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Spring 2016

Number 45

Mudd IN YOUR EYE

Department of Chemistry • Lehigh University

Happy 150th Birthday, Chemistry Department!



Lehigh continues to celebrate its sesquicentennial, and who better to retell the history of the Chemistry Department than Professor Ned Heindel. Ned recently gave a lively talk in Neville to a packed auditorium of faculty, staff and students, including great stories of past Chemistry faculty and department chairs, with plenty of historical items on display each with a story of its own. Valuable products, such as fast drying paint, heat-stable chocolates, polymeric brush bristles, an automated gas analyzer, spreadable epoxys, enteric pharmaceutical coatings, jet-black calligraphic ink, a dehairing solvent for cow hides, and dozens of other fundamental discoveries have come from the Lehigh Chemistry Department over the last 150 years. In 1865, Chemistry was selected by the University's founders as one of the original five departments. As of this sesquicentennial year, more than 240

chemistry faculty have taught more than 8,500 majors who pursued 11 different chemistry curricula within the walls of classic Chandler and modern Mudd. There were plenty of personal stories of the department's many colorful characters. Visit go.lehigh.edu/chemistryhistory to read more about the history of the Lehigh University Chemistry Department.



Professor Heindel reflects on 150 years of Chemistry at Lehigh University.

Chemistry Faculty News



Awards

College of Arts and Sciences (CAS) faculty gathered in the Asa Packer Dining Room in the Lehigh's University Center on March 23 at the annual CAS Dean's Award dinner to recognize excellence in research, scholarship and creative activity, as well as awards for advising. Professor Robert Flowers (in photo above on left with Dean Hall on right) was one of the Faculty recognized on March 23rd. He received one of the Dean's awards for Research, Scholarship, and Creative Activity given by the College of Arts and Sciences.

Congratulations

2016-2017 Graduate Students
Department Fellowships

- Tesia Chciuk (Flowers Group)
- Sean Pidgeon (Pires Group)
- Sarah Plucinsky (Glover Group)

2016-2017 Honor Fellowship

- Long Xu (Vicic Group)

Mark Chen

Mark Chen presented a poster at the inaugural awards symposium for the Charles E. Kaufman Foundation in Pittsburgh, PA in the Fall of 2015. The poster entitled "Development of Molecular Biradicaloids for Organic Electronic Materials" described the ongoing projects in his lab currently being pursued by graduate students, Michael Kerner and Caleb Wehrmann. The Chen Lab has twice received summer support from the Lehigh Class of '68 Junior Faculty Research Fellowship, which assisted in research funding in 2015 and will do so again in 2016. As part of the Graduate Admissions and Advisory Committee, Mark also helped organize the first Graduate Admit Weekend in February 2016. This event allowed students admitted to the graduate program to visit the department, meet both current students and faculty, and for the entire department to socialize and enjoy a department-sponsored dinner at Fegley's Bethlehem Brew Works.

Greg Ferguson

Greg Ferguson and his group are exploring the behavior of anodic oxide films on gold. In addition to recent interest in these thin films for solar oxygen generation from water, they also provide a model system for fundamental studies of oxide layers on electrode surfaces. Recent studies in the group have revealed intriguing new insights into the decomposition of gold oxide in contact with electrolyte solution and showed that a standard electrochemical technique for quantifying oxide layers - measuring the cathodic charge required to reduce the film - does not provide a reliable method for quantification in this system. Their results are described in a recent paper: "Development of Cathodic Silence in an Oxide Film on a Gold Electrode", R.G.P. Giron and G.S. Ferguson, *Electrochimica Acta* **2015**, 180, 560–563. The group is currently extending this work to examine the underlying processes responsible for "cathodic silence," and to explore the scope of its relevance in other systems.

