

UNIVERSITY OF MINNESOTA

College of Pharmacy

Driven to Discover™

## DEPARTMENT OF MEDICINAL CHEMISTRY

### 2009 ANNUAL REPORT



717 DELAWARE STREET SOUTHEAST  
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## Department of Medicinal Chemistry 2009 Annual Report

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**From the  
Department  
Head**

In 2009, the Department continued its pattern of growth and excellence. Sixty-nine graduate students called the department home this year, including eleven graduate students from the Department of Chemistry and five from the University of Kansas. Thirty-eight postdoctoral fellows, fifteen research staff, and thirty-two faculty and adjunct faculty members rounded out the departmental head count. This year we were again very successful with our graduate student recruiting efforts. Ten first-year graduate students joined our program in the fall.

The Philip S. Portoghese Endowed Chair in Neuroscience was established. The search for this position is underway and we anticipate hiring a senior faculty member for this position during the coming year.

Members of our faculty again received special recognitions this year. Professor Robert Vince was elected to the Academic Health Center's Academy of Excellence in Health Research. The AHC Academy for Excellence in Health Research serves as the highest recognition of excellence in AHC faculty research. Honorees are chosen for their "many contributions to the quality of the University of Minnesota through sustained nationally and internationally recognized health-related research in their field."

Our Department continues to evolve. Dr. Daniel A. Harki joined us as an Assistant Professor, following our efforts to recruit a junior faculty member with expertise in cancer experimental therapeutics. Assistant Professor Chengguo Xing was promoted to Associate Professor with tenure, based on his outstanding record of research, teaching, and service. However, we lost Assistant Professor Shana J. Sturla, who was recruited as an Associate Professor with tenure to an Endowed Chair in the Department of Agricultural and Food Sciences at the ETH in Zürich, Switzerland.

The Biomedical and Life Sciences Division (DBIO) of the Special Libraries Association recognized the Journal of Medicinal Chemistry in 2009 as one of 100 most influential journals in the last 100 years in Medicine and Biology. The award, delivered in conjunction with the centennial of the DBIO, was the result of polls compiled by the 680-plus DBIO members and three panels of experts.

This year we held a Gisvold Symposium on Natural Products and Antibacterial Drug Discovery. This event and the 47<sup>th</sup> MIKI meeting, that took place here in Minneapolis, were the highlights of the 2009 academic year.

Medicinal Chemistry faculty obtained significant external research grant support during the past year. The University was recently selected for a leading role in the National Cancer Institute's newly formed Chemical Biology Consortium, a collaborative drug discovery partnership focused on discovering and developing new drugs to fight cancer. Based on its expertise in drug discovery and development and strong history of cancer research, the U was chosen as a Chemical Diversity Center, one of only four sites in the country to be awarded this designation.

The Institute for Therapeutics Discovery and Development (ITDD) continues to expand its personnel and research portfolio. Check out the ITDD movie on the ITDD website: <http://www.pharmacy.umn.edu/itdd/>. Dr. Peter I. Dosa joined the ITDD this year, coming from Arena Pharmaceuticals in San Diego where he worked on neuroscience research.

As our Department grows, we look forward to continuing our significant ongoing research and more exciting developments in drug development and discovery.



Gunda I. Georg  
Professor and Department Head  
Department of Medicinal Chemistry

**Mission Statement**

The mission of the Department of Medicinal Chemistry is to educate and train scientists of the highest caliber, to provide future pharmacy practitioners with the basis for understanding the relationships between molecular structure and drug action, and to achieve and perpetuate excellence in medicinal chemistry through chemical and biological research for the improvement of human health.

**Teaching and Service**

During 2009, Medicinal Chemistry faculty members offered professional and graduate courses and were recognized for quality teaching and dedication to students.

**Robert A. Fecik** received the Grand Council Deputy of the Year for Kappa Psi Pharmaceutical Fraternity, Kappa Psi National Award.

**David M. Ferguson** was awarded Teacher of the Semester for Fall 2009 by PharmD I students.

**Rory P. Remmel** and **Chengguo (Chris) Xing** were honored by PharmD III students: Dr. Remmel was named Professor of the Year for 2009, and Dr. Xing was named Professor of the Semester for Fall 2009.

