

Indispensable News

MinneCeutics

PHARMACEUTICS FACULTY

William F. Elmquist
 Carolyn A. Fairbanks
 Karunya K. Kandimalla
 Hongbo Pang
 Jayanth Panyam
 Henning Schroeder
 Ronald A. Siegel
 Changquan Calvin Sun
 Raj G. Suryanarayanan
 Timothy S. Wiedmann

AFFILIATE FACULTY

Aktham Aburub, *Eli Lilly & Co.*
 Walid M. Awni, *AbbVie*
 Richard C. Brundage, *Experimental & Clinical Pharmacology, University of Minnesota*
 Lester R. Drewes, *Biochemistry & Molecular Biology, University of Minnesota-Duluth*
 Virginia Ghafoor, *University of Minnesota Medical Center*
 Michael D. Karol, *Synta Pharmaceuticals*
 Purna Kashyap, *Mayo Clinic College of Medicine*
 David A. Largaespada, *Genetics, Cell Biology & Development, University of Minnesota*
 Z. Jane Li, *Pharmaron*
 Mukesh Pandey, *Radiology, Mayo Clinic College of Medicine*
 Swayam Prabha, *Experimental & Clinical Pharmacology, University of Minnesota*
 Theresa M. Reineke, *Chemistry, University of Minnesota*
 Jann N. Sarkaria, *Radiation Oncology, Mayo Clinic*
 Ronald J. Sawchuk, *professor emeritus*
 Evgeniy Y. Shalaev, *Allergan*
 Robert Thorne, *Denali Therapeutics*
 Chun Wang, *Biomedical Engineering, University of Minnesota*
 Zheng Yang, *Bristol-Myers Squibb*
 Joseph A. Zasadzinski, *Chemical Engineering & Materials Science, University of Minnesota*
 Cheryl L. Zimmerman, *professor emeritus*

From the Department Head

Greetings Dear Friends!

With temperatures dropping and trees bursting into a riot of color, a change of seasons is upon us. For most, this change brings about an emotional duality. At the same time we mourn the passing of another summer, we decorate our homes in anticipation of coming celebrations.

Such is the case for many transitions and the one facing our department is no exception. As many of you may have heard, I accepted the position of Dean of Temple University School of Pharmacy where I will start on November 1st. While I eagerly anticipate this new phase of my career, I also relish the incredible journey that I have taken with the students, staff, and faculty here at the University of Minnesota College of Pharmacy. Many of you have become like family over the last twelve years that I've called Minnesota home. I am proud of how much we have grown together.



For growth to be sustainable, change is necessary. The pooled knowledge and combined efforts that has brought our program international renown will only keep us at the cutting edge of pharmaceutical research if we continue to evolve, and I am confident that will happen. Our department's unique strength has always been in the depth and diversity of its areas of expertise, gained through years of transformation and the contributions of high-caliber faculty, researchers, and students.

To celebrate these contributions, I invite you to join us at this year's University of Minnesota Alumni Breakfast to be held from 7:00 to 8:00 a.m. on November 4th in Travis AB room, located on the third floor of the Grand Hyatt San Antonio in Texas. Our featured alumna speaker will be Dr. Devalina Law, a senior research fellow in the Research and Development division at AbbVie.

In regards to the transition timeline, Dean Lynda Welage will nominate an interim department head within the next six to eight weeks and Dr. Changquan Calvin Sun has graciously accepted to lead as acting department head until that time. Once the interim department head is established, an official public search for a permanent department head will commence. Your suggestions and nominations for candidates are welcomed and encouraged.

Thank you all for your valuable feedback throughout the years and I hope you stay invested as the department goes through this transition, and into the future, as your voices are vital to our narrative.

As always, I hope to see many of you at various professional meetings and invite you to stop by for a visit if you're in the Minneapolis or Philadelphia areas. To reach me via email, you can contact me at jayanth.panyam@temple.edu starting on November 1st.

Until we meet again,

Jayanth Panyam, PhD

Professor and Department Head

Alumni News

Gautham Gampa, PhD [2019], joined the Preclinical and Translational Pharmacokinetics and Pharmacodynamics (PTPK) group at Genentech in South San Francisco, California as an Associate Scientist in March 2019.

Nagdeep Giri, PhD [2008], and **Naveed Shaik**, PhD [2008], visited with current members of the Elmquist Lab in September 2019.



