Degree

M.S. Molecular Biology

Joseph G. Bruno
Bridget Ann Donohue-Ykoruk
Todd M. Gibson
Kwok-Lam Karen Ho
Jean M. Lisnock
Salony G. Maniar
Karin Cecilia Trydestam
Dennis G. Wolford

Bachelor of Arts

Behavioral Neuroscience

Adam B. Amoss
Sandeep M. Cherry
Barrie M. Cominsky
Jennamarie DeVito
Fiona A. Dubuss
Lauren A. Edwards
Hetal K. Jani
Charles L. Madeira
Christopher W. Rakay
Ari C. Sacks
Katherine J. Varney

Biology

Margot T. Abcarian
Evan D. Grodin
Christina J. Schietroma
Liza M. Towne
Harly G. Zelfon

Bachelor of Science

Behavioral Neuroscience

Samantha M. Baxter
Kelli L. Crabtree
Anh P. Dinh
Krista Jamieson
Lauren A. Jenkins
Stephanie L. Kearney
Adam T. Lipman
Corinne L. Luszcz
Niluk B. Peiris
Megan A. Plunkett
Aaron R. Probst
Frederick B. Tran
Andrew R. Tsen
Serena M. Vidanage

Biology

Matthew J. Adel
Daniel W. Burke

B.S., Biology, cont.

Jennifer R. Fleming
Rachel M. Flink
Kyle P. Keating
Aunali S. Khaku
Ashley G. Mayer
Devin H. Oakes
Jill R. Racketa

Molecular Biology

Erica L. Bauerlein
Alice L. Chen
Katherine A. Donigan
Abby K. Geletzke
Joshua S. Goldberg
Tin Ming Pang
Sally D. Singh
Amy H. Spaisman
Kristi E. Spittle
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Jessica L. Wobb

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A day with Ken Miller, Ph.D.

by Tamra Mendelson, Assistant Professor

On October 12, 2005, our department was pleased to host Dr. Ken Miller, cell biologist, professor, and leading critic of the intelligent design movement. Ken Miller is a faculty member at Brown University and co-author of the most widely used high school biology textbook in the U.S. and Canada. He has also written a popular book entitled "Finding Darwin's God: a scientist's search for common ground between God and evolution.". Recently, Ken served as first witness for the prosecution in *Kitzmiller, et al. v. Dover*, the federal trial in Harrisburg that considered the constitutionality of teaching creationism as science in the public schools.

Ken Miller with Vassie Ware, current Lehigh professor and Brown alumna

In collaboration with the Office of Research, we invited Ken to explain to our students, and to citizens of the Lehigh Valley, why the overwhelming majority of professional scientists object to the introduction of intelligent design into the science curriculum of our schools. Ken graciously agreed to spend most of the day and evening with us and by all measures his visit was an outstanding success.

The day's activities began with a luncheon in Ken's honor attended by undergraduate Biology majors, graduate students, faculty, and staff. Ken then met for an hour with members of our department to field questions and comments in an informal setting. Later that afternoon, we facilitated an informal discussion with high school teachers and students from the Lehigh Valley area school districts. About 35 people snacked and talked with Ken about their concerns, experiences, and the ways in which science teachers are currently affected by the national debate. This exchange, between students, teachers, and the author of their text, was a particularly rewarding component of the day.

The highlight of the visit was an evening lecture, presented by Ken to a packed house in Packard auditorium. The audience included Lehigh students, staff, and faculty, high school teachers, and interested members of the community. With over 600 in attendance, the event was standing room only, and Ken's energetic lecture style captivated the crowd. The lecture explored a range of topics and arguments, but perhaps the most critical take-home message that Ken hopes to convey is that there need be no conflict between evolution and religious faith.

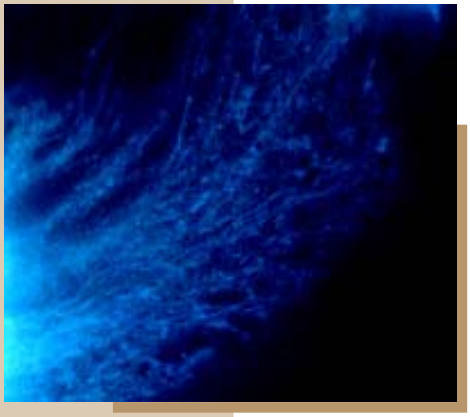
Department Position on Evolution and "Intelligent Design"

The faculty in the Department of Biological Sciences is committed to the highest standards of scientific integrity and academic function. This commitment carries with it unwavering support for academic freedom and the free exchange of ideas. It also demands the utmost respect for the scientific method, integrity in the conduct of research, and recognition that the validity of any scientific model comes only as a result of rational hypothesis testing, sound experimentation, and findings that can be replicated by others.