Faculty also gave of their time to numerous committees, representing service to the Department, the University, the College of Pharmacy, national and professional organizations and government agencies. Additionally, faculty served as reviewers for professional journals and as grant reviewers for governmental panels.

**2009 Graduate Courses**

Principles of Biomolecular Simulation (MEDC 5185)

The New Drug Development Process (MEDC 5200)

Research and Development Process of Pharmaceutical Products (MEDC 5202)

Introduction to Drug Design (MEDC 5245)

Advanced Methods in Quantitative Drug Analysis (MEDC 5494)

Vistas in Medicinal Chemistry Research (MEDC 5495)

General Principles of Medicinal Chemistry (MEDC 5700)

General Principles of Medicinal Chemistry (MEDC 5710)

Medicinal Chemistry Seminar (MEDC 8100)

Design of Chemotherapeutic Agents (MEDC 8500)

Chemical Aspects of Drug Metabolism and Bioactivation (MEDC 8600)

Advanced Concepts in Drug Design (MEDC 8700)

Design of Peptidomimetics (MEDC 8760)

Medicinal Chemistry Laboratory Techniques (MEDC 8800)

Research in Medicinal Chemistry (MEDC 8900)

**2009  
Professional  
Courses**

Medical Microbiology and Immunizations (PHAR 6141)  
Biochemistry of Medicinals I (PHAR 6151)  
Biochemistry of Medicinals II (PHAR 6152)  
Medicinal Agents I (PHAR 6154)  
Medicinal Agents II (PHAR 6155)  
Medicinal Agents III (PHAR 6156)  
Human Nutrition and Drug Therapy (PHAR 6157)  
Pharmaceutical Immunology and Biotechnology (PHAR 6159)  
PharmD IV Seminar (PHAR 6182)  
PharmD IV Paper (PHAR 6183)  
Pharmacology I (PHCL 5101)  
Pharmacology II (PHCL 5102)

**Progress and  
Transitions**

In 2009, the Department was home to sixty-nine graduate students, thirty-eight postdoctoral fellows, and thirty-two faculty and adjunct faculty members. With the addition of Dr. **Daniel A. Harki**, there are eighteen tenure and tenure track faculty in the Department.



Incoming graduate students with Medicinal Chemistry faculty members

**Institute for  
Therapeutics  
Discovery and  
Development**

In 2009, the Institute initiated new research projects, and provided services to the scientific community of the University of Minnesota and beyond.

The Institute's medicinal chemistry expertise expanded with the joining of Dr. **Peter I. Dosa**, a former industrial medicinal chemist, as an Assistant Program Director.

The Institute's scientific capabilities became the basis for the newly created Center for Chemical Diversity, NCI Chemical Biology Consortium. The goal of the Center is to perform translational research in medicinal chemistry for the NCI.

The ITDD also initiated a University-wide survey of drug discovery and development scientific projects. The resulting list of over one hundred projects allowed the Institute to initiate a discussion of how the University can use its translational capabilities, mainly those of the Institute, to move the most attractive potential therapies to the clinic and

ultimately to make them available to the American public.

The Institute continued its various scientific collaborations with the Mayo Clinic. In January, the ITDD started a new collaboration on a yeast paraganglioma project funded by the Minnesota Partnership for Biotechnology and Medical Genomics.

In 2009 the Institute introduced a full line for developing and manufacturing biotherapeutic proteins in collaboration with the BioTechnology Institute and the Mayo Clinic. Dr. **Christopher Stenland**, a former industrial protein chemist, joined the Institute to run the operations.

The Institute continues its collaboration with industry by engaging in projects for small pharmaceutical companies and foundations.

### Faculty Recognition

**Elizabeth A. Amin**'s article, "Energies, Geometries, and Charge Distributions of Zn Molecules, Clusters, and Biocenters from Coupled Cluster, Density Functional, and Neglect of Diatomic Differential Overlap Models," was listed as a most-read article in the *Journal of Chemical Theory and Computation* in 2009.

**Peter I. Dosa** was hired as Assistant Program Director of the Institute of Therapeutics Discovery and Development.

**Gunda I. Georg** presented "Alzheimer's Disease and Tubulin-binding Agents: A Potential New Therapeutic Approach" at Ohio State University, for the College of Pharmacy Distinguished Lecture Series, April 15.