Mak Jawadekar, PhD [1982], was honored with an Inspirational Achiever Award by the Raising Awareness of Young Women with Autism (RAYWA) Foundation in New York City, New York in November 2018. RAYWA is committed to providing vocational and educational resources to women with autism. He was recognized by US Representative Todd Rokita (Indiana) for his decades of dedication to the discovery of new drugs and global leadership.



Vidhi Khanna, PhD [2019], joined the Biocon Bristol-Myers Squibb Research Centre in Bangalore, India as a Research Investigator in September 2019.

Jee Eun Lee, PhD [2008], presented a special guest seminar to the College of Pharmacy in June 2019 titled *The Role of Pharmacometrics in Regulatory Decision Making: Dose Optimization Examples*. She is currently the Head of Research and Early Development at GC Pharma, Republic of Korea.

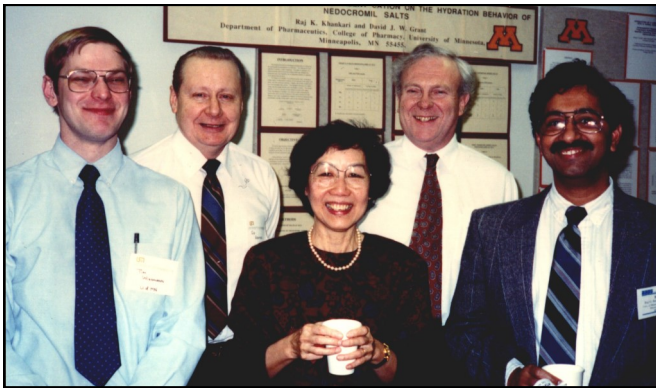
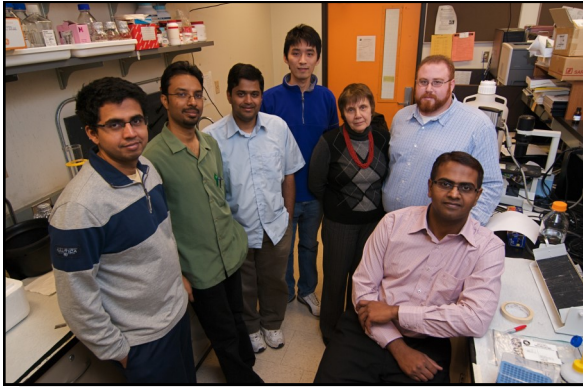
Zhihong Li, MS [2003], PhD [2007], is now working at Eucure (Beijing) Biopharma Co., Ltd. as Vice President of Regulatory Affairs, Chief Regulatory Officer. Eucure Biopharma is an innovation-driven biotechnology company based in China with a global perspective. Built upon a team of experts with extensive clinical development experience, Eucure's mission is to develop innovative drugs with in-house intellectual property rights. Eucure is committed to solving unmet clinical needs for global patients. With a focus on immunotherapy, Eucure has constructed a promising research and development pipeline for more than ten targets. As of 2019, the clinical pipeline of Eucure comprises of two submitted investigational new drug (IND) applications in the US, three IND applications in the submission process, and one candidate in development.

Jiawei Wang, MS [2019], was admitted to the University of Texas at Austin Division of Molecular Pharmaceutics and Drug Delivery doctorate program starting fall 2019.

Send your alumni news and pictures to
[pceuts@umn.edu!](mailto:pceuts@umn.edu)

Alumni News

A Blast from the Past!



From the Director of Graduate Studies

Dear Friends and Colleagues,

This year is the last of my five-year appointment as the Director of Graduate Studies (DGS) and the second year for Professor Kandimalla as the Associate DGS. We anticipate sweeping changes within the department as Professor Panyam will be leaving the department soon to join Temple University as Dean of their School of Pharmacy. Moreover, Professor Wiedmann, as you may have already learned, is on a phased retirement. As such, we are preparing to recruit new faculty members in the near future. At this juncture though, it is important to pause and reflect on our traditions, values, and commitments. Particularly, we need to think about how to harness changing winds to further the reputation of our department and graduate program, which we have built with pride, passion, and perseverance.