Robert Flowers

Robert Flowers gave lectures at Messiah College, The U.S. Air Force Academy, and Lebanon Valley College entitled: "Unraveling the Mechanism of Single-Electron Transfer in Synthetic Reactions." His group published four papers during the last several months: "Proton Coupled Electron Transfer in Reductions of Arenes by Sml_2 -Water Complexes" (with graduate student Tesia Chciuk) in the *Journal of the American Chemical Society*, "Tuning the Redox Properties of the Titanocene(III)/(IV)-Couple for Catalysis in Single Electron Steps" (with Andreas Gansauer, University of Bonn) in *Dalton Transactions*, "The Origin and Prediction of Free-Solution Interaction Studies Performed Label-Free" (with Darryl Bornhop, Vanderbilt University) in *Proceedings of the National Academy of Sciences*, and "ADAM17 Inhibitors Attenuate Corneal Epithelial Detachment Induced by Mustard Exposure" (with Ned Heindel and colleagues at Rutgers) in *Investigative Ophthalmology & Visual Science*. He also has a book chapter in press entitled: "The Role of Solvents and Additives in Reactions of Samarium Diiodide and Related Reductants" (with graduate student Tesia Chciuk) in *Science of Synthesis*.

Jebrell Glover

The Glover lab published two papers, one in *Biophysical Journal* and one in *Biochemica biophysica acta*.

Ned Heindel

Lehigh professor Ned D. Heindel, research scientists Christophe Guillon, Geraldine Guillon, Robert Rapp and former graduate students Angela Hunter and Thomas Finetti are co-inventors on a U. S. Patent (# 9,290,484) issued March 22, 2016. The patent is entitled "Furyl and Thienyl Triazoles and Therapeutic Uses Thereof" claims composition of matter, process, and utility of *N*-aminotriazole imines as anti-bacterial pharmaceuticals for treatment of toxic shock syndrome.

Heather Jaeger

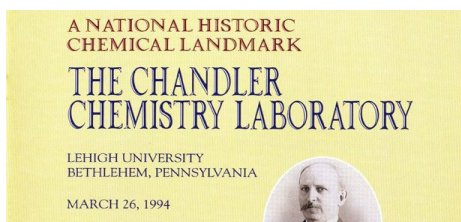
Spring of 2016 has proven to be a fruitful time for Heather Jaeger. With the establishment of computing resources and the addition of a group member, the first set of data suitable for publication is being generated. In addition to her group's effort to characterize electronic properties of exotic polymers, she has joined in a collaborative effort to investigate ion transport in 2D-layered materials. She has also developed a course on computational chemistry, complete with computational "experiments."

Recent publications by the Landskron group include:

Kai Landskron

"Experimental and theoretical investigation of a mesoporous K_xWO_3 material having superior mechanical strength" Dey, S.; Anderson, S.T.; Mayanovic, R.A.; Sakidja, R.; Landskron, K.; Kokoszka, B.; Mandal, M.; Wang, Z.W. *Nanoscale* **2016**, 8, 2937-2943.

"A high-pressure synthesis of hydrothermally stable periodic mesoporous crystalline aluminosilica materials" Mandal, M.; Manchanda, A.S.; Liu, C.; Fei, Y.W.; Landskron, K. *RSC Advances* **2016**, 6, 7396-7402.



Read the pamphlet (left) about Lehigh's historic Chemistry Building at acs.org

Watch the Youtube video on the "History of Chandler-Ullmann" at <https://youtu.be/1eHWIn7Q8TE>



Welcome

Jennifer Cummings (Undergraduate and Graduate Coordinator) started in the Chemistry department as the Academic Coordinator in September 2015 and transitioned to the Undergraduate and Graduate Coordinator in December 2015. Jennifer and her family moved to the Lehigh Valley in 2013 from upstate New York. In her free time, Jennifer enjoys baking, leading her daughter's Girl Scout Troop and binge watching NCIS on Netflix.

Nathan Wittenberg will be joining the Department of Chemistry in the Fall of 2016. Nate comes from the University of Minnesota, where he is a Research Assistant Professor in the Laboratory of Nanostructures and Biosensing in the Department of Electrical and Computer Engineering. He received his B.S. in Chemistry from the University of Minnesota, and his Ph.D. in Chemistry from Penn State University. Nate's research interests are in bioanalytical chemistry, particularly as it can be applied to neuroscience and biological interfaces. The Wittenberg lab will use optical methods to investigate lipid-protein interactions, including interactions between glycolipids and molecules that can stimulate or inhibit neuron growth. His group will also develop new analytical methods for subcellular analysis using fluorescence and electrochemical techniques in microfluidic platforms.