The department faculty, then, are unequivocal in their support of evolutionary theory, which has its roots in the seminal work of Charles Darwin and has been supported by findings accumulated over 140 years. The sole dissenter from this position, Prof. Michael Behe, is a well-known proponent of "intelligent design." While we respect Prof. Behe's right to express his views, they are his alone and are in no way endorsed by the department. It is our collective position that intelligent design has no basis in science, has not been tested experimentally, and should not be regarded as scientific.

Alumni News

The cisternae of the Endoplasmic Reticulum (ER) of a living human HeLa cell visualized after staining with ER-Tracker blue/white. *BioS 368 Cell Bio lab course; Fall 2005, Prof. Matthias Falk.*



Willard Litzenberger (BS, Biology, '41), graduated from Harvard Medical School, spent over 40 years in practice (specialty of Internal Medicine) and retired in 1986. He is living in Elizabethtown, Kentucky.

Eleanor West Hertz (MA, '58) is retired and living in Williamsburg, VA While at Lehigh she was a biologist with the Institute of Research. She later taught at Marywood College in Scranton, PA. After retiring, Eleanor published a history of one of the local Indian tribes and recently completed another manuscript on local Indian women of the 20th Century. "Currently I enjoy being a member of the 'Lehigh Lunch Bunch' here in Williamsburg."

Michael C. Feinstein, OD (BA, Biology, '69) received an MS in Biology from CW Post College and a Doctor of Optometry (OD) from the State University of NY; he now has a private Optometry practice in Newark, NJ. "The Professor I remember best was Dr. Matzberger who used to smoke in class while lecturing of virology and molecular biology. The molecular biology I learned then is what my kids now learned in high school. But my educational background from Lehigh made grad school easier for me."

Leonard Bielory, MD (MS, Molecular Biology, '76) is a Professor of Medicine (Pediatrics and Opthalmology) at UMDNJ. He also serves as the Director of Clinical Research and Development and the Directory of Division of Allergy, Immunology and Rheumatology.

Jon Linden (BS, Biology, '78) is working as a mediator, helping people resolve disputes without resorting to courtroom procedures. "I am both a Civil and Divorce Mediator. This is my second career, and have been doing it for 6 years."

Peter Prevelige (BS, Biology, '78) received his Ph.D. in Biochemistry from Brandeis University. After a postdoc at MIT, he set up a research lab at Boston Biomedical Research Institute and two years later moved to Univ. of Alabama at Birmingham where I moved up through the ranks to Professor. "My current research interests are in Virus Structure and Assembly. My lab works on both bacteriophage (P22) assembly and HIV assembly and inhibition."

Cynthia (Izuno) Macri, MD (BS, Biology, '79) is a gynecologic oncologist, Navy Medical Corps Captain, and Vice President for Recruitment and Diversity at the Uniformed Services University of the Health Sciences in Bethesda, Maryland. "I wasn't smart enough to get a PhD, but I did get an M.D. at Temple, have had a fabulous Navy career, and I am a passionate recruiter for USUHS."

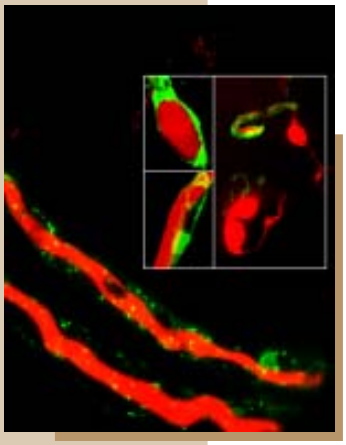
Peter Garibaldi (BS, Biology, '80) is a Vice President with Johnson & Johnson in our New Brunswick world headquarters. My career has taken me through sales, marketing, contract negotiations, account management and various other areas of business with ICI Pharmaceuticals (now Astra/Zeneca), Warner-Lambert/Parle-Davis (now Pfizer) and J&J (likely to remain J&J for another 100+ years). "I currently travel the world performing assessments of 200+ operating units and their management teams within the Family of J&J Companies. And to think it all started in the Williams Biology Building."

