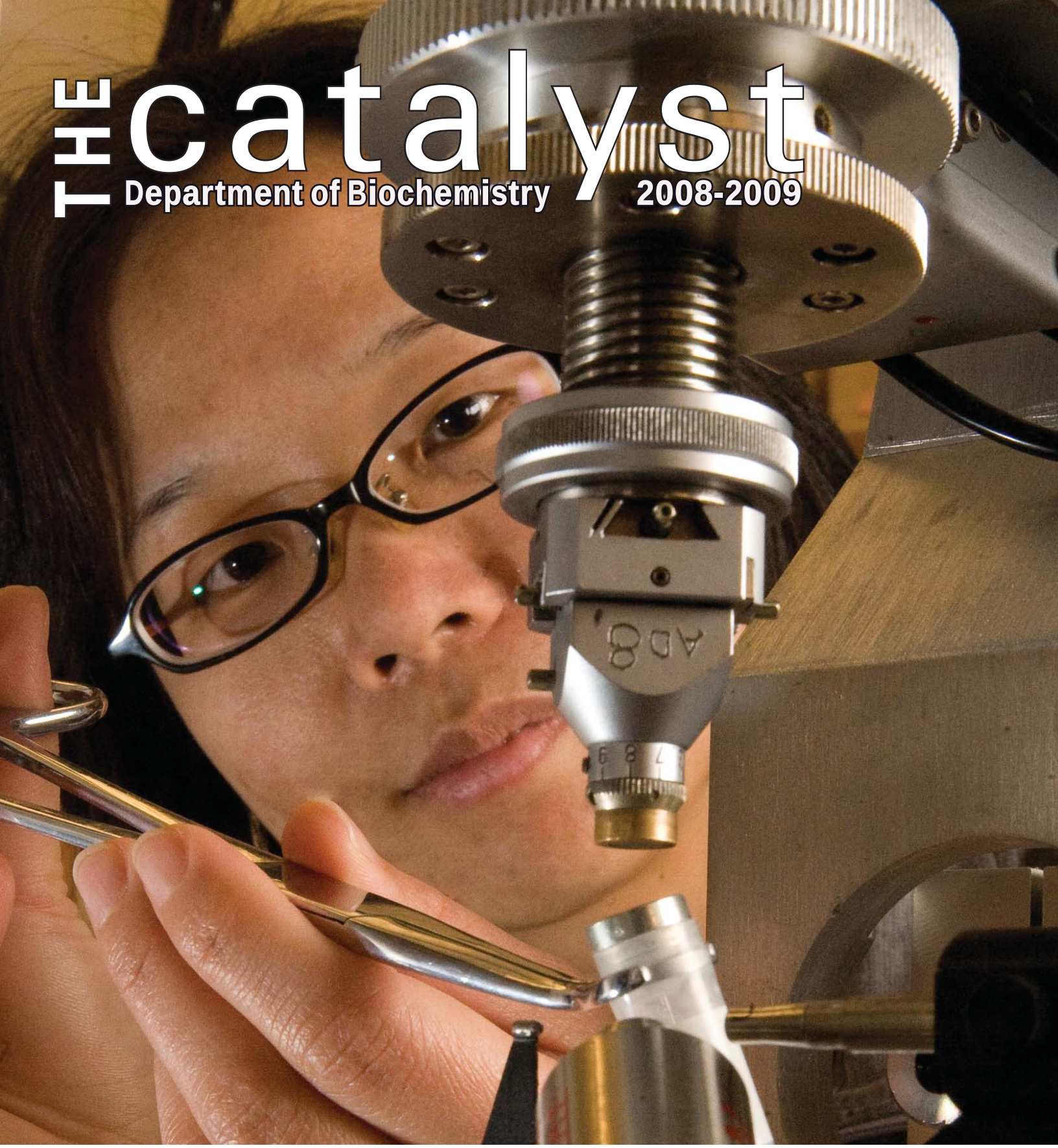
THE catalyst

Department of Biochemistry 2008-2009



Please join us as we celebrate our 75th anniversary!

DEPARTMENT OF BIOCHEMISTRY

1934-2009

75th anniversary

On the Cover

In preparation for an X-ray diffraction experiment, Jui-Hui Chen, a post-doctoral researcher in the Golden lab, mounts an RNA crystal in a liquid nitrogen stream.

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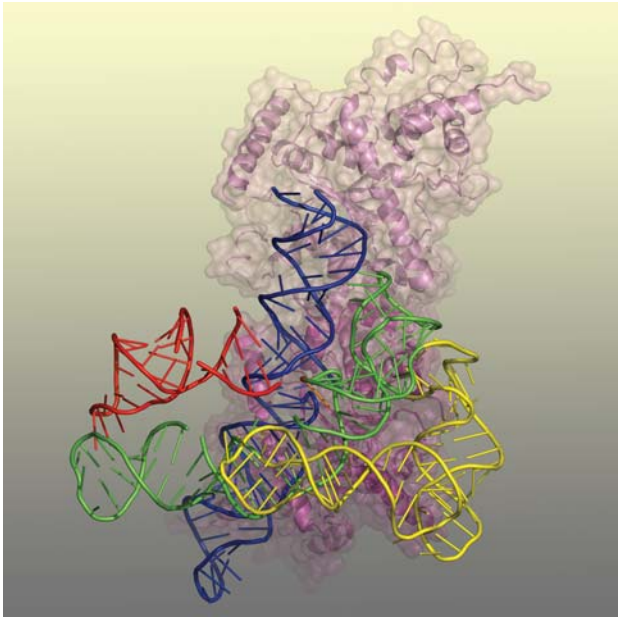
An Itinerant Intron Courts a Moonlighting Protein

Group I introns seem to be relics of ancient virus-like genetic elements and are found embedded within essential genes in many single-celled eukaryotes, including yeasts and other fungi. These primordial retrovirus-like molecules appear to be genetically neutral because they have the ability to self-splice. Once transcribed from DNA to RNA, the intron will cut itself out of surrounding RNA, and paste the RNA fragments that surround it back together.

tRNA-synthetases perform essential housekeeping roles in the cell, charging tRNAs with amino acids in preparation for protein synthesis. In neurospora, a tRNA-synthetase has mutated and gained a second function, the ability to bind to group I introns. Over time, many of the neurospora group I introns have become dependent on this protein and cannot fold into an active structure in its absence.



We determined the crystal structure of a group I intron bound to the neurospora tRNA synthetase in collaboration with Paul Paukstelis and Alan Lambowitz from the University of Texas. In the image of the RNA-protein complex, we can see how the protein acts as a scaffold to stabilize the three-dimensional structure of the RNA.

This structure may also provide some glimpses into the evolution of modern cells. RNA, with its ability to encode the same sequences as DNA and to catalyze reactions, may have been the first self-replicating molecule on Earth. Eventually RNAs that could make proteins evolved, and proteins gradually took over the functions of RNAs. What we see in this picture is a snapshot of a protein encroaching on an RNA that could previously function in isolation. Not surprisingly, the group I introns from Neurospora have mutated and lost the ability to fold in the absence of their protein partner. These RNAs have shifted the responsibility for maintaining their structure to the protein.

Paukstelis P.J., J.H. Chen, E. Chase, A.M. Lambowitz and B.L. Golden. 2008. Structure of a tyrosyl-tRNA synthetase splicing factor bound to a group I intron RNA. *Nature.* 451: 94-7.

Looking back and moving forward...

FEATURE ARTICLES

It has been 75 years since the Department of Biochemistry was established at Purdue University. At the time of its inception, it was named the Department of Agricultural Chemistry, a moniker still emblazoned above the south portico of the building. Much has been achieved by our faculty, students and staff over the past three quarters of a century, and much has changed within the department, the College of Agriculture and Purdue University during that time. From its beginnings in the study of plant and animal nutrition, our faculty and students now study processes as diverse as cancer, the structure of actively transcribed and silent DNA, plant and bacterial metabolism, and the mechanisms by which neurons make connections.

This edition of our annual report, to which we have given the name "The Catalyst" for the first time, pays tribute to some of that history. As you'll see when you read through the following pages, over the past year we have collected memories from some of our alumni and biographical updates from many more. Our website has been extensively updated to reflect not only who and what the department is now, but also who it was and what its students and faculty have accomplished. Our emeritus faculty have all been interviewed as part of the library's Oral History Program so that their thoughts and memories of our department's more recent past will be preserved. Similarly, our famous "holiday letters", which together provide a chronicle of departmental history dating back to the early 1960s, have been scanned and are now part of the Purdue University archives.

This year we also availed ourselves of "departmental history" and reached out to our undergraduate alumni to ask about the courses they took while in our department and the impact those courses had on their careers. This effort was part of a complete review of our undergraduate curriculum that we recently completed. The comments we received from our alumni benefited us immensely and helped us to craft a new and exciting curriculum that is focused on preparing our students to meet today's challenges. Our revised curriculum is now in place for the incoming class of 2009, and we are truly grateful for the thoughtful comments we received from our former students.

Finally, the crowning point of our focus on the history of the Department of Biochemistry will be our 75th anniversary reunion and symposium to be held on October 9 and 10, 2009. The focus of the event will not be on science, but on shared history and common experiences. The symposium will include talks from alumni representing the past six decades who will provide retrospectives of their experiences at Purdue and how their time in our department influenced their careers. Most importantly, we have arranged many social events for getting together with former teachers and mentors as well as fellow students, post docs, and staff with whom you can exchange memories and rekindle past friendships.

It has been a great first 75 years for the Department of Biochemistry, and I hope to see you in October to help us kick off the next 75!

Clint Chapple
Head, Department of Biochemistry

An Outstanding Mentor

"I was attracted to Dr. Weiner's lab by his passion for science, devotion to teaching, and kindness to people."

Kun-Liang Guan (Ph.D. 1989)

(I to r) Dr. Mark J. T. Smith, Dean, Graduate School , Dr. Henry Weiner and Provost W. Randy Woodson - 2009

Professor Henry Weiner was honored with the Purdue University Outstanding Graduate Faculty Mentor Award in 2009. This award, initiated by the Graduate School in 2006, recognizes two faculty members each year who demonstrate sustained and significant contributions to graduate education at Purdue University. Throughout his career, Dr. Weiner has played a major role in the graduate program of the Department of Biochemistry. His teaching assignments have focused on core graduate courses such as enzyme mechanisms and the chemistry of metabolism. He served as the chair of the Graduate Achievement Committee for more than a decade, providing mentoring and oversight to our students, and most importantly, he served as research advisor for twenty students who achieved high levels of productivity and progressed to successful careers. This recognition is a tremendous tribute to Professor Weiner, and to the success and achievement of the alumni who worked with him.

In his letter of support for Dr. Weiner's nomination, Patrick Coleman (Ph.D. 1972; retired Senior Research Specialist, 3M) stated, "Perhaps the most significant lesson Hank taught me was to be willing to change, a lesson one must have learned as a survival skill in the 21st century. Hank has trained students by example that they can and should be involved in political life, community life, and the worlds of art and literature. My fondest memories of graduate school days are the social gatherings Hank hosted at his home for large numbers of graduate students where we talked into the night about these topics. This is a practice I try to emulate for the junior scientists I work with."

Kun-Liang Guan (Ph.D. 1989; Professor, University of California, San Diego), another successful graduate from the Weiner lab said, "I arrived from China in 1983 speaking little English and at a time when there were few Chinese students on campus and none in biochemistry. I was attracted to Dr. Weiner's lab by his passion for science, devotion to teaching, and kindness to people. He has taught me science; he taught me life; he taught me how to be a mentor; and he is teaching me how to be a good father. I am extremely blessed to be a student of his."

Mary (Waltner) Law (Ph.D. 1996; Research Assistant Professor, University of Florida) supported Dr. Weiner's nomination with these words: "If I were asked for four words to describe Dr. Weiner as a mentor and scientist, I would say supportive, enthusiastic, creative and devoted. In the 12 years since I left his lab, I have met very few people who are as enthusiastic about science and learning. Dr. Weiner is still extremely supportive of my career. I feel he is an excellent mentor and I'm very thankful to have been one of his students."

Li (Ni) Komatsu (Ph.D. 1998; Senior Staff Fellow, Center for Food Safety and Applied Nutrition Food and Drug Administration) said, "I met Dr. Weiner in 1993 when I came to Purdue from China for my graduate studies. To this date, I remember his kind words of welcome and his special attention while I acclimated to a new country. I am still amazed at his tireless pursuit of scientific knowledge. He sets a wonderful example to all young researchers. To this day, I am still very thankful I chose Purdue University for my graduate study, but most thankful for meeting Dr. Weiner."

Finally, Thomas Heard (Ph.D. 1999; Patent Examiner, U.S. Patent and Trademark Office) strongly endorsed Dr. Weiner's excellence as a graduate mentor by commenting that "Dr. Weiner holds a special place as a friend and mentor in my life as well as an advisor of my career. As a student, I was always impressed at how much Dr. Weiner enjoyed science. It was truly fun for him and he really impressed me with his enthusiasm and his analytical abilities. Dr. Weiner was such great fun to listen to and talk with, as he loved to hypothesize and then design experiments to confirm or negate his ideas. On a personal side, Dr. Weiner was equally as interested in his students and postdocs having a good weekend as he was in seeing them have an experiment turn out successful. Dr. Weiner really cared for the people who worked in his lab and I am happy that I was a part of it." ■

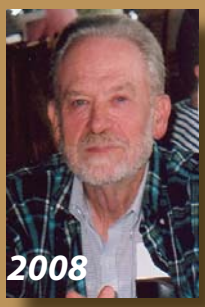
Faculty Promotion

Dr. Ann Kirchmaier with Research Assistant Andy Miller isolating chromatin

Dr. Ann Kirchmaier was promoted to Associate Professor of Biochemistry effective July 2009. Dr. Kirchmaier's research focuses on the roles of histone deacetylases and acetyltransferases in gene regulation and the impact of environmental factors on epigenetic processes. After receiving her B.A. in Biology from St. Olaf College in Northfield, MN, Dr. Kirchmaier worked as a laboratory assistant at The Upjohn Company in Kalamazoo, MI. She attended graduate school and received her Ph.D. in Oncology (1997) at the University of Wisconsin in Madison. Her post-doctoral work was with Dr. Jasper Rine at the University of California – Berkeley. Dr. Kirchmaier joined Purdue's Department of Biochemistry in 2002. She received the Kimmel Scholar Award in 2003 and is a member of the Purdue Cancer Center and the Purdue Discovery Park Oncological Sciences Center.