Professor Nathan Wittenberg joins the Chemistry Department this Fall.

Faculty News

Marcos Pires

Marcos Pires continues to leverage the synthetic organic skills of his research team to elucidate critical steps in the biosynthesis of bacterial cell walls and to construct a novel immuno-therapy for bacterial infections. **Marcos** has been busy promoting his research program by giving seminars at Syracuse University, SUNY – Stony Brook, Rutgers University, University of Delaware, Purdue University, and Penn State University. He recently attended an NSF CAREER Workshop in which he was able to interact with several program officers from NSF (and some from NIH as well). **Marcos** is in the midst of arranging an after school program with officials and educators at the nearby Broughal Middle School. The program is due to start in spring of 2016 and it will entail a weekly session of students from grades 6-8. Participants of the program will receive training and exposure to various aspects of chemistry, physics, and biology, with a special emphasis on various research themes from his research group. The **Pires Group** has been featured on the April edition of ACS Infectious Diseases. Read the article at <http://pubs.acs.org/toc/aidcbc/current>. In 2016, **Marcos** was awarded the ACS Infectious Disease Young Investigator Award.

Steve Regen

The **Regen** group published the following publications:

Yi, S.; Lin, C.; Regen, S. L. "Splaying Hyperthin Polyelectrolyte Multilayers To Increase Their Gas Permeability", *Chem. Commun.* **2015**, 51, 1439-1441. Wang, C.; Krause, M. R.; **Regen, S.L.**, "Push and Pull Forces in Lipid Raft Formation: The Push Can Be As Important As the Pull", *J. Am. Chem. Soc.* **2015**, 137, 664-666.

Mukai, M.; Krause, M. R.; **Regen, S. L.** "Peptide Recognition of Cholesterol in Fluid Phospholipid Bilayers", *J. Am. Chem. Soc.* **2015**, 137, 12518-12520.

Janout, V.; Schell, W. A.; Thevenin, D.; Yu, Y.; Perfect, J. R.; **Regen, S. L.** "Taming Amphotericin B", *Bioconjug. Chem.* **2015**, 26, 2021-2024.

Mukai, M.; **Regen, S. L.** "Exchangeable Mimics of DPPC and DPPG Exhibiting Similar Nearest-Neighbor Interactions In Fluid Bilayers", *Langmuir* **2015**, 31, 12674-12678.

Lin, C.; Yi, S.; **Regen, S. L.** "Consequences of Tacticity on the Growth and Permeability of Hyperthin Polyelectrolyte Multilayers", *Langmuir* **2016**, 32, 375-379.

Dmitri Vezenov

The **Vezenov** group has co-authored papers "Specifics of selective wetting of some metal substrates and their oxides" in *Polymer Research Journal* and, in collaboration with Pires group, "Metabolic-based profiling of bacteria via unnatural C-terminated D-amino acids" in *Angewandte Chemie International Edition*.

Professors of Practice

Dr. Rebecca Miller was featured as one of the 25 Impressive Women Who Have Changed Lehigh as part of the 25th Birthday Party Celebration at Lehigh's Women's Center this spring.

Congratulations

Congratulations to our Lab Manager **Denise Beautreau** (shown at right helping a student) on being awarded the Alfred Noble Robinson Exempt & Non-Exempt Staff Award which recognizes outstanding performance in service to the University. **Denise** was also awarded the Club/Organization Advisor of the Year for her advising work with Alpha Chi Sigma, the Chemistry Fraternity and the Lehigh chapter of National Society of Black Engineers.



Welcome

Christine Kreschollek (Faculty Coordinator) while new to the Chemistry Department is not new to Lehigh, holding the position as Coordinator for 3 years with the Chaplain's Office before being hired in February.

Running, biking, gardening, taking classes and snapping photos are some of the few things Christine finds herself doing in her free time.