**Gunda I. Georg** is the PI of a new grant from the National Cancer Institute (NCI) with the participation of several faculty members from the Department and the ITDD. The NCI selected the University as partner in the Chemical Biology Consortium (CBC), a collaborative drug discovery partnership focused on the discovery and development of cancer therapeutics active against novel molecular and genetic cancer targets. Other consortium partners include the Burnham Institute for Medical Research, Emory University, Georgetown University, the NIH Chemical Genomics Center, the Southern Research Institute, SRI International, the University of California - San Francisco, the University of North Carolina, the University of Pittsburgh, and Vanderbilt University.

**Daniel A. Harki** joined the Department in July as an Assistant Professor of Medicinal Chemistry.

The Biomedical and Life Sciences Division (DBIO) of the Special Libraries Association named the *Journal of Medicinal Chemistry* "one of the hundred most influential Medicine and Biology journals in the last hundred years." Professor **Philip S. Portoghese** is the editor-in-chief of the journal, which is housed in the Department of Medicinal Chemistry. The award, delivered in conjunction with the centennial of the DBIO, is the result of polls compiled by the 680-plus DBIO members and three panels of experts.

**Shana J. Sturla** and several of her lab members moved to ETH Zürich, the Swiss Federal Institute of Technology, in November 2009. Dr. Sturla is now an Associate Professor in the Department of Agricultural and Food Sciences.

The Academic Health Center elected **Robert Vince** to the Academy of Excellence in Health Research. Inaugurated in 2003, the Academy for Excellence in Health Research serves as the highest recognition of excellence in AHC faculty research. Honorees are chosen for “contributions to the quality of the University of Minnesota through sustained nationally and internationally recognized health-related research in their field.”

**Chengguo (Chris) Xing** was promoted to Associate Professor with tenure in 2009.

### Editorial Activities

Professor **Philip S. Portoghese** is the Editor-in-Chief of the *Journal of Medicinal Chemistry*. Professors **Yusuf J. Abul-Hajj** and **Steven S. Hecht** are serving as senior editors of that journal.

Professor **Carston R. Wagner** is Associate Editor of *Molecular Pharmaceutics*.

Professor **W. Thomas Shier** is the Editor of *Toxins Review*.

### Research Highlights

In 2009, the faculty produced seventy-nine publications. In addition, the Department was represented at numerous conferences through oral and poster presentations.

### Gisvold Symposium

The 2009 Gisvold Symposium brought together five experts to discuss the theme of Natural Products and Antibacterial Drug Discovery. The symposium was held October 27, 2009.

**Courtney C. Aldrich**, Center for Drug Design, University of Minnesota. *Inhibition of Natural Product Biosynthesis*.

**Robert A. Fecik**, Department of Medicinal Chemistry, University of Minnesota. *Affinity Labels for Understanding the Basis of Specificity in Polyketide Synthase Domains*.

**Kenneth A. Jacobson**, Bioorganic Chemistry, National Institutes of Diabetes and Digestive and Kidney Diseases. *Drug Design Based on Purine and Pyrimidine Receptors*.

**Natalie C. J. Strynadka**, Department of Biochemistry and Molecular Biology, University of British Columbia. *Structure-Based Inhibition of the Glycosyltransferase and Transpeptidase Steps in Bacterial Peptidoglycan Synthesis*.

**Laura L. Kiessling**, Department of Biochemistry and Chemistry, University of Wisconsin – Madison. *Chemical Probes of Carbohydrate Biosynthesis in Mycobacteria*.

### Seminars

The Department of Medicinal Chemistry (MC) and Institute for Therapeutics Discovery & Development (ITDD) offered many seminars in 2009.

**James Thompson**, Department of Physiology & Biomedical Engineering, Mayo Clinic College of Medicine. *Dihydrolipoamide Dehydrogenase, a Drug Discovery Target for Friedreich's Ataxia*, January 16 (ITDD).

**Mark Tomai**, New Business Development & Program Management, 3M. *The Utility of TLR 7/8 Agonists as Therapeutics*, January 30 (ITDD).