MEMORIES

David Schroeder



(B.S. 1962, Ph.D. 1968, Axelrod)
September 1960: Three students from Chauncey House and four from Glenwood, having just met earlier in the evening, are leaving the Sigma Chi Farm Frolic. Two guys and two gals pair up and volunteer to sit in the rear of my '53 Ford 2-door. I suggest one of the two remaining young ladies sit next to me, so the other ends up hugging the door.

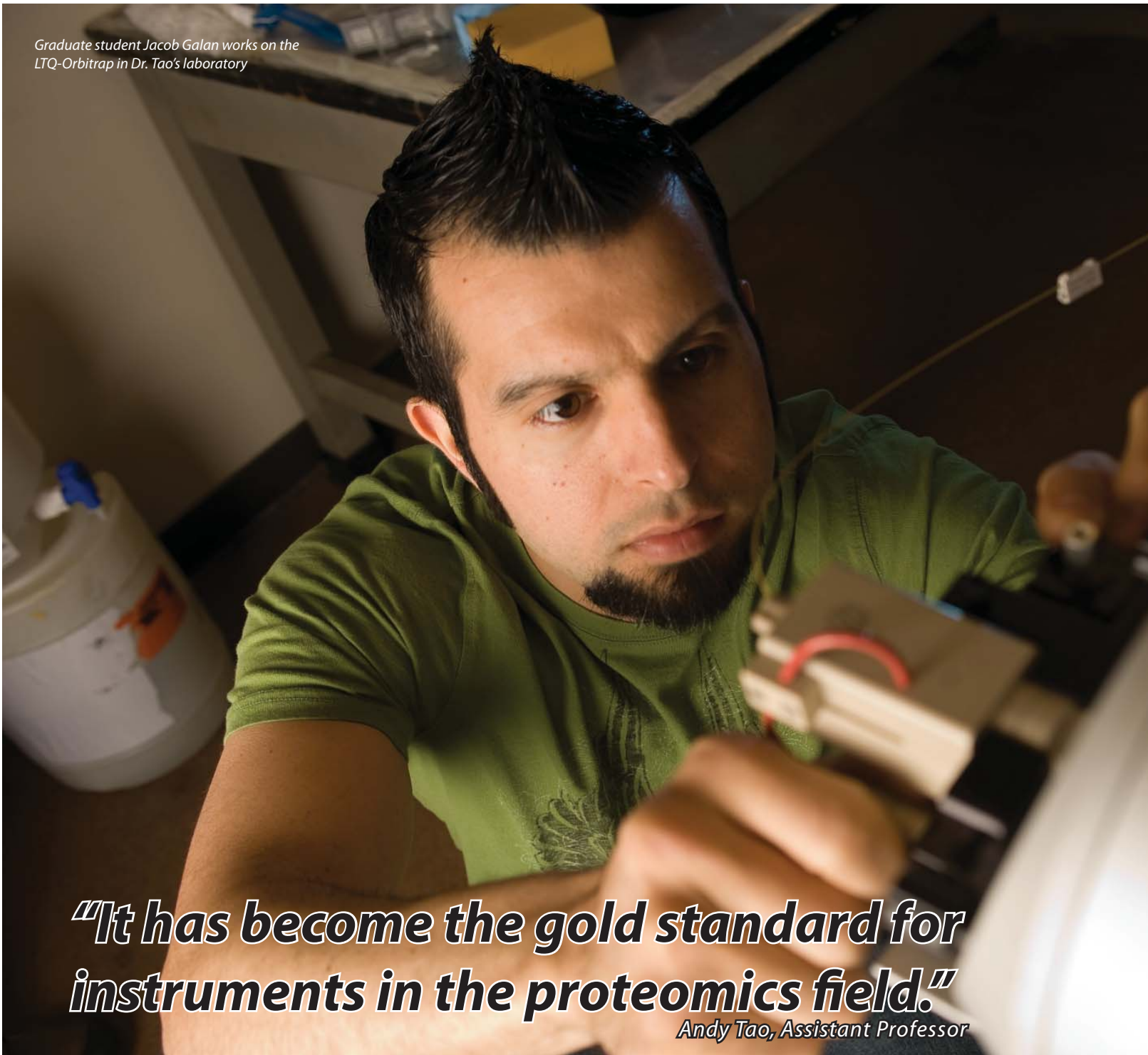
July 1964: We hear there is a fire in the Biochemistry Building and my wife and I ride over to check it out. The word is that a lab tech left a hot plate on in the first floor lab at the north end of the building. Either that excitement or riding over a few railroad tracks precipitates matters and the following day our daughter is born.

Epilogue: The two pair in the back seat end up dating and marrying. The young lady who sat next to me and I have been married for some 47 years now. The door-hugger? Reported to be the one who left the hot plate on.

The New Protein

The advent of genomics, including the sequencing of the human genome has revolutionized biomedical sciences and agriculture. Many researchers, including Department of Biochemistry faculty **Mark Hall** and **Andy Tao** believe that the new field of proteomics, which seeks to globally characterize the protein content of a cell or organism, will lead to comparable paradigm shifts in the biological sciences. "Proteomics will transform everything from the basic research arena all the way to the identification of drug targets, disease diagnosis and therapeutics," says Dr. Hall. One of the centerpieces of a proteomics research lab is the mass spectrometer, a complex instrument that performs the simple task of measuring the mass of molecules with very high accuracy. Historically used for analysis of small inorganic and organic molecules, over the past 15 years mass spectrometers have been increasingly used for identification and characterization of proteins and the quantification of their abundance in biological samples.

Assistant professors Andy Tao and Mark Hall use mass spectrometry to address important biological questions. Dr. Tao's group develops novel methods for the detection and quantification of proteins and how they are modified within cells. Dr. Hall's group applies mass spectrometric methods to



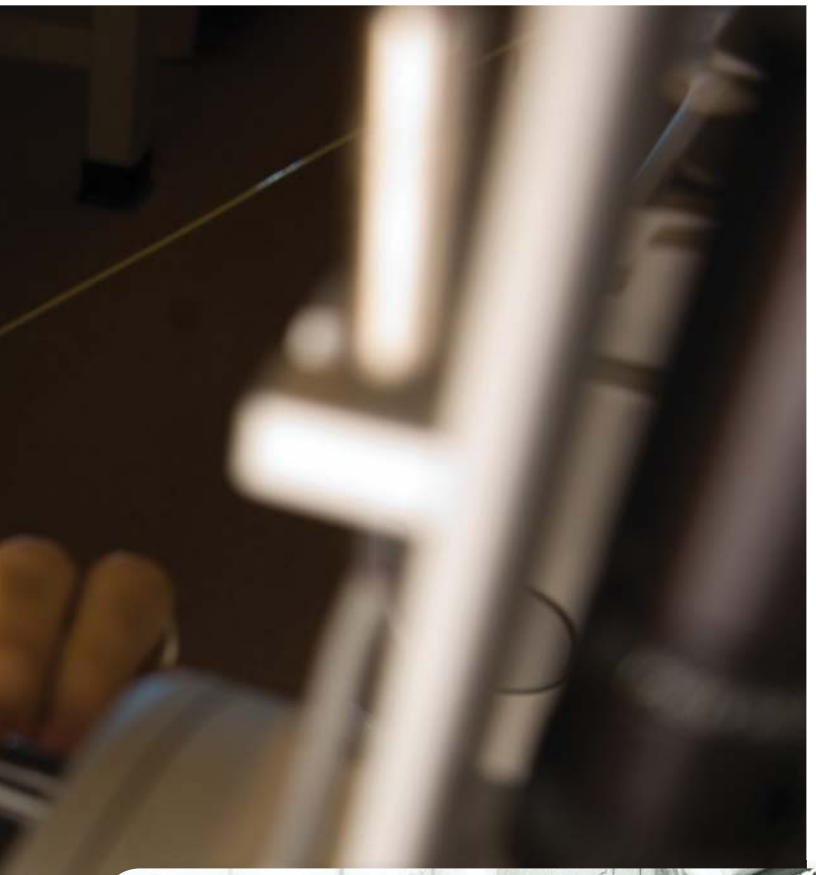
Graduate student Jacob Galan works on the LTQ-Orbitrap in Dr. Tao's laboratory

"It has become the gold standard for instruments in the proteomics field."

Andy Tao, Assistant Professor

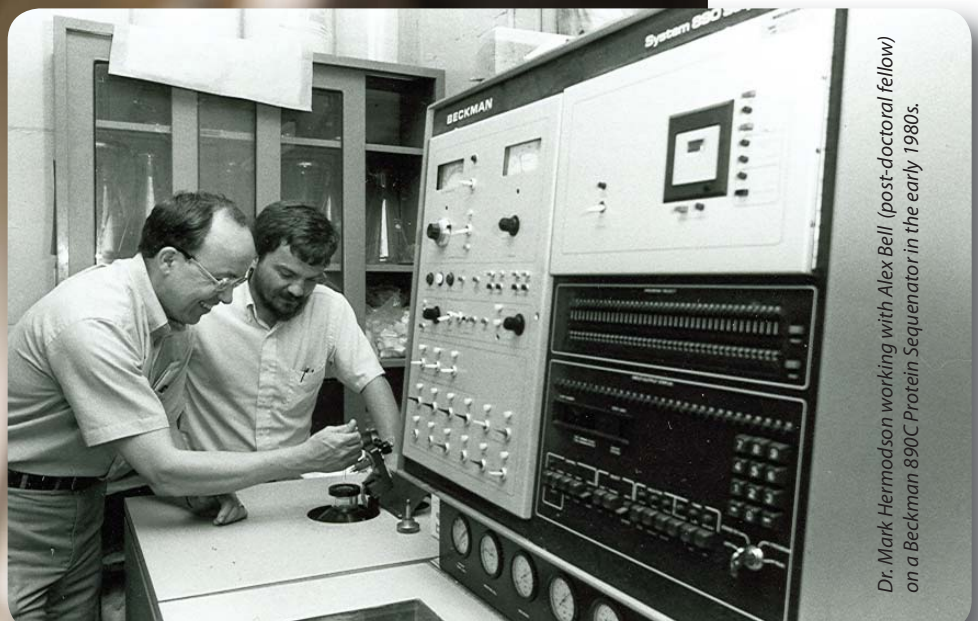
Science

study how cells control their growth and division. With grants secured from the National Institutes of Health and funds provided by Purdue University, the research programs of Dr. Tao and Dr. Hall received a huge boost this past year with the acquisition of two state-of-the-art Thermo™ LTQ-Orbitrap mass spectrometers. Dr. Hall states, "If you look at the big proteomics labs around the world, everyone is using the Orbitrap. It has become the gold standard for instruments in the proteomics field." Dr. Tao agrees, noting that acquisition of the Orbitrap will raise the level of proteomics research being conducted at Purdue. "Today, the majority of proteomics research is based on database searching," Dr. Tao said. "High resolution mass spectrometers, such as the LTQ-Orbitraps we recently acquired, decrease database search times and increase the confidence we have in our protein identifications."



Things have changed a lot since the former department head of the Department of Biochemistry was determining the sequence of peptides. "The Edman cycle time was about 90 minutes in the Beckman machine so it would take two days to get the sequence of the first 35 amino acids of a peptide," said **Dr. Mark Hermodson**. "Of course, it took a LOT of peptide. We preferred to have upwards of 200 nmol for each run; in other words, a milligram or two of peptide." "By way of comparison," says Mark Hall, "one peptide is sequenced in less than a second on the Orbitrap if its 'fingerprint' can be identified in a protein database, and it can do so with about a million times less starting material. A standard 90-minute run will potentially collect sequence information on over a thousand peptides if there are that many in the sample." There have been other innovations as well," noted Dr. Hermodson. "The one we were using actually had microprocessor controllers in it. The one on which I made a fair part of my reputation had punch tape controllers to open and close solenoid valves at the proper times in the Edman cycle."

Drs. Tao and Hall are also inspiring others to incorporate proteomics into their research. Dr. Hall has teamed up with Drs. Debbie Knapp (Veterinary Clinical Sciences) and Cynthia Stauffacher (Biological Sciences) to use mass spectrometry to measure differences in proteins relevant to prostate and breast cancer. "Our work has the potential to have important clinical implications," said Dr. Hall. "For example, we believe the phosphorylation state of a protein known as EphA2 may be a useful indicator of a breast cancer patient's response to hormone therapy." In a very different research area, a highly interdisciplinary group including Dr. Hall, Drs. Dan Szymanksi (Agronomy), Chris Staiger (Biological Sciences), and Olga Vitek (Statistics, Computer Science) is working to characterize protein complexes in key crop species. Dr. Tao has an ongoing collaboration with Dr. Robert Geahlen (Medicinal Chemistry and Molecular Pharmacology) to study signaling pathways involved in breast cancer using novel techniques for phosphopeptide enrichment. In an agricultural application, Dr. Tao is working with Dr. Jin-Rong Xu (Botany and Plant Pathology) to characterize the protein interaction network in a rice fungal pathogen called *Magnaporthe grisea*, which causes rice blast disease. "The goal is to use a broad proteomics approach to better understand rice blast pathogenesis and could lead to development of novel ways to prevent the disease, something that would have a global agricultural impact," emphasized Dr. Tao.