Research at Lehigh

Damien Thévenin published a research article in the *Biochemical Journal*, "Down-regulation of PAR1 activity with a pHLIP-based allosteric antagonist induces cancer cell death" and Kelly Burns (*Biochem J.* **2015**, 472(3), 287–95). The research group has two additional articles out for review. Their research efforts were featured in Lehigh Fall 2015 Bulletin (<http://www1.lehigh.edu/news/cancer-research-team-hits-its-target>) as well as in the 2015 Lehigh University Annual Report (<http://www.lehigh.edu/annualreport/index.html>). Thévenin gave a series of invited talks at the University of Florida, University of Delaware, West Virginia University and the University of Kansas. Thévenin was also awarded a R21 grant for the National Cancer Institute of the NIH focused on determining how a receptor protein tyrosine phosphatase physically interacts with itself and with the epidermal growth factor receptor, and how these interactions affect EGFR tyrosine phosphorylation. Thévenin also received a Faculty Grant for International Connections for Developing Strong ties between Lehigh University and the University of Toulouse, France.



Professor Damien Thevenin and other professors discuss the importance of research and its impact at Lehigh University. View Research at Lehigh <https://youtu.be/zaF7zpMmNj0>.



Damien Thévenin, assistant professor of chemistry, and Ph.D. candidate Kelly Burns are developing a system that delivers anti-cancer drugs exclusively to cancer cells based on the relative acidity of their environments. Read more about Professor Thevenin's research at

http://www.lehigh.edu/~inis/pdf/researchreview/Lehigh_Research_Review.pdf



Photos: Christa Neu

Jim Roberts

The 31 year old computer network in the Mudd building is finally being replaced. By sometime this summer, every office and lab should have multiple access points to the new network capable of shuttling data at 10 Gbit/second, although the initial servers being installed will only handle 1 Gbit/second. Jim Roberts has been acting as liaison between both the design and construction teams and the building residents. During the design phase, building residents were asked to mark optimal network jack locations. When the design team visited, some locations were changed in consultation with the people working in each room. To install the new network, over 900 cables will be installed above the drop ceilings from a server room on the fourth floor to every room in Mudd. There will be close to 50 wireless stations as well, so there should be no dead spots anywhere. Of course, drilling through the concrete brick walls is noisy, but most of that work is being done before 8:45 AM. Each cable will be tested, and then a single "cutover" date will be set. Finally, the old network will be removed.



"What's with the red Xs?" were asked by those visiting the Mudd building. Jim Roberts has been working with contractors this spring to provide Mudd with High Speed LAN.



Chemistry Publications

Emeritus Faculty

- “Optical Absorption Anisotropy of High-Density, Wide-Gap, High-Hardness SiO₂ Polymorphs Seifertite, Stishovite and Coesite” by **K. Klier**, J.A. Spirko and K.M. Landskron, *Am. Mineral.* **2015**, 111, 256-263.
- The Landskron Group in conjunction with **Dr. Kamil Klier** has published “Thermodynamically Controlled High-Pressure High - Temperature Synthesis of Crystalline Fluorinated sp³- Carbon Networks” *J. Phys. Chem. C.* **2015**, 119, 26086-26090.
- “Thermodynamically controlled high-pressure high-temperature synthesis of crystalline fluorinated sp³-carbon networks,” by **K. Klier** and K.M. Landskron, *J. Phys. Chem. C.* **2015**, 119, 26086-26090.

Alumni Research

- Hayden T. Ravert (Ph.D. 1982) was lead author on “Microwave-Assisted Radiosynthesis of [¹⁸F]ASEM, a 7-Nicotinic Acetylcholine Receptor Antagonist,” which appeared in the February 2015 issue of the *Journal of Labelled Compounds and Radiopharmaceuticals*. Hayden is a Senior Research Scientist in radiochemistry at the Johns Hopkins Medical Institutions.

Photo Gallery



Professor Flowers and alumni gather for the Annual Alumni Research Group

Scenes from the First Day of Classes and Summer Scholar Chemists
Photos: Christa Neu

We've gone GREEN

Lehigh University's Sustainable Office Program is a voluntary, self-guided program created for faculty and staff to take the lead on promoting environmental practices in the workplace. The department completed the certification process this fall, answering survey questions that addressed day-to-day behaviors. After review by the Office of Sustainability, the Department of Chemistry was certified silver by the program.