**Bjorn Bauer**, Department of Pharmacy Practice & Pharmaceutical Sciences, University of Minnesota – Duluth. *P-glycoprotein and the Sacred Disease: New targets to treat drug-resistant epilepsy*, February 13 (ITDD).

**Nicole S. Sampson**, Department of Chemistry, Stony Brook University. *Romping with ADAMs and Cyclobutenes: From fertilization to antibacterials*, February 17 (MC).

- Jeffrey Aubé**, Department of Medicinal Chemistry, University of Kansas. *Libraries Inspired by Natural Products and Peptides*, February 27 (ITDD).
- Edward L. Loechler**, Department of Biology, Boston University. *Y-Family DNA Polymerases: Their role in bypassing DNA damage and causing mutations and cancer*, March 3 (MC).
- Christine Salomon**, Center for Drug Design, University of Minnesota. *Targeting Cryptic Biosynthetic Pathways in Microbes to Discover Novel Natural Products*, March 13 (ITDD).
- Zigang Dong**, The Hormel Institute, University of Minnesota – Austin. *Molecular Targets for Skin Cancer Prevention*, March 14 (MC).
- Brian Kobilka**, Medicine, Molecular & Cellular Physiology, Stanford University. *Structure and Dynamics of the Human Beta 2 Adrenergic Receptor*, April 7 (MC).
- Sarah Grimwood**, Neuroscience Translational Biomarkers Group, Pfizer, Inc. *Translational Biomarkers in Neuroscience Drug Discovery*, April 10 (ITDD).
- Peter Bernstein**, Lead Optimization Chemistry, AstraZeneca Pharmaceuticals. *The Challenge of CNS Drug Discovery: 5-HT<sub>1B</sub> ligands as potential agents for the treatment of anxiety and depression*, April 24 (ITDD).
- Peter J. Tummino**, Cancer Research, GlaxoSmithKline Pharmaceuticals. *Impact of Drug-Enzyme Target Residence Time on the Development of Novel Cancer Therapies*, May 5 (MC).
- Lemont Kier**, Department of Medicinal Chemistry, Virginia Commonwealth University. *Models of Ligand Diffusion over Protein Surfaces, General Anesthesia, and Sleep*, May 8 (ITDD).
- Yuan-Ping Pang**, Department of Molecular Pharmacology & Experimental Therapeutics, Mayo Clinic. *New Approaches to Reactivators and Inhibitors of Acetylcholinesterase*, May 22 (ITDD).
- Allen E. Rettie**, Department of Medicinal Chemistry, University of Washington. *DYP4 Enzymes: Diverse roles in xenobiotic bioactivation and disease*, September 15 (MC).
- Vasu Nair**, Department of Pharmaceutical & Biomedical Sciences, University of Georgia. *Drug Discovery Against Retroviruses: The quest for inhibitors of HIV integrase*, October 6 (MC).
- Carmelo J. Rizzo**, Department of Chemistry, Vanderbilt University. *Formamidopyrimidine (Fapy) Lesions from Initial N7-Alkylation of Deoxyguanosine*, October 13 (MC).
- Janet L. Smith**, Life Sciences Institute, University of Michigan. *Structure-Function of the Remarkable Polyketide Synthase for Curacin A Biosynthesis*, November 3 (MC).
- Glenn D. Prestwich**, Department of Medicinal Chemistry, The University of Utah. *Engineered Extracellular Matrices for Regenerative Medicine and Drug Evaluation*, November 17 (MC).

### MIKI Meeting 2009

Held annually since 1963, the **MIKI** “meeting in miniature” is the oldest and most successful regional meeting in medicinal chemistry. From April 3 through 5, 2009, our students hosted the 47<sup>th</sup> Annual MIKI meeting, which brought together 216 students, postdocs, and professors from the medicinal chemistry programs at the Universities of