Dr. Mark Hermodson working with Alex Bell (post-doctoral fellow) on a Beckman 890C Protein Sequenator in the early 1980s.

On the Move

Learning is something that happens only in the classroom, right? "Not so!" say the students of the Department of Biochemistry. Many biochemistry undergraduates spend their summers gaining experiences outside the classroom that add to their personal and professional growth. Some students choose to travel or study abroad, while others work in industry internships or summer research programs. Read on to learn about just a few examples of biochemistry students' summer experiences.

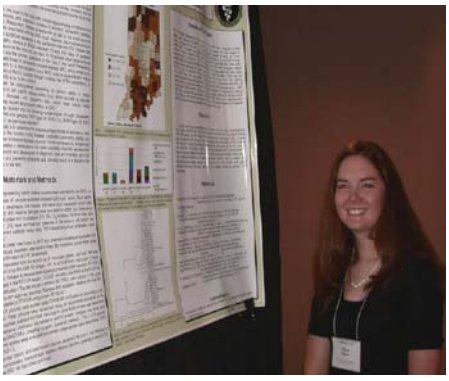
2008

Emily Sturm (senior) worked as an intern with Pfizer in St. Louis. Emily gained a great deal of practical experience and also learned how drug candidates get to market, how to work in a team and communicate effectively, and how to become an independent, efficient problem solver.

Andrew Bandy (senior) was one of six participants chosen to take part in research projects at the Ohio University College of Osteopathic Medicine. Andrew performed immunohistochemistry on kidneys from diabetic rats to determine the locations of three isoforms of nitric oxide synthase, an enzyme that has a role in diabetic nephropathy.

Bill Hoffmeyer (junior) worked at Wyeth Pharmaceuticals, Philadelphia, PA, in the Cardiovascular and Metabolic Disease department. He did *in vivo* and *in vitro* research related to congestive heart failure.

Kara Levell (senior) worked in Cincinnati for Procter and Gamble Pet Care, which markets the Iams and Eukanuba brands. Her official area within Iams was Animal Alternatives, where she worked with a DVM-Ph.D. to find methods to replace the use of animals in research. Kara found the work interesting and its relationship to metabolism and nutrition reinforced the value of lessons learned in BCHM 561 and 562.

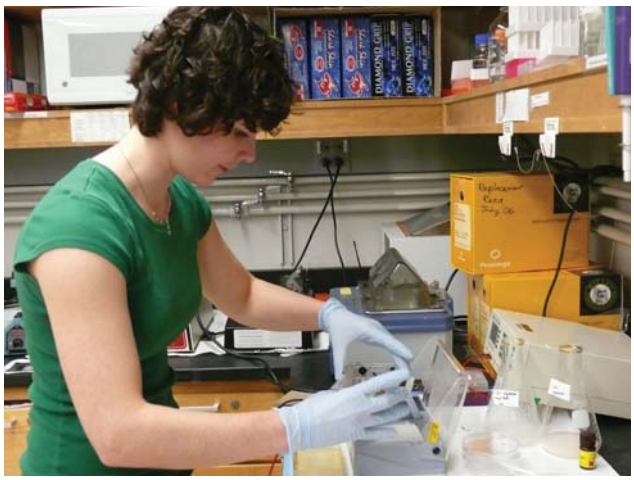


Megan Schnur (sophomore) was a Pre-veterinary Summer Research Fellow at the Purdue Animal Disease Diagnostic Laboratory (ADDL) with Dr. Roman Pogranichniy. Her project focused on the isolation and genetic analysis of Bovine Viral Diarrhea Virus (BVDV) from infected cattle. She learned many new techniques in tissue culture, virology, serology and histopathology. At the end of the summer, she had the opportunity to present her research at Eli Lilly in Greenwood, at Purdue's School of Veterinary Medicine and finally at Michigan State University at the National Veterinary Scholars Symposium, sponsored by Merck-Merial.

Rebecca Funk (senior) traveled to Australia as part of the University of New South Wales Wildlife and Conservation program. She traveled all over the country, from the rugged outback to the busy streets of Sydney. Her adventures began in Darwin in the Northern Territory, after which she visited the famous Ayers Rock or 'Uluru' before making her way to Sydney. Her final destination was Cairns, with a stop on the way at Cape Tribulation in the Daintree National Park to explore the rainforest. The academic program ended in Cairns where Rebecca spent her free days white-water rafting, skydiving, bungee jumping, and scuba diving and snorkeling on the Great Barrier Reef.

(r) Rebecca Funk

Erin Kischuk (junior) worked with Dr. Deborah Knapp and the Oncology Team as a Pre-veterinary Summer Research Fellow in Purdue's Department of Veterinary Clinical Sciences. Erin's project focused on expression of the folate receptor in canine cancer cells. The goal of the project was to identify an antibody which will recognize the canine folate receptor. Because some cancers are known to over-express the receptor, antibodies may provide a way to visualize cancers or to target them with chemotherapeutics.



LeAnn Hall (senior) spent three weeks traveling in Southeast Asia as part of a Contemporary Issues in Public Health study abroad course. She started in India and then travelled to Cambodia. The final stop was Thailand, with many different experiences that included dehulling rice by hand, identifying edible plants, and even eating crickets. The trip was filled with cultural experiences and visits to many iconic monuments like the Taj Mahal and Angkor Wat.

LeAnn Hall

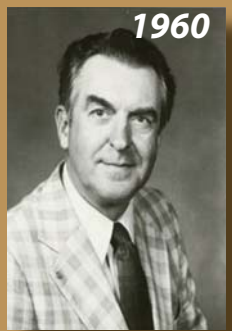
2009

Anna Verseman (B.S. May 2009) spent three weeks in Costa Rica during Maymester studying sustainable agriculture in the tropics with Dr. Lori Snyder from Purdue's Department of Agronomy. While there, Anna was able to visit several small farms as well as Monsanto's cotton breeding facility. She said her favorite part of the trip was getting to know one of the local families and helping them on their farm. Anna will begin her graduate studies in the Department of Agronomy in August and thought the trip to Costa Rica was an excellent opportunity to jumpstart her program. She had been thinking about a career in international agriculture and this trip helped to solidify her interest in the topic. Anna's trip was not all studies though! She also had the chance to hike up a volcano, go down a zip line, and spend some time on the beach.

MEMORIES

John Halver

Drs. Mertz, Quackenbush, Whistler, and Hauge gave me the background for passing my prelims in agricultural biochemistry in 1949 after which I completed my Ph.D. thesis research at the University of Washington. These outstanding professors and leaders in research at Purdue in Nutritional Biochemistry in their respective fields made the agricultural chemistry department of Purdue the national leader during this decade. This post-war period featured older graduate students with their families clustered around the university in whatever living quarters they could find. It was an intense period of concentrated studies with personnel with an experienced need-to-know attitude and active academic and social life. We enjoyed the weekly faculty graduate student evening assemblies, where the latest in science was discussed around the Quackenbush poker table. Forrest Quackenbush was a great leader and organizer, and had assembled the fine group of senior professors to stimulate the academic interest of these mainly post-WWII graduate students, assisted in their education by the GI Bill and part-time work in the State Chemist's Office, where many of us conducted analytical assays for animal feed certification. It was a vibrant time for both the professors and students.



Once Friends, Always Friends

"…our enthusiasm grew and before we knew it, we were organizing a reunion of biochemistry graduate student alumni from the 1970s and 1980s!"

July 4 and 5, 2008

by Brigitte Schoner and Paul Huber

On a warm Indiana evening in 2007, a few far-flung friends rendezvoused in Indianapolis and started talking about old friends from Purdue and wondering what they might be up to. As the conversation continued, our enthusiasm grew and before we knew it, we were organizing a reunion of biochemistry graduate student alumni from the 1970s and 1980s!

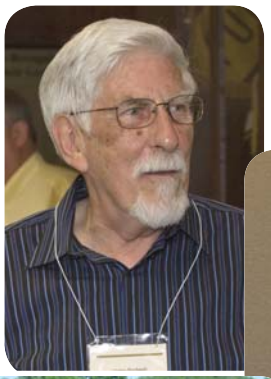
The old contact lists the department used to distribute, combined with the power of Google, gave us a start on locating a core group of people, who then helped spread the word. To our delight, many folks were willing to travel quite a distance to spend the July 4 holiday weekend on Purdue's campus and in West Lafayette.

The reunion started with a reception in the Biochemistry building in what used to be the library (now a conference room). We were honored to receive such warm greetings from current and former faculty, graduate students and postdocs. It was wonderful to tour the building and our old labs and to see how things had changed. It was a great beginning for the remainder of the weekend. The following day, we continued with a relaxing picnic at the Ross Hills Park, which brought back memories of pork roasts, volleyball, and softball. Dinner that evening was on campus at the new Dauch Alumni Center where we all exchanged more stories and we wrapped up the reunion on Sunday with a tour of Bindley Bioscience Center and the Birck Nanotechnology Center.

Paul and I can honestly say that everyone truly enjoyed themselves at the reunion of 2008. We made some singular friendships during our years at Purdue, and the reunion certainly confirmed those feelings. Most of us had not seen each other for many, many years, and there is always a concern that time has erased any connections. Not true – at least not for this group. The reunion was a great opportunity to reconnect with each other and former faculty, and it seemed that we just picked up where we had left off some 30 years before. It was not only fun to reminisce, but it was great to find out that we still had so much to talk and laugh about.

We thank Jim Forney, Kristi Trimble and the Purdue Alumni Association for all their efforts that helped make this reunion a success.

We know we benefited from an exceptional education and faculty who were caring mentors. We are happy and proud to be alumni of the Department of Biochemistry at Purdue University and we are very excited to return to campus for the 75th Anniversary Celebration on October 9 and 10, 2009.




Bill and Stu


Pete Dunn
Steve Berg
Ron Schoner
Frank Berger
Mel Arnold

Reaching Out to Tomorrow's Scientists

Sophomore Megan Schnur helps visitors extract DNA from strawberries during Spring Fest 2009

So what does a biochemist do when she or he grows up? That's what the Biochemistry Club is all about.

The club is organized by students for students, and gives them the chance to explore professions, reach out to the community, and build relationships with faculty, staff and fellow students. There are also some additional benefits. As one student stated, "Biochemistry Club gives you an awesome opportunity to meet students, especially those from other years. Plus, what other club gives out free pizza at every meeting?!"

The Biochemistry Club members aren't satisfied to learn about biochemistry; they want to teach it too, and they think it's never too early to start. As club outreach coordinator **Erin Kischuk** said, "The involvement of our youngest students will be imperative in the future to solve the new problems and puzzles humankind will face." The club submitted a proposal to the Student Grant Program for Community Service/Service Learning Projects and was awarded a grant in the amount of $1,500 for their Community School Outreach Program. The Outreach Program addresses the need to explain science to inquisitive young students in a fun and comprehensible manner.

This year, club members visited New Community School's science club and McCutcheon High School where they showed students that they could extract DNA with materials that could be found in their own kitchens. These programs were a great success, but the Biochemistry Club didn't stop there. In March 2009, they worked with the College Mentors for Kids program which teams second-grade "Little Buddies" from the local community with their "Big Buddies" on Purdue's campus. **Willis Chiang** and **Erin Kischuk**, both juniors in biochemistry, worked with these students to explore the world of science. The kids extracted DNA from bananas and competed to see who could get the most.

With the assistance of Biochemistry Club members, **Dr. Jim Henderson**, Coordinator of Teaching Laboratories and Biochemistry Club Advisor, extends departmental outreach efforts throughout the summer. In July 2008, the College of Agriculture's Office of Multicultural Programs hosted its first two-week Ag Discovery Camp with 27 high school students participating. Of all the experiences offered as part of the program, the students said that the lab offered by Dr. Henderson was their favorite! During October 2008, Dr. Henderson and the Biochemistry Club led a workshop for 35 FFA members visiting the department as part of the Career Success Tour hosted annually by the College of Agriculture. In March 2009, Purdue University was a joint host of the 24th Annual Career Fair and Training Conference in Indianapolis organized by MANNRS (Minorities in Agriculture, Natural Resources and Related Sciences). During a visit to campus, Dr. Henderson and four Biochemistry Club students (**Kara Levell, Emily Sturm, Willis Chiang** and **Erin Kischuk**) hosted a lab for the eager participants, and during Spring Fest 2009, sixteen club members welcomed over 150 visitors to the Biochemistry building. University President France Córdova visited the lab and extracted DNA from strawberries with the assistance of sophomore **Rachel Schluttenhofer**.

So what will all of these students do when they grow up? We don't know, but we're sure they have a bright future ahead of them.

MEMORIES

Joe Haining

(Ph.D. 1959, Axelrod)
Harry Beevers, D.Sc., was on the committee before which I had to defend my Ph.D. thesis. During the question and answer period he asked a question that I (mis)interpreted to be, "What does (receiving) the Ph.D. degree mean to you?" After I floundered around with hopefully high-minded reasons, he said, jokingly, "Since you don't know the meaning of the word 'philosophy' how do you expect us to approve of your being awarded that degree?" Knowing the degree he held, I replied that I thought a D.Sc. would be more appropriate to my education and training. The entire committee howled, and I passed!

Distinguished Ag Alumnus

Dr. Peter Kennelly (l) with Dean Jay Akridge

On March 6, **Dr. Peter Kennelly** (Ph.D. 1985, Rodwell) was honored as the 2009 Distinguished Agricultural Alumnus for the Department of Biochemistry. Dr. Kennelly, who is currently the Head of the Department of Biochemistry at Virginia Polytechnic Institute and State University, presented a talk entitled, "This Old Kinase. Probing the Origins of Regulatory Protein Phosphorylation."