When we review applicants during each admission cycle, it is clear that the reputation of our graduate program has been steadily growing. While we are able to accept the best and brightest applicants each year, we unfortunately, due to financial constraints, have to deny admission to many equally talented applicants who demonstrate genuine interest and commitment to scientific research. It takes about quarter of a million dollars to train a single PhD scholar. Hence, despite the high degree of success enjoyed by the Pharmaceutics faculty in securing grants from federal agencies, industry, and foundations, we are able to maintain only a relatively small PhD program of about 25 students. However, the increased enrollment in our Master's program over the last four years has been a welcomed expansion to our graduate program. Currently, we have 17 students in our Master's program. These students have helped to enliven our graduate classes as well as contribute well-trained and motivated applicants to not only our PhD program, but also to graduate programs at peer universities.

Training graduate students is financially and intellectually very challenging, yet immensely rewarding. It is inspiring and gratifying to see the dedication and commitment of our Pharmaceutics faculty and staff to graduate education. However, we cannot succeed by walking the journey alone. Our program needs your help and support to position itself as one of the best, if not the best, in the nation. We invite you to be more actively involved by communicating with our students and faculty, sharing your expertise through presenting a guest seminar or teaching in a course, serving as a mentor to our graduate students, and getting involved with collaborative research. Please take some time to communicate with our Pharmaceutics family through our department's [LinkedIn](#), [Facebook](#), and [Twitter](#) accounts.

In the coming years, we have an immense opportunity to induct bright minds into the Pharmaceutics faculty. These new faculty members will significantly affect our research, teaching, and service missions. The Pharmaceutics program has the potential to be very different from what it is today and we encourage you to participate in these changes. If you or someone you know is considering an academic career, please do not hesitate to let us know. Together, let us ensure that our reputation as the preeminent Pharmaceutics program in the nation is sustained.

We look forward to seeing many of you at the UMN Alumni Breakfast on November 4th at the AAPS PharmSci 360 annual meeting in San Antonio, Texas. We also hope you will join us for the 5th David Grant Symposium on Solid-State Pharmaceutics which will be held June 28-30, 2020 at the University of Minnesota-Twin Cities campus. Until then, stay warm and healthy.

Sincerely,

Changquan Calvin Sun, PhD

Professor and Director of Graduate Studies

Karunya Kandimalla, PhD

Associate Professor and Associate Director of Graduate Studies



Graduate Student News



Degrees Earned in 2018-2019

Jiangnan Dun, PhD

Thesis: *Particle Engineering Strategies to Improve Flow and Compaction Properties of Pharmaceutical Powders*

Advisor: Professor Changquan Calvin Sun

Gautham Gampa, PhD

Thesis: *Improving the Delivery of Novel Molecularly-Targeted Therapies for the Treatment of Primary and Metastatic Brain Tumors*

Advisor: Professor William Elmquist

Shenye Hu, PhD

Thesis: *Effects of Hydration on Solid-State and Mechanical Properties of Organic Compounds*

Advisor: Professor Changquan Calvin Sun

Xueyao Hu, MS

Thesis: *Nanoclay Crosslinked pH-Sensitive Hydrogel for Rhythmic Hormone Delivery*

Advisor: Professor Ronald Siegel

Vidhi Khanna, PhD

Thesis: *Antibodies in Cancer Therapy: New Targets, Applications, and Combination Strategies*

Advisor: Professor Jayanth Panyam

Minjee Kim, PhD

Thesis: *Delivery and Efficacy of Targeted Therapeutics and Imaging Agents for Brain Tumors*

Advisor: Professor William Elmquist

Sibo Liu, MS

Thesis: *Sweet Sulfamethazine Acesulfamate Crystals with Improved Compaction Property*

Advisor: Professor Changquan Calvin Sun

Kelsey Renee Pflapsen, PhD

Thesis: *Modulating Maladaptive Neuroplasticity Associated with Glutamatergic Signaling Using Viral Gene Therapy and Novel Small Molecules*

Advisor: Professor Carolyn Fairbanks

Davin Rautiola, PhD

Thesis: *Two-Part Reactive Formulations for Intranasal Delivery of Benzodiazepines*

Advisor: Professor Ronald Siegel

Zhongyang Shi, MS

Thesis: *Solid-State Characterization and Engineering of Two Antihistamine Drugs: Loratadine and Desloratadine*

Advisor: Professor Changquan Calvin Sun

Jayesh Sonje, MS

Thesis: *Mannitol as a Potential Cryoprotectant in Frozen and Freeze-Dried Formulations*

Advisor: Professor Raj Suryanarayanan

Jiawei Wang, MS

Thesis: *Formulation Effects on Immune Response to Nanocarriers Encapsulating TLR7 Agonist*