Minnesota, Iowa, Kansas, and Illinois at Chicago. The meeting was a day and a half symposium that focused on formal research presentations by the graduate students, who in addition organized and moderated the entire meeting. Aaron Teitelbaum (3<sup>rd</sup> Year Graduate Student) and Jin Zhou (5<sup>th</sup> Year Graduate Student) co-chaired the meeting and along with a motivated organizing committee, raised \$20,250 to support the symposium activities. The faculty advisor was Professor **Rory P. Remmel**. The social events included a Friday night mixer held at The Science Museum of Minnesota in St. Paul and a Saturday night formal banquet at Windows on Minnesota, which overlooks the skyline of downtown Minneapolis from the 50<sup>th</sup> floor of the IDS Tower. Dr. **Dale L. Boger** from The Scripps Research Institute was invited as the honorary



keynote speaker, and his address featured the discovery and evaluation of inhibitors of fatty acid amide hydrolase. Following the keynote presentation, students were able to showcase their own research at a poster session that included a total of 65 posters. Overall, the 47<sup>th</sup> annual MIKI Meeting was again successful in bringing together the midwestern academic medicinal chemistry community and continued to provide an opportunity for graduate students to present their research.

The MIKI 2009 Sponsors included AAPS, ACS Medicinal Chemistry, ACS Minnesota, Abbott Laboratories, Biotage, Bristol-Myers Squibb, Bruker BioSpin, Century Mortar Club (University of Minnesota), Chemglass, Eli Lilly & Co., Fisher Scientific, Teledyne Isco, Pfizer Inc., ThalesNano, University of Minnesota Student Groups, Varian Inc., Vertex Pharmaceuticals, and Wyeth Pharmaceuticals.

### Research Grants (Fiscal Year 2009)

National Institutes of Health	\$	4,528,937
Other:	\$	850,048
Total:	\$	5,378,985

### New Faces



**Peter I. Dosa** joined the Institute for Therapeutics Discovery and Development in June 2009. He graduated from Princeton University in 1995, where he performed undergraduate research in the laboratory of Professor Jeffrey Schwartz. In 1998, Peter received a M.S. degree from MIT, where he developed asymmetric organozinc additions to ketones. He then moved to the University of California, Berkeley, where he worked with Professor Peter Vollhardt studying the synthesis and properties of linear and angular [N]phenylenes. After receiving his Ph.D. in chemistry in 2002, Peter joined Arena Pharmaceuticals in San Diego. At Arena, Peter worked on several research programs focused on developing small molecule 5-HT<sub>2A</sub> inverse-agonists and 5-HT<sub>2C</sub> agonists. One of the compounds Peter helped discover at Arena, the anti-thrombotic agent APD791, recently successfully completed Phase I clinical trials. Peter also participated in Arena's programs involving

lorcaserin (which recently finished Phase III clinical trials for obesity reduction) and APD125 (which finished a Phase II study for sleep enhancement).

Now part of the ITDD, Peter is pursuing the development of prodrugs to improve the properties of known pharmaceutical agents and is designing CNS therapeutics with improved safety profiles compared to existing drugs.

**Daniel A. Harki** received his early training at West Virginia University, graduating *magna cum laude* with a B.A. in biology and chemistry in 1999, where he was inducted into Phi Beta Kappa. Later that year Dan began his graduate studies in chemistry at The Pennsylvania State University working on the development of synthetic, antiviral nucleosides in the laboratory of Professor Blake Peterson. In 2005, Dan earned his Ph.D. in chemistry and subsequently began his postdoctoral studies at the California Institute of Technology under the direction of Professor Peter Dervan. During four years at Caltech, Dan worked on projects focusing on the solution-phase synthesis and *in vivo* imaging of DNA-binding pyrrole-imidazol polyamides. In the summer of 2009, Dan began his independent academic career, joining us here in the Department of Medicinal Chemistry at the University of Minnesota. His laboratory is focused on the discovery of small molecule anticancer therapeutics, with a particular interest in compounds targeting proteins and enzymes involved in DNA replication. Dan has received a number of awards, including fellowships from the American Heart Association, the Friedreich's Ataxia Research Alliance, and the California Tobacco-Related Disease Research Program. At the University of Minnesota, Dan is a Principal Investigator of the Minnesota Supercomputing Institute and a Member of the Masonic Cancer Center.



**Sarah Johnson Sexton** joined the ITDD business office at 717 Delaware in May 2009 as an Executive Office and Administrative Specialist. Sarah is a University of Minnesota graduate who has worked in several University units, including the Department of Art and School of Statistics, before joining the College of Pharmacy in May 2007. She splits her time between the departments of Pharmaceutics and Medicinal Chemistry. Sarah's responsibilities include compiling and editing the Medicinal Chemistry Annual Report.