Dr. Kennelly compares his biochemistry laboratory to a "million-dollar playground, with all the very best toys." Within this invigorating arena, life is good for a researcher praised as an outstanding scientist, colleague, teacher, and leader.
Since establishing his independent research group at Virginia Tech in the early 1990s, Dr. Kennelly's innovative quests have focused on protein kinases and phosphatases — enzymes that contribute to the control of many aspects of cellular life. Utilizing an unconventional approach, Dr. Kennelly's research examines primitive organisms and the ways that modification of their proteins — acting as molecular switches — mimic their mammalian counterparts. Breakthroughs in his laboratories have implications for identifying and remedying defects contributing to diseases such as cancer.

Dr. Kennelly began his career at Virginia Tech in 1989 as an assistant professor in the Biochemistry Department and was appointed department head in January 2005. His leadership skills were immediately evident, with the addition of five faculty members and launch of two new health-related focuses — insect-borne diseases, such as malaria, and drug targets for tuberculosis.

A renowned expert in the area of protein kinases and an international lecturer on the topic, Dr. Kennelly also co-authored ten chapters of the widely-used textbook, "Harper's Illustrated Biochemistry," and recently developed educational websites targeted at students preparing for biochemistry and molecular life sciences careers.

MEMORIES

Chris Sinclair

(Ph.D. 1999, Rossie)
There was a conference in Seattle, WA, and one evening Dr. Rossie invited myself and another student out to dinner with several of the speakers. The dinner was held at Ray's Boathouse, a very nice seafood restaurant known for its fresh fish. I remember sitting at the end of a very long table and the waiter was asking people what they would like to eat. Calls of "Scallops", "Salmon", "Lobster" rang from the table. When they finally got to me I responded, "Do you have any chicken?" It got very quiet. The waiter mumbled something about "checking the back of the freezer." I think it was then that Dr. Rossie sadly realized she would never take the "Midwesterner" out of me.

Awards & Recognitions

Nick Bonawitz (Chapple lab) was awarded a post-doctoral fellowship from the Life Sciences Research Foundation for his proposal, "BAHD acyltransferases as a means to manipulate lignin biosynthesis and optimize cellulosic bioethanol production." The Life Sciences Research Foundation awards approximately 15 such fellowships annually from about 800 applications. The total prize awarded will pay for his stipend over the next three years along with additional money for supplies and travel.

Christie Eissler (Hall lab) was the winner of a 2008 Focus on Your Possibilities Scholarship offered by Eli Lilly and Company to help support and celebrate hardworking adults with diagnosed and treated ADHD. Applicants for the scholarship were asked to provide a personal essay highlighting the impact that ADHD has had on their personal and academic lives. They were also asked to provide examples of how they have been able to persevere in spite of their ADHD. When sharing the good news about her scholarship, Christie stated, "Many people think of those with ADHD as not being able to succeed in school and certainly not capable of earning a Ph.D. I have overcome many challenges relating to education and I am very proud of it. Anything is possible if you just work hard enough."

Anindya Chatterjee (Rossie lab) was the 2009 recipient of the Beach Travel Award. The award provided support to attend the Gordon Research Conference on Phosphorylation & G-Protein Mediated Signaling Networks at the University of New England in Biddeford, Maine, in June 2009. Anindya presented a poster on the novel observation that a monomeric GTPase Rac1 translocates protein phosphatase 5 to the cell membrane.

Heng Zhang (Ogas lab) and **Jing-Ke Weng** (Chapple lab) each received a Bilsland Dissertation Fellowship. The College of Agriculture in conjunction with the Graduate School makes available these fellowships to provide salary support to graduate students who are within the final year of completing their Ph. D. degree. These fellowships are awarded on a competitive basis to students whose research has resulted in scholarly contributions to their respective fields, usually in the form of one or more publications or manuscripts in press.

Juan Martinez (Hall lab) was awarded a one-year Purdue Research Foundation (PRF) Research Grant. These grants are provided by the College of Agriculture in conjunction with the Office of the Vice President for Research. This award recognizes Juan's teaching and research accomplishments and will permit him to focus his efforts on the research projects that will form the basis of his doctoral dissertation. Juan also received a two-month competitive Graduate School Summer Research Grant for his proposal entitled, "The effects of constitutive APC activity on genome stability."

Dr. Jim Forney was awarded a Faculty Fellowship for Study in a Second Discipline for the spring 2010 semester. The fellowship program, funded by the Office of the Provost, offers faculty members an opportunity to extend their scholarship through study in a separate field on the West Lafayette campus for one or two semesters. Dr. Forney will work with Professor Jun Xie (Statistics) to add bioinformatics and statistics to his current research tool kit, which he will use to improve understanding of the molecular biology of ciliates and parasitic protozoa.

Juan Martinez (Hall lab) was the 2009 recipient of the Department of Biochemistry's Hickory Stick Award. This award is given annually to recognize a student's outstanding performance as a teaching assistant. Juan was recognized for his work in BCHM 322 in the fall 2008 session. He took responsibility for individualized instruction of the students, both during laboratory sessions and during TA office hours. Juan received many compliments from students for his skillful explanations of difficult homework assignments and his considerable assistance in working up difficult laboratory reports. Juan was also recognized at the Celebration of Graduate Student Teachers banquet hosted by the Committee for the Education of Teaching Assistants (CETA) and the Office of the Provost.

Heng Zhang (Ogas lab) was the 2009 recipient of the A.K. Balls Award for outstanding graduate student in research. Heng is a 6th year student in the biochemistry program. His research focuses on a chromatin remodeling protein in Arabidopsis called PICKLE (PKL), which represses seed-specific genes. His efforts led to a first-author publication in the *Journal of Biological Chemistry*. He has also presented several posters and talks on his work including a poster at a FASEB (Federation of American Societies for Experimental Biology) meeting in Arizona. Heng has used his extensive knowledge of chromatin and developmental regulators of seed identity to write another first-author article recently accepted for publication in *Molecular Plant*. In addition, Heng has been a terrific mentor and supervised the research of many undergraduate and 1st-year graduate rotation students. He plans to graduate in August 2009.

Biochemistry undergraduates **Leslie Seals** (Chapple lab), **Anna Hurlock** (Chapple lab), **Erin Kischuk** (Knapp lab, VCS) and **Zinan Zhou** (Liu lab) received Agricultural Research Fund Scholarships for 2009-2010. They were 4 of 13 recipients awarded this year across the College of Agriculture.

Senior **Chris Bates** received the Black Caucus award. This award recognizes outstanding students of color for their hard work and exceptional achievements at Purdue.

Jing-Ke Weng (Chapple lab) received two awards during the first PULSe (Purdue University Life Sciences) Spring Recognition Ceremony. Jing-Ke was a recipient of the Publication of the Year Award as well as earning the Outstanding Graduate Student in Research Award. The publication awards are given annually to recognize the most outstanding publications produced by PULSe students and to emphasize the importance of sharing research with the scientific community. The citation for Jing-Ke's winning publication is Weng, J.K., X. Li, J. Stout and C. Chapple. 2008. Independent origins of syringyl lignin in vascular plants. *Proc. Natl. Acad. Sci. U.S.A.* 105: 7887-7892.

2008/2009 College of Agriculture Awards recipients for the 400 Club were freshman **Michelle Hanenburg**, sophomores **Megan Schnur** and **Zinan Zhou**, junior **Erin Kischuk** and senior **Lu Zhang**.

The College of Agriculture held its annual Scholarship Banquet in September 2008. Forty-two biochemistry undergraduates were recognized for receiving scholarships. This number represented nearly half of the undergraduate students in biochemistry.

Three staff were recognized for their years of service to Purdue and the department: **Don Fultz**, Storekeeper (10 years); **Judy Stotler**, Lab Assistant (25 years); and **Linda Siersema**, Storeroom Supervisor (35 years).

Linda Siersema and Don Fultz

Biochemistry Students Honored for Their Undergraduate Research

A top priority for biochemistry students is to be involved in undergraduate research, and the Department of Biochemistry and Purdue University provide many opportunities. Approximately 160 undergraduate students from 19 universities had the chance to showcase their summer research experiences during a poster symposium on July 29, at the Neil Armstrong Hall of Engineering. The students were part of the 2008 Summer Undergraduate Research Fellowships (SURF) program. The SURF program provides students across all engineering, science and technology disciplines with an intensive research experience that allows them to work closely with graduate students and professors in their respective colleges. Three biochemistry students participated in the program and its associated poster symposium.

(r) Chris Bates

Jacob Adler (B.S. May 2008) worked in Dr. Andy Tao's lab and received the Top Senior Researcher Award for his poster entitled, "Identification of Phosphorylation-Dependent Proteins in B Cells Using Novel Quantitative Proteomics Strategy." Jacob entered the Biomedical Gateway Ph.D. program at Indiana University School of Medicine in August 2008. **Mike Rauscher** (senior) performed research with Dr. Angus Murphy in Purdue's Department of Horticulture and Landscape Architecture. While in Dr. Frederick Gimble's lab, **Chris Bates** (senior) was involved in engineering new enzymatic tools that can be used to help repair defective genes.

Many biochemistry students are involved in research year round, and the fifth annual Undergraduate Research and Poster Symposium, held April 21, 2009, in the Purdue Memorial Union ballrooms, gave these students a chance to showcase their findings. The first place winner for the life science category was Department of Biochemistry sophomore **Megan Schnur** with her poster entitled, "Isolation and Genetic Analysis of Bovine Viral Diarrhea Virus from Infected Cattle in Indiana." Senior **Adam Henry** received the College of Agriculture Dean's Award for his poster entitled, "Histone H3 K27 Monomethylation in *S. cerevisiae*."

Departmental Scholarships

Alumni Supporting Biochemistry Undergraduates

Megan Schnur and **Rachel Schluttenhofer** were the inaugural recipients of the Ray W. Fuller Memorial Scholarship. Ray W. Fuller received his Ph.D. from the Department of Biochemistry in 1961. As a graduate student, he worked in the lab of Dr. Edwin Mertz and served as a teaching assistant for BCHM 561. **Dr. David Schroeder** (B.S. 1962, Ph.D. 1968, Axelrod) had Ray Fuller as a teaching assistant and sought his advice about attending graduate school. Drs. Fuller and Schroeder each went on to have successful careers in the pharmaceutical industry, Fuller with Eli Lilly and Schroeder with Wellcome (later GlaxoSmithKline). In 2007, Dr. Schroeder established this scholarship to honor Dr. Fuller for his contributions to science and education.

Megan is a sophomore from Chrisney, Indiana, and a member of the Veterinary Scholars Program. She has performed undergraduate research in the Departments of Biochemistry and Comparative Pathobiology. Rachel is a sophomore from Thorntown, Indiana. She is a member of the University Honors Program and has done undergraduate research in the Biochemistry Department.

Edwin T. Mertz Memorial Scholarships were awarded to **Lu Zhang**, **Yang Song**, **Erin Kischuk**, **Heather Holzhauer**, **Megan Schnur** and **Rachel Schluttenhofer**. Dr. Edwin T. Mertz was Professor of Biochemistry at Purdue from 1946-1976. Dr. Mertz was recognized globally for his co-discovery of high-lysine corn. He received honorary degrees from Purdue University and the University of Montana and was elected to the National Academy of Sciences in 1975. In 2001, **Dr. Ronald Chance** (B.S. 1956, Ph.D. 1962, Mertz) and Carolyn Chance provided a substantial gift to launch a campaign to establish the Edwin T. Mertz Memorial Scholarship for undergraduate students in biochemistry.

Lu is a junior from Chonqing, China. She has performed undergraduate research in the Departments of Biochemistry and Medicinal Chemistry and Molecular Pharmacology. Yang is a junior from Shandong, China, who has done research projects in the Departments of Horticulture and Industrial and Physical Pharmacy. Erin is a junior from Muncie, Indiana, and a member of the Veterinary Scholars and University Honors Programs. She has been working in Veterinary Clinical Sciences on her undergraduate research project. Heather is a sophomore from Crown Point, Indiana. She has been working on undergraduate research in the Department of Biological Sciences.

Jennifer Griffith was the recipient of the Patrick C. Matchette Scholarship. **Dr. Patrick C. Matchette** received a bachelor's degree in biochemistry from Purdue in 1958 and a DVM in 1966. He is a retired manager of Abbott Laboratories Agricultural Research and Development. He established this scholarship in 2000 for the benefit of Illinois students from the Greater Chicago region who are enrolled in the Department of Biochemistry at Purdue.

Jennifer is a sophomore from Lake Bluff, Illinois. She has performed undergraduate research in the Department of Biological Sciences.

Biochemistry undergraduate and Edwin T. Mertz Memorial Scholarship winner, Erin Kischuk, working with students from McCutcheon High School during the Biochemistry Club's spring 2009 Outreach Program

MEMORIES

Madge & Terrence Graham

(Ph.D. 1973, Somerville & Ph.D. 1975, Whistler, respectively)
I was lucky to be accepted into Ron Somerville's lab. He was a wonderful advisor and had a very nice group. Ann McPartland and I shared Ron's then smaller lab (current tissue-culture prep room). Due to Ann's lively personality and liberal Californian outlook, it became sort of a stopping-by place for the "night owls' club." During the Watergate incident, some came along to listen to Ann's radio and had agitated discussions afterwards. I often stayed even much later to greet the ever-friendly stock-room attendant, Don Morrison, and other early morning people.