Important Dates



Alumni Weekend

Registration
Is Open

Closing the
Sesquicentennial

Celebrating
All-Alumni Weekend

May 20-23, 2016

to register and
learn more go to

mylehigh.lehigh.edu/alumniweekend

David Vicić

David Vicić has given invited lectures at Brown University, NYU, University of Rochester, and University of Cincinnati. He also presented an invited talk at the 251st ACS Meeting in San Diego. David attended a symposium for Samir Zard's 60th birthday, held at L'Ecole Polytechnique in Palaiseau, France. David worked as an undergraduate researcher in Sam's lab the summer before entering graduate school in 1994. A picture of them together for this event is shown at right. David co-authored the following articles: "Accessing Perfluoroalkyl Nickel(II), (III), and (IV) Complexes Bearing a Readily Attached $[C_4F_8]$ Ligand" in *Dalton Transactions* (this article was highlighted on the cover of the issue); "Triphenylphosphine-Mediated Deoxygenative Reduction of CF_3SO_2Na and its Application for Trifluoromethylthiolation of Aryl Iodides" in *Chemistry - A European Journal* (this article was highlighted on the frontispiece of the issue); "Direct Difluoromethylation of Aryl Halides via Base Metal Catalysis at Room Temperature" in *Journal of the American Chemical Society*; and "A Versatile Route to Arylated Fluoroalkyl Bromide Building Blocks" in *Organic Letters*. In 2016, David was elected as a Fellow of the Royal Society of Chemistry.



David Vicić (left), Martin Poelert (middle), and Samir Zard (right), at Sam's house in Gif-sur-Yvette, France to celebrate Sam's 60th birthday.

Xiaoji (George) Xu

Xiaoji "George" Xu presented two invited colloquiums at West Virginia University and Boston College. He also presented a talk at the American Physical Society meeting in San Antonio. Dr. Xu has published a research article in *Nature Communications* titled "Scattering-type scanning near-field optical microscopy with reconstruction of vertical interaction" with student Ms. Le Wang. Other co-authored articles include *The Journal of Physical Chemistry Letters* titled "Near-Field Infrared Pump-Probe Imaging of Surface Phonon Coupling in Boron Nitride Nanotubes" and an article in *Journal in Physical Chemistry C* titled "Defects and Deformation of Boron Nitride Nanotubes Studied by Joint Nanoscale Mechanical and Infrared Near-Field Microscopy". He has received the Class of '68 Research Fellowship and Faculty Research Grant from Lehigh University for summer 2016.

Congratulations

William Chandler Prize

Senior Jasmine Singh
Junior Gabrielle Dardis
Sophomore Kaitlin Dyson

Harry M. Ulmann Chemistry Prize

Nicholas Watanabe

American Chemical Society Award

Alexis Watanabe

American Inst. of Chemists Award

Anthony Iacoviello

Merck Index Award

Jordy Salcedo

ACS Inorganic Chemistry Award

Shane Klumpp

ACS Organic Chemistry Award

Tyler Sloan

**Alpha A. Diefenderfer Award/
ACS Analytical Chemistry
Award**

Julia Nelson

Biochemistry Award

Colin Smith

Hypercube Scholar Award

Michelle Mazzeo

Welcome

Eric Moore (Director of Instrumentation) was hired in October of 2015. Prior to joining the Chemistry Department he was a Postdoc at the National Institute of Health. His area of expertise is in Nuclear Magnetic Resonance and Scientific Instrumentation. He finds his interactions with the students and faculty members in the department to be the best part of the job. In his free time, Eric enjoys hiking and traveling.

Chemistry Alumni News

Thomas A. Brettell, MS of 1975, was the guest speaker on “Emerging Psychoactive Drugs: A Societal Challenge” at the February 18th meeting of the Lehigh Valley ACS Section. Tom, who was a Drew University BS and a Villanova PhD, spent his career as a forensic chemist for the State Police of New Jersey. He retired as Director of Forensic Science and joined the faculty of Cedar Crest College, where he teaches and conducts research in analytical methods useful in criminalistics.