## Commencement Ph.D.

- Swapna Bhagwanth**.....Ph.D., December 2009 .....Advisor: Johnson  
*Synthetic Approaches Toward Azabicyclic and Azaspirobicyclic Scaffolds Relevant to Peptide Conformation Control*
- Melissa Goggin** .....Ph.D., September 2009 .....Advisor: Tretyakova  
*Formation, Persistence, and Repair of 1,2,3,4-Diepoxybutane-Induced Bifunctional DNA Adducts in Tissues of Rodents Exposed to 1,3-Butadiene by Inhalation*
- Rebecca Guza** (Biochemistry) .....Ph.D., August 2009.....Advisor: Tretyakova  
*Effects of Sequence Context on the Formation and Repair of DNA Adducts*
- Li-Kai Liu**.....Ph.D., January 2009 .....Advisor: Hanna  
*Studies on Human Arylamine N-Acetyltransferases*

- Xiaodan (Kathy) Liu** .....Ph.D., October 2009 .....Advisor: Sturla  
*Natural Products and Their Derivatives in Cancer Prevention and Therapy: Inositol Phosphates and Illudin S*
- Brian White** .....Ph.D., November 2009 .....Advisor: Wagner  
*Toward Therapeutic Nanoassemblies: The Design and Modeling of Protein-Protein Interactions*
- Siyi Zhang**.....Ph.D., July 2009    Advisor: Hecht  
*Analysis of Pyridyloxobutyl and Pyridylhydroxybutyl DNA Adducts in Extra-Hepatic Tissues of Rats Treated with Tobacco-Specific Nitrosamines*
- M.S. Heidi Dahlmann** (Chemistry).....M.S., December 2009 .....Advisor: Sturla  
*Synthesis of Englerin A and Analogues*
- Hailey Gahlon**.....M.S., December 2009        Advisor: Sturla  
*Understanding p53 Regulation: Post-Translational Modification Affects at the DNA Binding Domain and Binding to its Negative Repressor hDM2*
- Lei Meng**.....M.S., September 2009 .....Advisor: Hecht  
*Quantitation of N2-Ethylidene-dGuo in Human Leukocyte DNA of Singapore Chinese Women and the Effect of Wok Cooking*
- Kathryn Pietsch**.....M.S., December 2009 .....Advisor: Sturla  
*Chemical Aspects of Acylfulvene Bioactivation to a Cytotoxic Reactive Intermediate*



### New & Continuing Members

#### Faculty & Administrative Staff, Department of Medicinal Chemistry, Fall 2009

Front Row: Sara Wajeih, Mary Crosson, Andrea Knickerbocker, Gunda Georg, Rory Rimmel, Tom Shier, Joyce Reha  
Back Row: Sarah Sexton, Michael Walters, Elizabeth Amin, Robert Fecik, Vadim Gurvich, Natalia Tretyakova, Robert Vince, Barry Finzel, Daniel Harki, Dave Ferguson, Peter Dosa, Philip Portoghese  
Not Pictured: Yusuf Abul-Hajj, Patrick Hanna, Derek Hook, Rodney Johnson, Rick Wagner, Chengguo Xing.

### Faculty

**Gunda I. Georg**.....Department Head & Professor; Director, Institute for Therapeutics Discovery & Development (ITDD); Robert Vince Endowed Chair & McKnight Chair