College & University Scholarships

Freshmen

Cody Adkins: The Henry William and Matilda Marie Sailer Schroeder Memorial Scholarship
Laura Henry: Scholarship Award of Excellence, Presidential Scholarship
Daniel Martin: Scholarship Award of Excellence, Presidential Scholarship
Betheny Moore: Scholarship Award of Excellence, Presidential Scholarship
Megan Rumpke: Scholarship Award of Excellence, Presidential Scholarship
Allison Shockley: Scholarship Award of Excellence, Trustees Scholarship
Emily Stone: Scholarship Award of Excellence, Presidential Scholarship
Katelyn Strack: Scholarship Award of Excellence, Presidential Scholarship
Alison Wolf: Scholarship Award of Excellence, Presidential Scholarship

Sophomores

Jeremy Bolt: J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship, Lewis Runkle Scholarship
Jillian Borsa: Purdue Academic Success Award, J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship
Korbin Davis: Sophomore Scholarship, Marquardt Alumni Scholarship
Jennifer Griffith: Sophomore Scholarship
Michael Hans: Sophomore Scholarship
Heather Holzhauer: Sophomore Scholarship
Anna Hurlock: Purdue Academic Success Award, Sophomore Scholarship
Justin Ramsey: Scholarship Award of Excellence, Leonard B. Clore Scholarship, Merrill Turley Family Scholarship in Agriculture
Whitney Ringenberg: Sophomore Scholarship
Bethany Roberts: Norman and Phyllis Coats Purdue Agricultural Scholarship
Rachel Schluttenhofer: Purdue Academic Success Award, Sophomore Scholarship, J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship
Megan Schnur: Sophomore Scholarship
Leslie Seals: Purdue Academic Success Award, Sophomore Scholarship
Andrea Stephenson: Purdue Academic Success Award, Sophomore Scholarship
Miaodi Sun: Sophomore Scholarship
Zinan Zhou: Sophomore Scholarship

Juniors

Cheng Wei (Willis)Chiang: USDA Multicultural Scholar
Craig Chanley: Robert L. Fuller Scholarship
Ashley Feil: Junior Scholarship
Erin Kischuk: Junior Scholarship, Walter Pugsley Scholarship, Purdue Academic Success Award
Brittany Kraft: Junior Scholarship
Kaylin Montgomery: Scholarship Award of Excellence
Amber Stroud: Junior Scholarship, J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship
Stephany Suparno: Junior Scholarship

Seniors

Andrew Bandy: Senior Scholarship
Seunghee Choi: Senior Scholarship
Yukie Furukawa: J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship, Lewis Runkle Scholarship
LeAnn Hall: Purdue Academic Success Award, Senior Scholarship
Adam Henry: Senior Scholarship, Agricultural Research Fund Scholarship
Kara Levell: J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship, Walter Pugsley Scholarship
Nicole Mock: Senior Scholarship
Emily Sturm: Senior Scholarship, Agricultural Research Fund Scholarship, The Joseph S. Dawson-Klaus M. Herrmann Award, J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship, Lewis Runkle Scholarship
Christina Velasquez: Purdue Academic Success Award, Senior Scholarship, Agricultural Research Fund Scholarship
Anna Verseman: Floyd and Nellie Elliott Scholarship, J. Kelly O'Neall and Margaret Ritchey O'Neall Memorial Scholarship, Lewis Runkle Scholarship

Zinan Zhou's independent research project in the

Lucas Sweet, an undergraduate student in Dr. Weith's lab, injects a sample on an HPLC

Biochemistry Research Retreat

Dr. Roger Beachy

The 2008 Research Retreat was held on October 13 at Camp Tecumseh in Brookston, Indiana. The event offered graduate and undergraduate students and post-doctoral researchers the opportunity to share research in the form of posters and oral presentations. Outstanding poster winners were **Nick Bonawitz** (Chapple lab), **Doug Mersman** (Briggs lab) and **Jacob Galan** (Tao lab). **Jessica Schoenherr** (Clemens lab) was recognized for her outstanding oral presentation. This year's keynote speaker was Dr. Roger Beachy, President of the Donald Danforth Plant Science Center in St. Louis, Missouri.

Purdue Graduate Student Government

On March 4, 2009, the Purdue Graduate Student Government (PGSG) hosted its 3rd annual Graduate Student Job Fair. Biochemistry graduate students and Job Fair committee members, **Christie Eissler** (PGSG Senator, Hall lab) and **Jessica Schoenherr** (Clemens lab) worked with a team of graduate students from across campus to organize the event. The Graduate Student Job Fair was attended by over 400 Purdue students from all areas of study. Jessica will replace Christie as the PGSG Senator representing the Department of Biochemistry next year. Jessica looks forward to helping with the Job Fair again and having a larger leadership role. She plans to pursue a career on the business side of science after graduation and hopes the senator experience will benefit her in that pursuit.

Undergraduate Innovations Win Big

Undergraduates **Anna Verseman** (senior) and **Janie Stine** (junior) competed in the Student Soybean and Corn Innovation Contest on March 23, 2009. In the soy portion of the contest Verseman's group, with their Melt-A-Way Cupcake Liners, tied for top honors and a prize of $17,500. Verseman says, "We thought we had a good product concept, but we were thrilled when we were able to form a workable film. We are hoping that we will be able to move forward with a patent and eventually market our cupcake liners." Stine's group participated in the corn-only portion of the contest and designed a biodegradable toilet paper, Nature's Silk, earning them a prize of $10,000. Stine says, "This competition was truly a unique experience. Not only did we get to see the product development process from start to finish (including the beginnings of getting a patent), but we got to see our idea flourish and really become something special."

Janie Stine pictured on left

Anna Verseman pictured 2nd from right

Purdue Agricultural Communications illustration/Tom Campbell

Biochemistry Undergraduates Earn Top Honors

Purdue University's College of Agriculture has named its top students for 2009.

Christina Velasquez, a biochemistry major from Dyer, IN, was named the outstanding senior. **Erin Kischuk**, a biochemistry major from West Lafayette, was outstanding junior. **Rachel Schluttenhofer**, a biochemistry major from Thorntown, IN, was outstanding sophomore. Emily Hirsch, an agribusiness management major from Fort Branch, IN, was outstanding freshman.

"College of Agriculture students are known across the campus for their leadership. Among those, one outstanding student is selected for each class," said Dale Whittaker, assistant director of academic programs for the College of Agriculture. "These are truly remarkable students who have exhibited learning, creativity and leadership in their campus lives."

Velasquez received a plaque sponsored by the Agricultural Alumni Association. Her name will be engraved on a permanent plaque in the Steve and Sandra Hageman Center for Student Achievement and Leadership, located in the Agricultural Administration Building.

Kischuk, Schluttenhofer and Hirsch each received an engraved plaque from the College of Agriculture and the Office of Academic Programs. Their names also will appear on permanent plaques in the Hageman Center.

The top agriculture students are chosen based on their academic achievement and leadership. Each department within the College of Agriculture submits student nominations.

Purdue Today
Writer: Natalie Federer

Graduations

Undergraduates

Andrew Bandy, B.S. 2009
Next Stop: Medical Student
University of Illinois-Chicago, College of Medicine

Christopher Bates, B.S. 2009
Next Stop: Graduate Student
Purdue University, PULSe Program

Stephanie Cutshaw, B.S. 2009

Swetha Dhanireddy, B.S. 2009
Next Stop: Medical Student
American University of Antigua Medical School

Rebecca Funk, B.S. 2009
Next Stop: Summer Lab Assistant
Purdue University, Department of Biochemistry

Yukie Furukawa, B.S. 2009

LeAnn Hall, B.S. 2009
Next Stop: Veterinary Student
Purdue University, School of Veterinary Medicine

Adam Henry, B.S. 2009
Next Stop: Medical Student
Indiana University, School of Medicine

Thomas Kreke, B.S. 2009
Next Stop: Lab Technician
Purdue University, Laboratory of Renewable Resources Engineering

Kara Levell, B.S. 2009
Next Stop: Graduate Student
University of Kentucky, Interdisciplinary Biological Sciences Program

(l to r) Anna Verseman, Andrew Bandy, Kara Levell, Christina Velasquez, Emily Sturm and Adam Henry pictured with Purdue Pete and the Boilermaker Special during Senior Send-off by PASE

Nicole Mock, B.S. 2009
Next Stop: Veterinary Assistant
Lake Station (IN) Pet Clinic

Michael Rauscher, B.S. 2008
Next Stop: Biochemist
Merck, Bioprocess R&D Department

Scott Secrist, B.S. 2008
Next Stop: Instructional Assistant
Akron Elementary School

Nicole Sigurdson, B.S. 2009
Next Stop: Law Student
Michigan State University, College of Law

Emily Sturm, B.S. 2009
Next Stop: Medical Student
Indiana University, School of Medicine

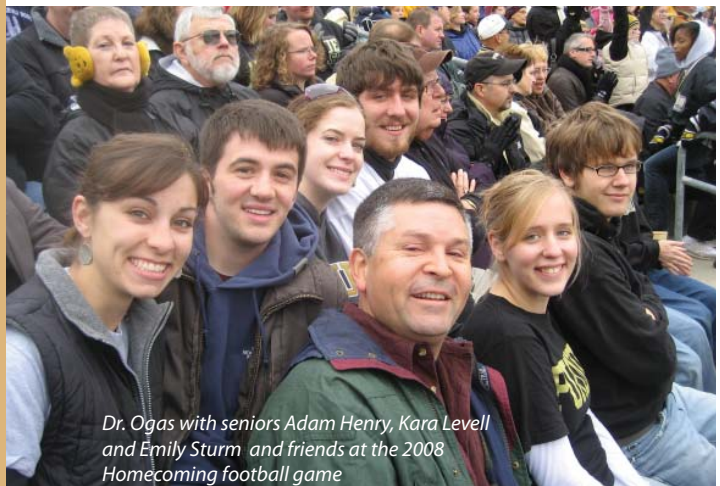
Stephany Suparno, B.S. 2009

Christina Velasquez, B.S. 2009
Next Stop: Medical Student
Johns Hopkins University, School of Medicine

Anna Verseman, B.S. 2009
Next Stop: Graduate Student
Purdue University, Agronomy Graduate Program

Michelle Weyreter, B.S. 2009
Next Stop: Pharmacy Student
Purdue University, Doctor of Pharmacy Program

Shuai Zhao, B.S. 2009
Next Stop: Graduate Student
Purdue University, Agronomy Graduate Program



Dr. Ogas with seniors Adam Henry, Kara Levell and Emily Sturm and friends at the 2008 Homecoming football game

Graduates

Jui-Hui Chen,
Ph.D. (Golden lab)
Next Stop: Post-doctoral fellow
Purdue University,
Department of Biochemistry

Nadeeka Naomi Jayasuriya
M.S. (Clemens lab)

Hajeong Kim
Ph.D. (Golden lab)
Next Stop: Post-doctoral fellow
University of Michigan,
Department of Biological Chemistry

Stephanie Mowery
M.S. (Forney lab)
Next Stop: Graduate student
Purdue University,
Industrial & Physical Pharmacy Program

Bo Yang
Ph.D. (Kirchmaier lab)
Next Stop: Post-doctoral fellow
University of Michigan,
Department of Pathology

Featured Seminars

The Beach Family Biochemistry Lectureship

Dr. Tom Kunkel, Director of the Environmental Biology Program, Chief of the Laboratory of Structural Biology and Leader of the DNA Replication Fidelity Group at the National Institute of Environmental Health Sciences (NIEHS), located in Research Triangle Park, North Carolina, presented the Beach Lecture Series in September 2008. Dr. Kunkel delivered two seminars, "DNA Replication Fidelity" and "Division of Labor at a Eukaryotic Replication Fork."

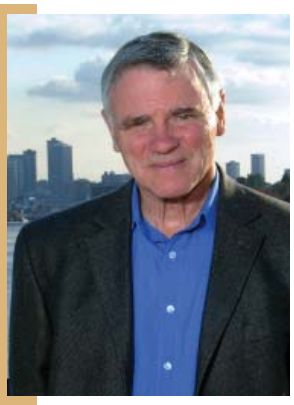
Dr. Kunkel's research is focused on the mechanisms by which cells ensure faithful duplication of the genome and the consequences to human health when these mechanisms are impaired or challenged by environmental factors. He has made extensive contributions to our understanding of the three major processes involved in DNA replication fidelity: nucleotide selectivity by DNA polymerases, exonucleolytic proofreading, and DNA mismatch repair. He is recognized as one of the world's leading experts on DNA polymerase structure, function, and mechanism. He has also made broad contributions to the field of molecular biology by developing some of the early methods for efficient generation of site-directed mutations.

Dr. Kunkel received a B.A. degree in Biology from Thomas More College, a M.S. degree in Cell Biology from the University of Cincinnati and a Ph.D. degree in Developmental Biology from the University of Cincinnati. He worked as a postdoc with Dr. Lawrence Loeb at the University of Washington, Seattle, studying the fidelity of DNA polymerases, until 1982 when he moved to NIEHS.

The Beach Family Biochemistry Lectureship was established in 1990 by David W. Beach. Inspired by his son's enthusiasm for science, he chose to share his good fortune by supporting this biochemistry graduate program. This long-term support is intended to promote intellectual curiosity and an appreciation of science in all those involved.

Bernard Axelrod Lectureship

The Axelrod Lectureship was established by colleagues and friends of Dr. Bernard Axelrod to honor his many contributions to the field of biochemistry and its community of scientists. Dr. Axelrod served as head of the Department of Biochemistry from 1964 to 1975. During that time, he hired 12 faculty members, created a vibrant intellectual atmosphere and was instrumental in elevating the reputation of basic biochemistry research at Purdue.