Jose Santiesteban, (PhD '89) was elected to National Academy of Engineering. Read more at <http://www1.lehigh.edu/news/lehigh-phd-wins-top-engineering-honor>

Caprice Hightower (MS 2010) has joined West Pharmaceuticals as a Senior Technical Account Specialist aka Technical Customer Service Representative. She was trained on West's many products and services and now works outside of the lab and in cross functionally with Regulatory Affairs, Quality, Sales/Marketing, R&D and Supply Chain. Caprice and husband, Vernon Pitts, are parents of Noah Pitts born in December 2014.

David P. Pursell (MS and MA, 1987) writes how he looks back fondly on his Lehigh years (1985-1987, M.S. and M.A.), but also remembers they were filled with hard work and great faculty and classmates. In coming to Lehigh, he took a break from his Army career to earn graduate degrees in chemistry and science education before joining the U.S. Military Academy at West Point faculty as a chemistry instructor. At Lehigh, he studied primarily in the P-Chem area and did his research project on coatings for tin in the lab of Henry Leidheiser. He also did a master's project in science education with Al Castaldi. David taught general chemistry at West Point from 1987-1990. He then rejoined the field Army for 8 years of operational assignments and was fortunate to be selected to complete Ph.D. studies at the University of Pennsylvania in preparation for a follow-on assignment at West Point. He earned a Ph.D. in chemical physics at Penn under Hai-Lung Dai, now provost at Temple University. He then joined the faculty at West Point for a second time and taught in several areas of chemistry before retiring from the Army in 2006. After the Army, David Pursell became Executive Director of the Penn Chemistry Department. He left Penn in 2007 to help start a new public 4 year college in the University System of Georgia. David Pursell was the first Associate Dean of Science and Technology at Georgia Gwinnett College and is currently Professor of Chemistry. He still corresponds with Jim Sturm about chemistry and laments Lehigh changing the mascot from Engineers to Mountain Hawks!

Stay in Touch

Lehigh Chemistry alumni can be found all across the globe making their degrees work for them. Your Lehigh Department of Chemistry would like to stay in touch. We love hearing about where your degree has taken you! Send your success stories, professional or personal, throughout the year to ctk213@lehigh.edu

Great grandson, Judson C. Smull, of **Professor Judson Smull, Sr.** has received the American Institute of Chemists Foundation Award. Judson G. Smull, one of the department's longest-serving colleagues, arrived in 1902, retired in 1950, and died in 1978 at the age of 96. “Jud” first enrolled for the undergraduate degree of A.C. (Analytical Chemist) but when the department launched the B.S. he switched and was in the first graduating class (1906). He took an M.S. in Organic Chemistry and stayed on as a Research Scientist and then as a faculty member retiring with the rank of Associate Professor. Jud's research was in oil-based paints. Jud's son, grandson, and great grandson all went to Lehigh. The latest member of the line, Judson C. Smull, a Lehigh senior in Chemical Engineering, was just awarded the American Institute of Chemists Outstanding Student Award for demonstrated ability, leadership, and professional promise. Jud-the-first would be proud although he might say to his descendant, “But why weren't you a chemist?”

Retired director of International Marketing for Specialty Metals (International Nickel Corp, Huntington, West Virginia), **Thomas F. Lemke (PhD 1968)**, was named to the Board of Governors of the New River Community and Technical College (Beaver, WV). Tom and his wife Sally live in Daniels, WV.

Gary K. Smith (Ph.D. 1978) Notes: At Lehigh University, I worked under Dr. Stephen Schaffer on the folding of bovine seminal RNase and earned the PhD in chemistry in 1978. After leaving Lehigh, I was a postdoctoral research fellow from 1978 – 1981 in the laboratory of Stephen J. Benkovic at The Pennsylvania State University. In his laboratory, I worked on avian glycineamide ribonucleotide transformylase (GAR TFase). I was able to demonstrate that the previously published and accepted enzyme mechanism and reaction cofactor were incorrect and established identity of true cofactor. We used this information to discover potent inhibitors of the enzyme as potential anti-cancer agents.