**Rodney L. Johnson** .....Associate Department Head & Professor

**Carston R. Wagner**.....Director of Graduate Studies & Professor

Yusuf J. Abul-Hajj.....	Professor
Elizabeth A. Amin .....	Assistant Professor
Frank E. DiGangi.....	Professor Emeritus
Peter I. Dosa .....	Assistant Program Director, ITDD
Earl W. Dunham .....	Associate Professor
Robert A. Fecik.....	Associate Professor
David M. Ferguson .....	Professor
Barry C. Finzel.....	Professor
Vadim J. Gurvich .....	Research Assistant Professor; Associate Director, ITDD; Director, ITDD Chemical Process Development
Patrick E. Hanna .....	Professor
Daniel A. Harki.....	Assistant Professor
Derek J. Hook .....	Research Professor; Director, ITDD High Throughput Screening
Herbert T. Nagasawa.....	Professor Emeritus
Philip S. Portoghese.....	Distinguished Professor
Rory P. Remmel .....	Professor
W. Thomas Shier.....	Professor
Marilyn K. Speedie.....	Dean, College of Pharmacy; Professor
E. John Staba.....	Professor Emeritus
Shana J. Sturla .....	Assistant Professor
Natalia Y. Tretyakova .....	Associate Professor
Robert Vince .....	Professor; Director, Center for Drug Design (CDD)
Michael A. Walters.....	Research Associate Professor; Director, ITDD Lead & Probe Discovery
Chengguo Xing.....	Associate Professor

**Adjunct Faculty**

Courtney C. Aldrich.....	Research Associate Professor, CDD
Mark D. Distefano .....	Professor, Department of Chemistry
Stephen S. Hecht .....	Professor, Wallin Chair in Cancer Prevention
Thomas R. Hoye .....	Professor, Department of Chemistry
Krzysztof W. Pankiewicz.....	Research Professor; Associate Director, CDD
Lisa A. Peterson .....	Professor, Environmental Health Sciences

**Research Staff**

Eyup Akgun .....	Research Associate, Portoghese Lab
Ramappa Chakrasali .....	Research Associate, Georg Lab
Sudhakar Jakkraj .....	Research Associate, Georg Lab
Sinthuja Kanagarajah.....	Junior Scientist, Gurvich Lab
Lev Lis .....	Research Associate, Gurvich Lab
Mary Lunzer .....	Scientist, Portoghese Lab
Brock Matter .....	Scientist, Tretyakova Lab
Michael Powers.....	Scientist, Portoghese Lab
Aravind Ragipindi.....	Research Associate, Finzel Lab
Subhashree Rangarajan.....	Research Associate, Walters Lab
Mary Smart .....	Laboratory Manager, Georg Lab
Jonathan Solberg.....	Assistant Scientist, Hook Lab
Jessica Strasser .....	Assistant Scientist, Walters Lab
Defeng Tian .....	Research Associate, Hook Lab
Timothy Ward.....	Research Associate, Georg Lab

**Administrative Staff**

Caitlin Boley.....	Office Assistant
Mary Crosson.....	Executive Office & Administrative Specialist

Sandy Dewing.....Associate Administrator, Journal of Medicinal Chemistry  
 Andrea Knickerbocker .....Administrative Coordinator  
 Joyce Reha .....Executive Secretary  
 Sarah Johnson Sexton .....Executive Office & Administrative Specialist  
 Marilee Tuite.....Executive Office & Administrative Specialist,  
 Journal of Medicinal Chemistry  
 Sara Wajeesh .....Executive Office & Administrative Specialist

**Graduate  
Students**

Theresa Aliwarga.....Advisor: Rimmel  
 Sanaa Bardaweel.....Advisor: Wagner  
 Karen Beckman (KU).....Advisor: Georg  
 Adam Benoit .....Advisor: Ferguson  
 Swapna Bhagwanth .....Advisor: Johnson  
 Lei (Luke) Bi (KU).....Advisor: Georg  
 Alexander Brandt .....Advisor: Wagner  
 Cindy Choy.....Advisor: Wagner  
 Heidi Dahlmann (Chem) .....Advisor: Sturla  
 Ran Dai .....Advisor: Wagner  
 Sonia Das.....Advisor: Xing  
 Trinh (Amy) Doan .....Advisor: Georg  
 Curtis Engelhart.....Advisor: Aldrich  
 William Fiers .....Advisor: Fecik  
 Hailey Gahlon.....Advisor: Sturla  
 Amit Gangar .....Advisor: Wagner  
 Bryant Gay .....Advisor: Georg  
 Melissa Goggin.....Advisor: Tretyakova  
 Xingxian (Wayne) Gu (KU) .....Advisor: Georg  
 Rebecca Guza (Biochem).....Advisor: Tretyakova  
 David Hermanson .....Advisor: Xing  
 Kwon Ho (John) Hong .....Advisor: Georg  
 Yan Jia (Chem) .....Advisor: Wagner  
 Thomas Johnson .....Advisor: Xing  
 Annapurna (Anu) Kamineni .....Advisor: Shier  
 Kriangsak Khownum (KU) .....Advisor: Georg  
 An Na Kim .....Advisor: Georg  
 Jin Woo Kim.....Advisor: Georg  
 Yook Wook Kim (Chem).....Advisor: Georg  
 Srikanth Kotapati.....Advisor: Tretyakova  
 Rahul Lad .....Advisor: Sturla  
 Eric Leggans (Chem).....Advisor: Fecik  
 Anja Lesaja.....Advisor: Wagner  
 Qing Li (Chem) .....Advisor: Wagner  
 Shui Li .....Advisor: Wagner  
 Wei Li (Chem).....Advisor: Georg  
 Yang Li .....Advisor: Fecik  
 Li-Kai Liu.....Advisor: Hanna  
 Xiodan (Kathy) Liu.....Advisor: Sturla  
 Frank Maistrovich .....Advisor: Ferguson  
 Lei Meng.....Advisor: Hecht  
 Erin Michaelson-Richie.....Advisor: Tretyakova  
 Kathryn Michalski .....Advisor: Aldrich  
 Xun Ming.....Advisor: Tretyakova