Dr. Lee Hood, President and Professor of the Institute for Systems Biology in Seattle, Washington, presented the Bernard Axelrod Lecture Series in April 2009. Dr. Hood delivered two seminars, "Paradigm Changes in Biology Leading to Systems Biology and a Revolution in Medicine" and "Reactive to Proactive Medicine: A Transformation Catalyzed by a Systems View of Disease, Emerging Measurement/Visualization Technologies and Integrative Computational and Mathematical Tools."

Dr. Hood's research has focused on the study of molecular immunology, biotechnology, and genomics. His professional career began at Caltech where he and his colleagues pioneered four instruments: the DNA gene sequencer and synthesizer, and the protein synthesizer and sequencer, which comprise the technological foundation for contemporary molecular biology. In 2000, he co-founded the Institute for Systems Biology in Seattle, Washington, to pioneer systems approaches to biology and medicine.

Dr. Hood's lifelong contributions to biotechnology have earned him the prestigious 2004 Biotechnology Heritage Award, and for his pioneering efforts in molecular diagnostics, the 2003 Association for Molecular Pathology Award for Excellence in Molecular Diagnostics. In 2006 he received the Heinz Award in Technology, the Economy and Employment for his extraordinary breakthroughs in biomedical science at the genetic level. In 2007 he was elected to the Inventors Hall of Fame (for the automated DNA sequencer).

Dr. Hood is a member of the National Academy of Sciences, the American Philosophical Society, the American Academy of Arts and Sciences, the Institute of Medicine and the National Academy of Engineering. Indeed, Dr. Hood is one of only 7 (of more than 6000) scientists elected to all three academies. He has also played a role in founding more than 14 biotechnology companies, including Amgen, Applied Biosystems, Systemix, Darwin and Rosetta. He is currently pioneering systems medicine and the systems approach to disease.

Seminar Series

External Speakers

James Bliska
Department of Microbiology
Stony Brook University
How Yersinia Fools with a Macrophage

Kerry Bloom
Department of Biology
University of North Carolina
Springs and Struts in the Mitotic Spindle

Sean Cutler
Department of Botany and Plant Sciences
University of California, Riverside
Abscisic Acid Inhibits Type 2C Protein Phosphatases via PYR1, a START-family ABA Receptor

Cindy Dupureur
Department of Chemistry and Biochemistry
University of Missouri, St. Louis
One and Two Metal Ion Catalysis: Biophysical and Kinetic Analysis of Metallonuclease Mechanism

Holly Goodson
Department of Chemistry and Biochemistry
University of Notre Dame
Microtubule Plus-End Tracking Proteins (+TIPs): New Information on Functions and Mechanisms

John Hart
Department of Biochemistry
University of Texas Health Science Center at San Antonio
Copper-Zinc Superoxide Dismutase and its Copper Chaperone in Motor Neuron Disease

Lee Hood
Institute for Systems Biology
Seattle, Washington
(see Bernard Axelrod Lectureship article)

Paul Huber
Department of Chemistry and Biochemistry
University of Notre Dame
Localization of mRNA in Xenopus Oocytes

Tom Kunkel
National Institute of Environmental Health Sciences
Research Triangle Park, North Carolina
(see Beach Family Biochemistry Lectureship article)

Lasse Lindahl
Department of Biological Sciences
University of Maryland, Baltimore County
Ribosome Assembly and Cell Cycle Control

Graham Moran
Department of Chemistry and Biochemistry
University of Wisconsin, Milwaukee
A Herbicide for Whatever Ails You

Joanna Shisler
Department of Microbiology
University of Illinois
Poxvirus Regulation of NF-kB: Mechanisms for Controlling Inflammation

Dave Toczyski
Cancer Research Institute
University of California, San Francisco
When to Give Up: Adaption to the DNA Damage Checkpoint

Ronald Wek
Department of Biochemistry and Molecular Biology
IU School of Medicine
Translational Control and eIF2 Kinases

Purdue Speakers

Scott Briggs
Department of Biochemistry
Controlling Histone Methylation via Trans-Histone Pathways

Jim Clemens
Department of Biochemistry
Mutants, Flies and Micrographs

Jim Forney
Department of Biochemistry
Regulation of mRNA Stability in the Leishmania Parasite Life Cycle

Barb Golden
Department of Biochemistry
Evolution of an RNA Active Site: A Drama in Three Acts

Yuk Fai Leung
Department of Biological Sciences
Genomic Analysis of Zebrafish Eye Development

Xiaoqi Liu
Department of Biochemistry
Plk1 in Chromosome Dynamics, Kinetochore Function, and p53 Regulation

W. Andy Tao
Department of Biochemistry
Novel Proteomic Techniques for Studying Molecular Signaling

David Umulis
Department of Agricultural and Biological Engineering
Organism-scale Modeling for Early Drosophila Patterning via Bone Morphogenetic Proteins

Alumni News & Updates

1940s

In 1949 **John Halver** passed his preliminary examination in the Department of Biochemistry (then Agricultural Chemistry) at Purdue University under the direction of Edwin Mertz then continued to complete his Ph.D. at the University of Washington in 1953. John retired in 1992 after serving 14 years on the faculty at the University of Washington. Prior to his academic appointment, John spent 25 years with the U.S. Fish and Wildlife Service. He is now Professor Emeritus in Nutrition, School of Aquatic and Fishery Sciences at the University of Washington.

1950s

Donald Burns (Ph.D. 1958, Parker) is retired from Los Alamos National Laboratory. He is currently on the American Chemistry Society Speaker Program presenting two talks entitled, "Counterfeiters: Catch'em with Near-Infrared Spectroscopy" and "70 Years of Fun with Chemistry" for local ACS sections around the country. Donald also serves as senior editor of the "Handbook of Near-Infrared Analysis," now in its 3rd edition. During his career, Donald has worked at National Cash Register Co. in Dayton, OH; Dover Medical Research Center in Dover, DE; Abbott Laboratories in North Chicago, IL; and Technicon Instruments Corp. in Tarrytown, NY. Donald is married with 3 children and 6 grandchildren.

Joseph Haining (M.S. 1957/Ph.D. 1959, Axelrod) was one of Dr. Bernard Axelrod's first graduate students at Purdue University along with Grace (Sewell) Kilsheimer. In January 1959, Joe joined the faculty of the University of Mississippi Medical School as assistant professor in the Department of Biochemistry. Four years later, he was recruited by the nearby newly-built Veterans Administration Medical Center to create a Basic Science Research Laboratory in support of staff MDs and their research efforts. Joe also maintained his affiliation with the medical school to continue joint research projects with his colleagues there. He retired in 1992. Joe credits Dr. Axelrod, the Department of Biochemistry, and his wife for what success he had professionally.

Damon Shelton (Ph.D. 1950, Mertz) started his faculty career at West Virginia University in 1952 where he was a member of the Agricultural Biochemistry and Nutrition Department. In 1960, he joined the faculty in the Biochemistry Department at West Virginia University Medical Center. Damon retired in 1987, ending his career at Ralston Purina Co. where he spent 20 years in the laboratory animal and special chows research area. He currently lives in Kansas City, MO.

1960s

Anne Marie Barton (M.S. 1962, Whistler) married biochemistry alumnus James L. Goatley (Ph.D. 1962, Whistler) in 1961 and they had five children. James passed away in 1980. Anne married Alven E. House in 1984 and has two step-children and 13 grandchildren. During her career, Anne worked as a research technician for the Department of Animal Science and Animal Health Diagnostic Laboratory (AHDL) at Michigan State University from 1978-1984. She retired from Michigan State in 1999 as supervisor of the nutrition section of the AHDL.

1960: (l to r) Joe Sannella, Jim Goatley, Bill Spencer, unknown, Bill Doane, Darrell Medcalf, Hugh Roberts, Anne Barton, and Alan Belfort

Stephen Coburn (Ph.D. 1963, Packett) was hired as the Director of the Biochemistry Department at the Fort Wayne State Hospital (replacing alumnus Ray Fuller who had moved to Eli Lilly). In addition to the director position, Stephen accepted a part-time position at Indiana University-Purdue University at Fort Wayne in 1964 where he enjoyed a 44-year career. He retired from the State Hospital in 2003 and from the University in 2008. Stephen continues his interest in agriculture and lives on an 87-acre farm in Churubusco, IN, where his family has raised dairy goats, rabbits, calves and horses and enjoys wildlife including deer, beaver, otters and turkeys.

◀ A monument to students and alumni

The *Unfinished Block P* was dedicated on October 25, 2008. Located north of the Purdue Stewart Center, in Academy Park, the sculpture was designed to symbolize that all people are works in progress and are never completely finished in the process of growing and learning.

The inscription on the *Block* reads as follows:
"This sculpture serves as a reminder that even after graduating from Purdue, our experience is not over. Rather, we carry through life our numerous memories, friendships, lessons learned, and skills acquired. This sculpture encourages all Purdue students, alumni, and friends to treasure all that Purdue has blessed us with and to keep the Purdue experience close at heart, not only for ourselves but for all that we loved here and for all those students who, for various reasons, did not get the opportunity to complete the Purdue experience. In essence, the real Purdue is not simply the physical facility or the location of the University but the cumulative and lasting impact and wonder of our interactions with faculty, staff, other students, and all the events that occur during our time together. Once a part of the experience, we are all together eternally Purdue."

Robert Harris (Ph.D. 1966, Quackenbush) retired and took emeritus status from Indiana University in 2008. He continues to maintain an active research program on mitochondrial protein kinases in the Richard Roudebush VA Medical Center in Indianapolis, IN.

Alan Preston (M.S. 1967, Jackson) finished his Ph.D. at Purdue in the Department of Animal Sciences in 1971. His post-doctoral work was at the University of Columbia and Lincoln University. In 1975, he joined the faculty of the University of Puerto Rico-Medical Science Campus in the Department of Biochemistry where he has enjoyed a 33-year career. His main area of research has been the effects of second-hand tobacco smoke on anti-oxidant levels in children and dietary studies in Puerto Rican children. Alan has two children, a son (deceased) and a daughter (financial analyst at McDonalds' Corp.) and 1 granddaughter (age 12). Alan plans to retire in 2010, but will keep active on an emeritus basis.

David Schroeder (B.S. 1962/M.S. 1966/Ph.D 1968, Axelrod) left Purdue in 1968 to work as a postdoc for two years at NIH in Bethesda, MD, where he learned about pharmacology and drug metabolism. In 1970, David joined Burroughs Wellcome Company (later bought out by Glaxo) in Research Triangle Park, NC, where he spent his career as a research biochemist until he retired in 1995. He is enjoying retirement and lives in Dandridge, TN, with his wife, Joanna, where they take pleasure in a great view of Douglas Lake and the Smoky Mountains.

Paul Seib (Ph.D. 1965, Whistler) has been on the faculty of Kansas State University since 1970. He retired in 2006 as Professor, Department of Grain Science and Industry.

Robert Webster (B.S. 1965) continued his education and received a M.S. degree from the University of Minnesota and a Ph.D. degree in Microbiology and Immunology from Albany Medical College. He has been Associate Vice President for Research and Director of the Office for Sponsored Programs at University at Albany since 2005. He also holds academic appointment as Research Professor in the School of Public Health, Department of Biomedical Sciences. Prior to his arrival at Albany, Robert spent 23 years on the faculty at Saint Louis University where he was Professor of Medicine and Microbiology, served as Assistant Vice President for Research (1996-98), and Associate Provost for Research Administration for the Health Sciences Center and Director of the University's Technology Transfer Office.

1970s

Diane (Politowski) Chun (B.S. 1977) married Lawrence Chun in 1983 and they have two sons. Currently Diane is employed as the middle school science lab coordinator at Kamehameha Schools, a school for children of Hawaiian ancestry, in Honolulu.

Barbara Ariel Cohen (B.S. 1979) (Founder and President of Arex Life Sciences, Inc.) is a Harvard Ph.D. and biotechnology executive who brings research discoveries into real-world use. She has served in scientific and C-level executive positions in start-ups, product companies and both service and research laboratories. Dr. Cohen has launched over 20 successful products, including some holding worldwide dominant market share. She has collaborated with the FDA on multinational trials, opened global markets, led R&D teams and is an inventor on 23 patents ranging from semen sexing to genetic analysis of fetal DNA. Dr. Cohen was the Department of Biochemistry's Distinguished Ag Alumna in 1999. She lives in Boston with her husband and Purdue alumnus Phil Temples (B.S. EE, 1979).

Pekka Mantsala (Postdoc, 1979, Zalkin) was a Fullbright fellow with Dr. Howard Zalkin in 1975, a postdoc in 1979, and again in 1984 and a visiting professor in 1991. In 1984, he joined the faculty in the Department of Biochemistry at the University of Turku, Finland. His recent research is focused on *Streptomyces* biosynthetic enzymes of polyketide antibiotics *in vitro*. The primary interest is in the detailed structure, function, mechanism and interaction of these enzymes. Pekka retired in 2002 and is now professor emeritus.

Gary Moroff (Ph.D. 1971, Brandt) did his post-doctoral work at New York University Medical Center then moved to a research associate position at Mount Sinai Medical Center in New York City. He has been with the American Red Cross Biomedical Services since 1974 and is currently head of the Blood Components Department at the Jerome H. Holland Laboratory for the Biomedical Sciences, in Rockville, MD.

Nick O'Neil (B.S. 1977) is an anesthesiologist with Sisters of St. Francis. He is married and lives in Lafayette, IN.

Paul Pilch (Ph.D. 1977, Somerville) and his wife, Carol (M.S. Computer Sciences, 1977), moved to Massachusetts after graduation where he worked as a postdoc for 3.5 years at Brown University (Providence, RI). Paul then took a faculty position at Boston University School of Medicine and has been there ever since. His research is in the general areas of obesity and diabetes. Carol works in the same complex of buildings that she started in 30 years ago, but the corporate name has changed several times, originally GTE, now General Dynamics.