Jack Lawrence (BS, Biology, '80; MS, Biology, '81) is currently the project manager for the City of Bethlehem, Water & Sewer Resources.

Bob Keefe (B.S. Biochemistry, '83) manages a genomics core facility at the Wadsworth Center.

Charles Crowley, MD (BA, Biology, '86) attended NY Medical College and did his internship at St. Vincent's Medical Center and his residency in Opthamology at New York Medical College. "I currently am a general ophthalmologist with special interest in cataract and refractive surgery. My practice is in Passaic County, NJ."

Distribution of active zones (green) along nerve branches stained with red fluorescent dye. Nerve branches (red) with active zones (green). *Bykhovskaia Lab*



Fotinos S. Panagakos, DMD, PhD (BS, Biology, '86), is an Associate Professor at New Jersey Dental School.

Paul Saadi, MD (BS, Biology, '88) is an orthopedic and spine surgeon, living in Dallas, Texas.

Todd Davies, Ph.D. (BS, Biology, '89; Ph.D., Molecular Biology, '97) is employed at Johnson & Johnson, working with the drug discovery team developing new antibiotics.

Josine Veca, MD (BS, Biology/Psychology, '89) is a board certified OB/GYN working in a faculty position and private practice in Brooklyn, NY.

Sherry Kuchma, Ph.D. (B.S., Molecular Biology, '91) earned her doctorate in Genetics from the Univ. of Wisconsin. She is currently doing postdoctoral research at Dartmouth University and recently had her research published in the "Journal of Bacteriology" (15 Feb 2005).

Kara Villamil Gavin (BA, Journalism and Biology, '92) earned her Master's Degree from Columbia University's School of Journalism (concentration in science writing) and is currently a science writer at the Univ. of Michigan Health System, writing about biomedical research, ranging from the latest heart disease findings to basic neuroscience research. "Mainly, I focus on translating the biomedical research performed at this top-10 medical school and hospital into "plain English" and promoting it to the news media and the general public."

Carter Fields (BS, Biology, '94) earned his Master's Degree from UCLA and is currently employed at Genentech, Inc. where he is part of a group developing inhibitors of a cell-cycle regulated kinase. "I'm very grateful for the training I received at Lehigh. It has helped me excel in my biotech career. My only regret is that I did not do any undergraduate lab research as an extracurricular activity. My lack of lab experience upon graduation hindered my ability to enter the workforce. I hope that you strongly encourage ALL of your students to get lab research experience before graduation. It's indispensable!"

Meghan Williams, DVM (BA, Biology, '95) is currently a practicing small animal veterinarian in Maryland. "I am so glad to see that the Biology department is taking off. When I was there, we felt lost in the midst of all the engineers and business majors. I wish I could come back."

Deborah Burke D.V.M. (BS, Molecular Biology, '96) is currently practicing Emergency Medicine in Randolph NJ. "I live in Verona NJ with my Maltese, my Husky and my boyfriend. All of which are adorable."

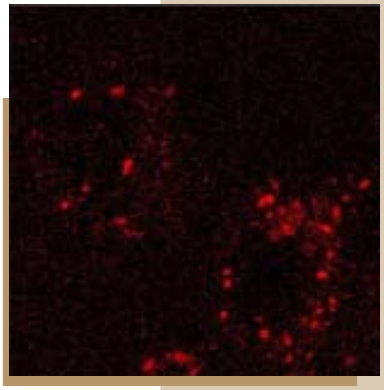
Brendan Brinkman (BS, Molecular Biology, '97) is managing director of the Neuroscience Microscopy Shared Facility at the University of California, San Diego. "I currently have a bit of a dream job (for me) running and developing a new microscope core facility for the neuroscience department at UCSD, and I couldn't have gotten here without you. I hope you are all doing well, and please keep up the good work."

Glenda Trujillo, Ph.D. (BS, Biochemistry, '98) will be entering into postdoctoral research at the Univ. of Michigan, Ann Arbor in the Department of Pathology in November. "My interests are in the field of Allergy and Immunology, and have started to search for another post-doc in that field before plunging into the search for tenure-track faculty positions. I hope to one day have as much an impact on students as the faculty at Lehigh have had on me."