Micah Niphakis (KU)	Advisor: Georg
Jolanna Norton	Advisor: Sturla
Satish Patil (Chem)	Advisor: Georg
Michael Peterson	Advisor: Fecik
Martin Phillips	Advisor: Peterson
Kathryn Pietsch	Advisor: Sturla
Adwait Ranade	Advisor: Georg
Dewakar Sangaraju	Advisor: Tretyakova
Kari-Ann Schuett	Advisor: Wagner
Hajime Seki (Chem)	Advisor: Georg
Uthpala Seneviratne (Chem)	Advisor: Tretyakova
Vivek Srinivasan	Advisor: Georg
Jaeson Steele	Advisor: Fecik
Nicholas Struntz	Advisor: Harki
Aaron Teitelbaum	Advisor: Rimmel
Sreedhar Tummalapalli	Advisor: Georg
Dan Wang	Advisor: Harki
Susith Wickramaratne (Chem)	Advisor: Tretyakova
Brian White	Advisor: Wagner
Ajay Yekkirala (Pharmacol)	Advisor: Portoghese
Yiyun Yu (Chem)	Advisor: Georg
Siyi Zhang	Advisor: Hecht
Xia Zhang	Advisor: Amin
Jin Zhou	Advisor: Rimmel
Xin (Cece) Zhou	Advisor: Wagner

### Postdocs and Fellows

Dennis Brown	Fecik
Padma Chitpepu	Ferguson
Ting-Lan Chiu	Amin
Rebecca Cuellar	Georg
Matthew Cuellar	Wagner
Teresa De la Mora-Rey	Finzel
Jignesh Doshi	Portoghese
Adrian Fegan	Wagner
Rawle Francis	Hook
Todd Geders	Finzel
Rajan Giri	Ferguson
Tianshun Hu	Harki
Irfan Javed	Portoghese
Vishweshwer Rao Katta	Georg
Delshanee Kotandeniya	Tretyakova
Brandie Kovaleski	Wagner
Sidath Kumarapperuma	Wagner
Morgan Le Naour	Portoghese
Jae Chul Lee	Georg
Matthew Leighty	Georg
Bhaskar Malayappan	Tretyakova
Fred Meece	Harki
Matthew Metcalf	Portoghese
Satyendra Mishra	Johnson
Krishnaveni Neelam	Georg
Amber Onorato	Fecik

Bhooma Raghavan.....	Fecik
Subhashree Rangarajan.....	Georg
Ahmad Ari Shaik .....	Xing
Rohit Singh.....	Vince
Balasubramanian Srinivasan.....	Xing
Murali Subramanian .....	Rommel
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Defeng Tian .....	Hook
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Richard Wood .....	Amin

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Our Development Director Robert Busch will work with you and will answer any questions that you might have. He can be reached by e-mail, [busch110@umn.edu](mailto:busch110@umn.edu), or phone, 1-866-437-0012.

Faculty  
Publications  
2009

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