Martin Price (Postdoc, 1979, Butler) retired August 31, 2008, and lives in Ft. Myers, Florida. Two years after completing his post-doctoral research on nutritional effects of tannin in grain sorghum under Larry Butler he became the founding CEO of a non-profit organization called ECHO (Educational Concerns for Hunger Organization; www.echonet.org) in southwest Florida. ECHO's "textbook" farm today features the largest collection in the continental USA of plants important to small farmers in the tropics, especially featuring what the National Academy of Sciences calls "underutilized tropical food plants." ECHO's unique niche in international development is that they specialize in helping other organizations and individuals be more effective in their own work with struggling smallholder farmers in Third World countries. Now that Martin has retired, he is able to focus on what he enjoys most, which is writing and speaking as a volunteer staff member for ECHO. He comments that his three years in Purdue's biochemistry department, and collaborating with agronomy and animal science departments, were the highlight of the research part of his life and greatly influenced the rest of his career.

Brigitte (Hausler) Schoner (Ph.D. 1978, Somerville) worked at Eli Lilly & Co. in Indianapolis, IN, for 23 years and retired in 2005. She is still living in Indiana and enjoying it.

Ron Schoner (Ph.D. 1978, Herrmann) retired from Eli Lilly & Co. in 2008 from Bioprocess Research. He is now working as a Fellow at MedImmune in Maryland where his research is directed towards the development of cell lines that produce recombinant proteins for use in clinical trials.

Robert Walker (Ph.D. 1972, Mertz) retired in May 2009 after teaching general chemistry, quantitative analysis and biochemistry for 37 years at Marietta College (Ohio). During his tenure at Marietta College, he was chair of the Department of Chemistry (1983-1998), served as coordinator for the Division of Science, Engineering and Mathematics for five years, served several terms on the faculty council and was chair of the faculty for five years. Dr. Walker plans to remain in the Marietta area after his retirement.

James Ridlington (Ph.D. 1971, Butler) is retired, but teaching at Oregon State University.

1980s

Paul Cantrell (B.S. 1980) has been married to Kim Murphy Cantrell (B.S. Biology, 1980) for 27 years and has three grown children. After graduation in 1980, Paul played and taught tennis professionally before taking a position as a research assistant at the IU School of Medicine in Indianapolis, IN, where he investigated G-protein coupled receptors in cardiac membranes. He then joined International Minerals & Chemical in Chicago, IL, researching and developing recombinant animal growth promoting factors/proteins. In 1987, Paul joined the bone biology research group at Eli Lilly and Company in Indianapolis where he participated in the discovery of Evista(TM). Paul continued with Eli Lilly, moving to the intellectual property department in 1990 where he trained in patent law during the day and attended school at night. Paul now serves as assistant general patent counsel at Eli Lilly and has had global responsibility at various times for patent procurement, licensing and litigation.

Jeffery Dean (Ph.D. 1986, Herrmann) is currently professor in the Department of Biochemistry and Molecular Biology and Daniel B. Warnell School of Forestry and Natural Resources at the University of Georgia. His research utilizes a broad range of tools in plant biochemistry, molecular biology and genomics to advance our understanding of plant growth and development, particularly as it relates to the formation and biodegradation of wood. Most recently, Jeffery has turned his attention to the use of high-throughput genomic technologies for quantifying gene expression changes during wood formation in an effort to identify the genes controlling changes in wood quality. In March 2007, he co-organized the first International Conifer Reference Genome Meeting at Cold Spring Harbor, NY, and is one of the principal leaders in current efforts to develop an international conifer genome project. He resides in Watkinsville, GA, with his wife, Gisele Andrade, as well as their dog, Tyler, and Shelly, a painted turtle that has been a part of the Dean household since graduate school.

Michael Hampsey (Ph.D. 1982, Kohlhaw) has been working at Robert Wood Johnson Medical School in New Jersey since 1996, and is currently Professor and Interim Chair of the Department of Biochemistry. His career has been shaped to a large extent by "the awesome power of yeast genetics." While working in Dr. Gunter Kohlhaw's laboratory in the late 1970s, he came to appreciate the simplicity of yeast as an experimental organism and his lab is still exploiting yeast to learn new things about how cells regulate gene expression. In February 2009, Mike was awarded the distinction of AAAS Fellow, an honor bestowed upon American Association for the Advancement of Science (AAAS) members by their peers. Mike is married and has three children.

Katherine Kane (B.S. 1984) continued at Purdue to attain a DVM in 1988 then went into private practice. She currently owns Housatonic Veterinary Care in Cornwall Bridge, CT, a mixed practice, stafffed by herself and another Purdue DVM alum.

Reijo Lahti (Postdoc, 1983-85, Somerville) returned home to Finland with his wife, Pirjo, and two sons, Juho and Matti (now 32 and 30), after his postdoc appointment and started working at the University of Turku. He is currently a professor in the Department of Biochemistry and Food Chemistry.

Dan Lebryk (B.S. 1984) continues to work for Kraft Foods after 24 years in research and development, and manufacturing quality. He is married with two sons. His wife, Dianne, is a science instructor at Lane Tech College in Chicago.

Li (Ni) Komatsu (Ph.D. 1998, Weiner) did her post-doctoral work at Brigham and Women's Hospital in Boston, where she met her husband, Takashi Komatsu, who is currently a clinical microbiology reviewer at CDER/FDA. In 2002, she moved to New Jersey with her husband and worked at the Department of Dermatology, New York University School of Medicine for six years. In early 2009, they moved from New Jersey to Maryland and in June, Li joined CFSAN/FDA to work on dermal toxicology.

MEMORIES

Stephen Coburn

(Ph.D. 1963, Packett)

Since the Biochemistry Department is in the College of Agriculture, I was surprised to discover that out of about 24 graduate students entering in with me in the fall of 1958 only two of us had undergraduate backgrounds in agriculture. We both chose to work with Dr. Leonard Packett, a new faculty member specializing in animal nutrition. Our focus was kidney stones in sheep. We had metabolism crates in the basement of the Biochemistry Building. We took sheep down the freight elevator and herded them down the hall. The sheep were in a room in the northwest corner of the basement of the Biochemistry Building. Our sheep served as a welcome source of cheap meat for graduate students on limited budgets. The departmental freezers contained many boxes of lamb bought by various students.

Susan Smith (B.S. 1982) continued her education and received a Ph.D. in Biochemistry from the University of Wisconsin-Madison in 1987. She did her post-doctoral training in developmental biology at Harvard Medical School then accepted a faculty position at the University of Wisconsin-Madison in 1990. She is currently a Professor of Nutritional Sciences and Molecular/Cellular Toxicology. Her research focuses on deciphering the molecular mechanism that underlies alcohol's neurotoxicity in the developing embryo and her research program was recently recognized with a MERIT Award from the National Institutes of Alcohol Abuse and Alcoholism. Susan is married to fellow Biochemistry alumnus, **George Flentke** (B.S. 1982). George also received his Ph.D. in Biochemistry from the University of Wisconsin-Madison and is now a scientist at the university. At home, they operate a breed-rescue animal shelter.

Tony Soltis (B.S. 1981) continued his education at Brandeis University. Tony took his first position as a production scientist at New England Biolabs in Ipswich, MA, and has continued with the company for 26 years. During his career, he has also held positions as a product manager, European distributor account manager and is currently senior OEM account manager. In 1993, he received a masters from Purdue University Krannert's Executive MSM Program.

1990s

Kenneth Bischoff (Ph.D. 1995, Rodwell) did his post-doctoral work in **Peter Kennelly's** (biochemistry alumnus, Ph.D. 1985) lab at Virginia Tech. In 1998, Ken moved to College Station, TX, and joined the USDA Agricultural Research Service as a microbiologist, investigating antimicrobial resistance in food-borne pathogens. In 2004, he transferred to the USDA National Center for Agricultural Utilization Research in Peoria, IL, where he is currently lead scientist on a biofuels project. Ken lives in Morton, IL, with his wife, Dana, who is a counselor for a local mental health center. They have a 6-year-old son, Mark, who says he wants to be a scientist when he grows up.

Suzanne Canada (Ph.D. 1996, Herrmann) is married to Purdue alumnus Hendri Tjandra (Ph.D. Biology 1996, Asai). They have two children and are living in the San Francisco Bay area. Suzanne changed fields to become a medical writer. She writes descriptions of drug development results to submit to the FDA and other regulatory agencies, as well as drug information for medical doctors. Suzanne says the years of training at Purdue in the logical, scientific presentation of data has served her well.

Cheryl (Stacy) de Fontes (B.S. 1998) is a research scientist working in the areas of protein engineering and delivery mechanisms of complex transgenic arrays for monocots and dicots at Syngenta Biotechnology Inc. in Research Triangle Park, North Carolina. Cheryl received her Master of Microbiology in 2005 from North Carolina State University. She married Justin de Fontes on April 5, 2008.

David Pot (Ph.D. 1991, Dixon) worked as a post-doctoral fellow at University of California, San Francisco, following graduation. In 1995, he moved to Chiron Corporation, where after pursuing more bench research, he started the Chiron bioinformatics department in Emeryville, CA. In 1999, David moved to Incyte Genomics in Palo Alto, CA, where he led a bioinformatics team in charge of discovery and patent of novel human full-length genes. He moved to the Washington, DC, area in 2001, to lead software development of bioinformatics software at InforMax (Vector NTI, Vector Expression and Vector PathBlazer - now part of Life Technologies), as Director of Application Science. David is currently living in Potomac, MD, with his wife, Helen Chen, doing government consulting in bioinformatics with SRA International where he is managing multiple groups doing bioinformatics at the National Institutes of Health in Bethesda, MD.

Eumorphia Remboutsika (Ph.D. 1994, Kohlhaw) is currently principal investigator of the Stem Cell Biology Laboratory at the Alexander Fleming Biomedical Sciences Research Center in Athens, Greece. Her work focuses on factors that define the stem cell state and somatic cell reprogramming. She also serves as a SET-ROUTES University Ambassador in the Women in Science Programme of the European Union. Eumorphia has an 8-year old daughter.

Scott Rosenthal (Ph.D. 1995, Rodwell) remained in the Department of Biochemistry at Purdue following graduation as a post-doctoral researcher in the laboratory of Brad Olwin. In 1996, Scott moved with Dr. Olwin's laboratory to the University of Colorado, Boulder, and continued the post-doctoral work he had started at Purdue. In 1999, he joined Bayer Biological Products in the Research Triangle Park area of North Carolina where he worked as a research scientist evaluating viral clearance across protein purification processes and later as a process development scientist responsible for developing purification processes for plasma derived therapeutics. In 2003, Scott married Christine and they had their first child in June 2004. Shortly thereafter, he joined Amgen in Juncos, Puerto Rico, where he worked as a purification process development scientist supporting the start-up of a recombinant protein purification facility. In January 2006, Scott moved back to the mainland and started working at Amgen's Longmont, Colorado, facility as a purification process development scientist supporting commercialization of late stage recombinant protein therapeutics. In February 2006, Scott and Christine welcomed their second child.

Chris Sinclair (Ph.D. 1999, Rossie) has worked for Abbott Laboratories north of Chicago, IL, since receiving his Ph.D. Initially, he started as a scientist helping to troubleshoot large scale protein purification and chemical conjugation processes. Over time Chris has drifted towards the business side of the company. The past several years he has worked as a Lean Six Sigma Master Black Belt (business excellence manager) helping to improve the speed and efficiency of the drug development process. Chris will complete an MBA program at the University of Indiana through the Kelley School of Business in November 2009. He has been married for fourteen years and has four children.

Becky (McKinney) Thompson (B.S. 1993) is currently a director of launch management at the Kellogg Company where she leads a team of project managers who deliver new product innovations in cereal, PopTarts, and Kashi brands to the grocery store. Becky and her husband, Scott, have two children and live in Battle Creek, Michigan.

Michael Worns (B.S. 1990) has worked at Damping Technologies, Inc., a manufacturer of noise and vibration control products in Mishawaka, IN, since 1999 and is currently a new product development leader. Michael married Laura Mick (B.A. Psychology from Marian College, Indianapolis) in 1991 and they have 3 children.

2000s

Jake Stout (Ph.D. 2007, Chapple) is currently working in a post-doctoral research position jointly held between the Plant Biotechnology Institute of the National Research Council of Canada and the University of Calgary. He is working on the cannabanoid biosynthetic pathway in *Cannabis sativa* with Dr. Jon Page and benyoisoquinoline alkaloid biosynthesis in opium poppy and related species with Dr. Peter Facchini. Jake lives in Saskatoon, Canada.

Autumn Sutherlin (Ph.D. 2003, Rodwell) was promoted to associate professor of biochemistry in the Department of Chemistry and Biochemistry at Abilene Christian University in January 2009. Fall 2009, Autumn will return to Montevideo, Uruguay, for the second time with 20 students as part of ACU's study abroad program. There she will teach a couple of biochemistry classes (in English) and have fun traveling South America. If you are really interested you can follow her travels on her blog: autumninmontevideo.blogspot.com.

Passings…

John Morin (Ph.D. 1982, Dixon) passed away on June 30, 2008, at the age of 56. Following his post-doctoral training in the Department of Biochemistry at the University of Vermont College of Medicine and Metabolic Research Unit at the University of California, San Francisco, John had a 24-year career in pharmaceutical research. In 2002, he became director of High Throughput Screening at Wyeth Research. John was involved in a number of scientific organizations, including Laboratory Robotics Interest Group (LRIG). This organization set aside funds for an annual John Morin Memorial Scholarship, which was awarded for the first time in 2009.