Shannon Gibson, Ph.D. (BS, Molecular Biology, '99) earned her doctoral degree from Yale University in May.

Janine Trindade (BA, Pre-Dental, '99) graduated from Univ. of Pennsylvania School of Dentistry in 2002 and is a second year fellow in the Periodontics-Orthodontics program.

Anil Trindade (BS, Biochemistry, '01) received his Doctor of Medicine degree from Duke University and began his residency in internal medicine at Johns Hopkins Hospital in Baltimore. "While at Duke my research focused on the immunology of lung transplantation rejection. We were particularly interested in the role of innate immunity, especially that mediated by Toll-like receptors in the onset of acute and chronic rejection."



Confocal image of synapses (labelled with synaptophysin) in the MPNmag of a male Syrian hamster. *Swann Lab.*

Jessica Bair (BS, Biology, '02) is a graduate student at Harvard School of Public Health in the Epidemiology program. Prior to her returning to school, Jessica was working at MedImmune, a biotech company in Maryland.

Alexandra Deufel, Ph.D. (Ph.D., Biology, '02) is doing research at Minot University in North Dakota. A functional morphologist, Dr. Deufel was published in the January, 2005 issue of "Science."

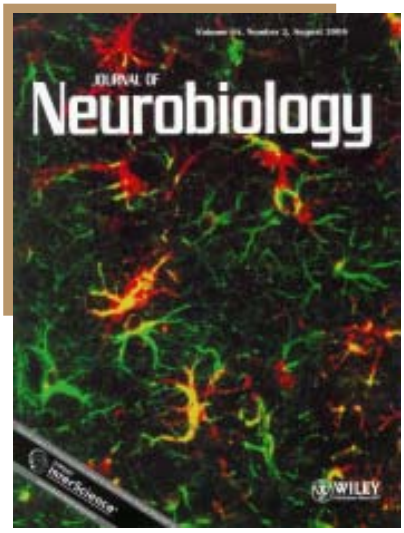
Natasha R. Schuh (B.S. Molecular Biology, '02) is pursuing a Ph.D. in the lab of Dr. Amy H. Bouton in the Department of Microbiology at the University of Virginia.

Arvind and Chris Trindade (BS, Molecular Biology, '02 and '03, respectively) are medical students at the Robert Wood Johnson Medical School.

Katharine Lee (BS, Biochemistry,'04) is currently a graduate student at New York Medical College pursuing an MS in microbiology and immunology and an MPH in epidemiology. "In the Fall of '04, I was a research assistant for the department working on surface protein expression of *Borrelia burgdorferi*, the causative agent of Lyme Disease."

Kate Donigan (BS, Molecular Biology, '05) has begun her graduate studies at Yale University in Molecular Biology.

Do you have any news to share? If so, please e-mail your information (name, year of graduation, degree, and news) to inbios@lehigh.edu



The songbird brain expresses constitutive and inducible aromatase (estrogen synthase) in neurons and glia, respectively. A confocal image reveals the co-expression (yellow) of aromatase (red) and the glial marker vimentin (green) in reactive astrocytes around the site of brain injury. *K. Rohmann ('05), R. Wynne and C. Saldanha, cover of J. Neurobiol. 2005 Aug; 64 (2):192-201*

The local conformation in a dsRNA molecule regulates site-selectivity and enzymatic activity of the RNA editing enzyme ADAR1 *in vitro*. *S. Maas, cover of Nucleic Acids Res. 2005 33(16):5362-5370)*

Department of Biological Sciences
111 Research Dr.
Bethlehem, PA 18015
Tel: 610.758.3680
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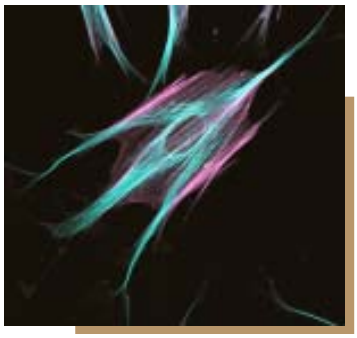

Laser confocal microscopic image of a human fibroblast cell which has been infected with fluorescent-tagged adenoviruses. The cell has been immunofluorescently labeled for the cytoskeleton components microtubules (teal) and actin filaments (magenta). *J. Warren, Cassimeris Lab*