On June 27, 1981, I married Jane Gretsche in State College, PA. On that day, I accepted an employment offer from Burroughs-Wellcome, RTP, NC. They hired me to continue some of the antifolate drug discovery work and to work on the biosynthetic pathway to another pteridine, tetrahydrobiopterin. The latter molecule is important in the biosynthesis of adrenaline and serotonin, and we were interested in determining if a regulator of the pathway could be a therapeutic. Our early work showed that the previously published and accepted biosynthetic pathway was incorrect. We showed that the tetrahydropteridine moiety formed from GTP without the need of an outside reducing agent via an internal redox reaction and were able to identify true biosynthetic intermediates. The antifolate work continued for 15 years with GAR TFase and thymidylate synthase (TS) as targets. A TS inhibitor, 1843U89, made it to the clinic and showed interesting responses, but the compound was sold to another company who did not develop it. During this time, we were one of the early groups interested in chemotherapy induced apoptosis, an important mechanism of cell death. We showed that both GAR TFase and TS inhibitors kill cells via apoptotic mechanisms, but importantly, TS inhibitors were far more effective killers. GAR TFase inhibitors largely produced reversible cell stasis and limited kill. This observation led us and other groups to abandon pure GAR TFase inhibitors for cancer therapy since strong cell kill is critical in cancer. Burroughs-Wellcome was purchased by Glaxo in 1995. I stayed with the new company, GlaxoWellcome, and continued work on apoptosis.

In 2001, GlaxoWellcome merged with SmithKlineBeecham to form GlaxoSmithKline. From 2003 to 2006, I was Co-Chair of Kinase Target Class Committee. In this international, cross division role, I directed, defended and was accountable for GSK world-wide kinase inhibitor research. This included development of the strategy, working with multiple therapeutic area leaders to discover and act on new kinase targets, appointing and leading GSK's international kinase expert core team, working with local scientists to initiate and execute new and ongoing kinase programs, and ensuring program progress within timelines. The programs within the kinase target class identified new kinase targets, hits, leads and drug candidates for a variety of kinases and therapeutic areas.

In 2007, the company reorganized away from the target class model, and I was promoted to Director, Department of Screening and Compound Profiling. In this role, I led teams of biological assay experts to develop and run high throughput assays to discover and develop therapeutic agents targeting a wide variety of enzymes and receptors. Throughout my career, I proposed, initiated, led, progressed, defended and (as warranted by science or strategy) terminated a number of research and discovery programs toward cancer, metabolic and muscle wasting disease therapeutics. In 2013, I retired from GSK as a scientific leader in biochemistry and translational biology with 32 years of experience in R&D combined with extensive knowledge of drug discovery chemistry and biology and proven success in therapeutic target discovery followed by ligand discovery for target validation and lead development or target invalidation and termination. My research interests include drug discovery and development, translational biology, kinases, proteases, other targets, antifolates, myostatin and signaling-based therapeutics.

In Memory

Bruce Charles Locke (BS 1983) died October 8, 2015; he was 54. Bruce did his senior honors research with Professor Heindel, took a PhD in organic chemistry at the University of Chicago and completed a postdoctorate at the University of Pennsylvania. He worked briefly in industrial chemical research but soon embraced his real love, the designing and writing of code for interactive video games. Bruce was employed by Yager Development GmbH in Berlin, Germany, the firm which brought SpecOps and Dreadnought to the video games marketplace. When Bruce was in the United States he enjoyed participating in drills and mock combat as a Revolutionary War reenactor with the 59th Regiment.

Fund a New Project

Donations represent an important part of our continuing efforts to create a state-of-the-art environment for teaching and research at Lehigh. Your donations can also fund student research and travel, which is important in the global workplace. The Chemistry Department has created an internet link so that monetary donations can be made hassle-free online at:

<http://mylehigh.lehigh.edu/ChemistryGifts>

Donations to the Department through traditional pathways can still be made through Lehigh's Advancement Office. Please contact the Department Chair if you are interested in funding specific projects.



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