1971

Hiromu Matsumoto (Ph.D. 1955, Mertz) passed away on November 20, 2008, at the age of 88. Dr. Matsumoto received his M.S. from the University of Hawaii in 1945 and joined the Agronomy and Soils Department as an Assistant in Chemistry in 1946. In 1951, he was sent to Purdue University to obtain a Ph.D. with the understanding that on completion of that degree, and upon his return to Hawaii, he would start a Department of Agricultural Biochemistry with two other chemists. Dr. Matsumoto was founding professor and chair in the Department of Agricultural Biochemistry at the University of Hawaii-Manoa's College of Tropical Agriculture and Human Resources. His research focused on plant toxins. His initial research focused on toxic substances in forage crops including mimosine and 3-nitropropionic acid. Later, he became involved with the toxic principles of cycads at the suggestion of a U.S. Public Health researcher interested in the cause of amyotrophic lateral sclerosis (ALS) among the native Chamorans on Guam. This lead to studies on cycasin, which turned out not to be involved with ALS, but was shown to be the causative agent for a surprising incidence of colon cancer among native Guamanians. He isolated the actual causative agent, methyl azoxy methanol (MAM), the aglycone of cycasin. He did extensive research on MAM, reporting on its biochemical, physiological and toxicological effects. The discovery of the carcinogenic effects of cycasin and MAM, the first known naturally occurring carcinogen in a food plant, triggered the NIH and others to search for natually-occurring carcinogens, first in plants and then in other organisms. Matsumoto is survived by his wife, Hiroko, brothers, Miutsurs and Noburu, and a sister, Nellie Y. Matsudo.

Dr. Paul Por-Wen Hung (Ph.D. 1960, Axelrod) passed away on March 28, 2009, at 75 years of age. He left behind his wife of 52 years, Nancy Clark Hung; 3 children: Pauline Sundquist, Eileen Lambo, and Dr. Clark Hung; 7 grandchildren, 3 brothers, and 1 sister. Among his many awards, Dr. Hung was the Department of Biochemistry Distinguished Ag Alumnus in 1994 and in 2001, the Taiwanese - American Foundation awarded him the Science and Technology Laureate, an award considered by many to be the Taiwanese Nobel Prize. Dr. Hung published over 300 scientific articles, abstracts, and book chapters and was well known for his research in AIDS, genetic engineering, cancer and stroke treatment, and the molecular biology of cancer viruses. He held positions as the Head of the Molecular Virology and Biology Laboratory at Abbott Laboratories, General Manager of the Bethesda Research Laboratory, Associate Vice President of Research and Development and Director of the Microbiology Division at Wyeth-Ayerst Research Laboratories, and Director and Distinguished Research Fellow at VIRxSYS. He was instrumental in starting the biotechnological product development industry in Taiwan when he founded Global Biotech in Taipei to bring his ideas to the market. His research in infectious diseases lead to the development of the Abbott Diagnostic Division, development of the radio-immunoassay technique, and the introduction of recombinant DNA research to Abbott Laboratories. Dr. Hung believed he owed a large debt to America in exchange for the opportunities he found here. He provided service to the nation and the world in a number of ways. He served as a consultant to the United States Department of Defense, the United Nations and the United Nations Industrial Development Organization, and the National Institute of Health. He participated on the National Vaccine Advisory Board and was a consultant to the World Health Organization, a councilor of the National Health Research Institute of Taiwan, an advisor to the Minister of Health in Taiwan, and a member of the Presidential Council of Purdue University.

Publications

2008

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Silverstroni, A., K.A. Jewell, W.J. Lin, J.E. Connelly, M.M. Ivancic, **W.A. Tao**, L. Rajagopal. 2009. Identification of serine/threonine kinase substrates in the human pathogen group *B streptococcus*. *J. Proteome Res*. 8: 2563-2574.

Grants

Scott Briggs (Co-PI), Showalter Trust, $75,000, 07/01/2007 – 06/30/2009, "Alterations in chromatin structure and embryonic origins."

Scott Briggs, National Institutes of Health, $1,325,951, 01/01/2006 – 12/31/2010, "The role of Set1-mediated methylation in chromatin function."

Nicholas Bonawitz, Life Sciences Research Foundation, $150,000, 08/01/2008 – 07/31/2011, "BAHD acyltranferases as a means to manipulate lignin biosythesis and optimize cellulosic bioethanol production," Post-doctoral fellowship for research in the laboratory of Clint Chapple.

Clint Chapple, US Department of Energy, $1,400,000, 09/01/2006 – 08/31/2009, "Manipulation of lignin biosynthesis to maximize ethanol production from Populus feedstocks."

Clint Chapple, US Department of Energy, $390,001, 09/01/2007 – 08/31/2010, "Phenylpropanoid metabolism in *Arabidopsis*: The role of REF4."

Clint Chapple, Global Climate and Energy Project, Stanford University, $1,930,000, 08/01/2008 – 07/31/2011, "Assembly of a lignin modification toolbox."

Clint Chapple, National Science Foundation, $468,000, 07/01/2005 – 03/31/2009, "Functional analysis of phenylpropanoid cytochrome P450-dependent monoxygenases."

Harry Charbonneau (Co-PI), Showalter Trust, $60,000, 07/01/2007 – 06/30/2009, "Cell cycle regulatory functions of the 14-3-3 protein family."

James Clemens, Indiana Clinical and Translocational Sciences Institute, $75,000, 05/01/2009 – 04/30/2010, "Identification of Ack selective inhibitors for the treatment of cancers arising from deregulated Ras signaling."

James Clemens, Esther A. & Joseph Klingenstein Fund Inc., $150,000, 07/01/2007 – 06/30/2010, "Dscam mediated control of neuronal connection specificity."

James Clemens, Alfred P. Sloan Foundation, $45,000, 09/16/2007 – 09/15/2008, "Research fellowship in neuroscience."

Frederick Gimble, PHS-NIH National Institute of General Medical Science, $675,019, 09/01/2005 – 02/28/2010, "Engineering DNA endonuclease reagents for gene targeting."

Mark Hall (Co-PI), Discovery Seed Grant, $50,000, 04/01/2009 – 03/31/2010, "A proteomic roadmap to the endogenous protein complexes of the endoplasmic reticulum in key plant species."

Mark Hall, Showalter Trust, $60,000, 07/01/2007 – 06/30/2009, "Cell cycle regulatory functions of the 14-3-3 protein family."

Mark Hall, National Science Foundation, $586,639, 06/01/2009 – 05/31/2012, "Regulation of the anaphase-promoting complex by pseudosubstrate inhibition."

Ann Kirchmaier, National Science Foundation, $493,000, 07/01/2007 – 06/30/2010, "Cell cycle inhibition of silencing in *S. cerevisiae*."

Xiaoqi Liu (Co-PI), National Cancer Institute, $201,300, 06/01/2009 – 05/31/2010, "Role of polo-like-kinase (Plk1) in hepatitis B virus-mediated hepatocellular carcinoma."

Xiaoqi Liu (Co-PI), Showalter Trust, $75,000, 07/01/2007 – 06/30/2009, "Role of polo-like-kinase (Plk1) in liver cancer development."

Xiaoqi Liu, National Cancer Institute, $614,652, 08/01/2006 – 05/31/2010, "Functional studies of Plk1 and its interacting proteins."

Sandra Rossie, Indiana Alzheimer Disease Center, $32,340, 07/15/2008 – 06/30/2009, "The role of protein phosphatases 5 in neurodegenerative disease processes."

W. Andy Tao, NIH Seattle Children's Research Institute, $137,250, 05/01/2009 – 04/30/2011, "Eukarytic-type signaling mediates two-component regulation of GBS virulence."

W. Andy Tao, NIH R21 Center for Research Resources, $560,357, 03/01/2009 – 01/31/2010, "Proteomic studies of dendrimer-based nanomedicines."

W. Andy Tao, NIH National Center for Research Resources, $968,680, 05/21/2009 - 05/20/2010, "Acquisition of a high resolution orbitrap mass spectrometer for analysis of protein modifications."

W. Andy Tao (Co-PI), National Cancer Institute, $1,611,051, 12/01/2006 – 11/31/2011, "Syk and associated proteins in breast cancer (revision)."

W. Andy Tao (Co-PI), Showalter Trust, $75,000, 07/01/2007 – 06/30/2009, "Novel proteomic approaches for early detection of metabolism."

W. Andy Tao, National Science Foundation, $541,593, 07/01/2007 – 06/30/2012, "CAREER: Soluble nanopolymers for targeted proteomics *in vitro* and in living cells."

W. Andy Tao, American Society for Mass Spectrometry, $25,000, 06/01/2006 – 05/31/2009, "Identification of drug targets based on dendrimer nanoprobes and mass spectrometry."

W. Andy Tao, 3M General Offices, $15,000/year, 04/01/2008 – 12/31/2010, "3M nontenured faculty grant."

W. Andy Tao (Co-PI), Lilly Seed Grant, $19,268, 01/01/2008 – 12/31/2008, "A dendrimer approach to the delivery of therapeutic phosphates and phosphorminetics."

Henry Weiner, National Institutes of Health, $1,413,743, 06/15/2004 – 05/31/2009, "Enzymology/molecular biology of aldehyde dehydrogenase."

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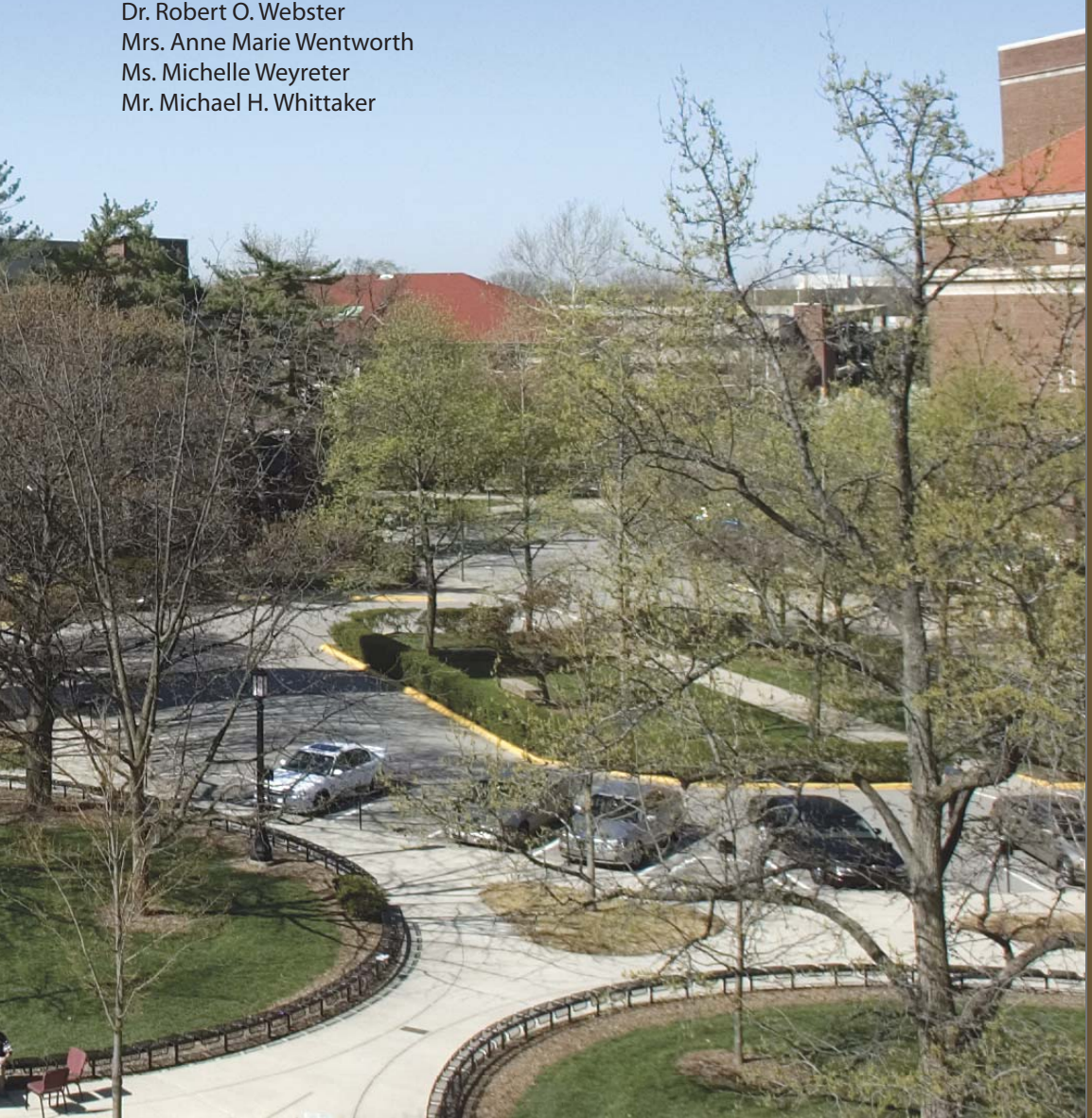

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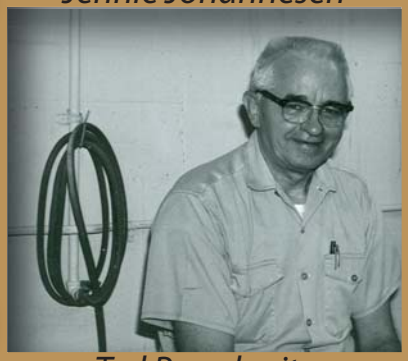

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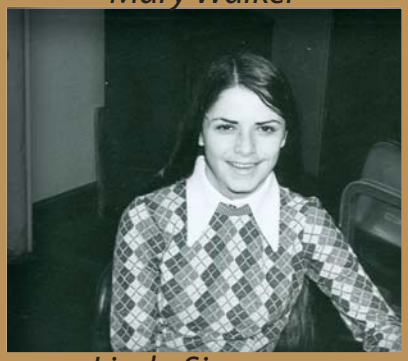

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