Advisor: Professor Jayanth Panyam

Lushan Wang, MS

Thesis: *Modulating Insulin Signaling and Trafficking in the Blood Brain Barrier Endothelium Using Lipid Nanoparticles*

Advisor: Professor Karunya Kandimalla

Ling Zhu, MS

Thesis: *An Assessment of Forcite Approaches in Predicting Young's Modulus from Crystal Structure*

Advisor: Professor Changquan Calvin Sun

2019-2020 Graduate Fellowship Recipients

The *David J.W. Grant and Marilyn J. Grant Fellowship in Physical Pharmacy* is awarded to students whose research is focused in physical pharmacy. This year **Hongbo Chen** (advisor: Professor Changquan Calvin Sun) was selected to receive this award.

The *Edward G. Rippie Fellowship in Pharmaceutics* is awarded to students with a consistent and outstanding academic record. This year **Surabhi Talele** (advisor: Professor William Elmquist) was selected to receive this award.

Graduate Student News

The *Ronald J. Sawchuk Fellowship in Pharmacokinetics* is awarded to a graduate student whose research is focused in pharmacokinetics. This year **Andrew Zhou** (advisor: Professor Karunya Kandimalla) was selected to receive this award.

The *Theodore H. Rowell Fellowship* is awarded to graduate students who have completed at least two years of study in a pharmaceutical sciences program with preference given to students interested in nutrition or drug delivery systems. This year **Andrew Zhou** (advisor: Professor Karunya Kandimalla) was selected to receive this award.

The *Biruta K. and Peter A. Olsteins Graduate Fellowship* is awarded to a full-time College of Pharmacy graduate student in good academic standing who has completed at least two years of study working toward a PhD and exhibits exceptional potential in their field. This year **Hongbo Chen** (advisor: Professor Changquan Calvin Sun) was selected to receive this award.

The *3M Science and Technology Fellowship* is awarded to a promising student with interests in drug development. This year **Joan Cheng** (advisor: Professor Changquan Calvin Sun) was selected to receive this award.

The *Dr. Paul B. Myrdal Memorial Pre-Doctoral Fellowship in Pharmaceutics* is awarded by the American Foundation for Pharmaceutical Education (AFPE) to students who possess the skill and aptitude to become outstanding scientists and leaders. This year **Andrew Zhou** (advisor: Professor Karunya Kandimalla) was selected to receive this award.

Welcome New Students!

Joan Cheng

PhD advisor: Professor Changquan Calvin Sun

- Bachelor of Science in Chemistry, Emory University

Ishaan Duggal

MS advisor: Professor Ronald Siegel

- Bachelor of Pharmacy, Panjab University

Chenxu Li

MS advisors: Professors Karunya Kandimalla and Timothy Wiedmann

- Bachelor of Science in Pharmaceutical Analysis, Shenyang Pharmaceutical University

Sanjana Nair

MS advisor: Professor Karunya Kandimalla

- Bachelor of Pharmacy, Vivekanand Education Society's College of Pharmacy

Tvisha Shah

MS advisor: Professor Chun Wang

- Bachelor of Pharmacy, Gujarat Technological University

Jayesh Sonje

PhD advisor: Professor Raj Suryanarayanan

- Master of Science in Pharmaceutics, University of Minnesota Twin Cities
- Master of Science in Pharmaceutical Chemistry, New Jersey Institute of Technology
- Bachelor of Pharmacy, Bharati Vidyapeeth's College of Pharmacy

Lushan Wang

PhD advisor: Professor Karunya Kandimalla

- Master of Science in Pharmaceutics, University of Minnesota Twin Cities
- Bachelor of Science in Traditional Chinese Medicines (Japanese), Shenyang Pharmaceutical University

Zengtao Wang

PhD advisor: Professor Hongbo Pang

- Bachelor of Science in Pharmacy, Shanghai Jiaotong University

Zijian Wang

MS advisors: Professors Timothy Wiedmann and Karunya Kandimalla

- Bachelor of Science in Pharmaceutics, Shenyang Pharmaceutical University

Tongzhen Xie

PhD advisor: Professor Carolyn Fairbanks

- Bachelor of Science in Biochemistry, University of Wisconsin-Madison

Wenjuan Zhang

PhD advisor: Professor William Elmquist

- Master of Science in Pharmaceutics, Shenyang Pharmaceutical University
- Bachelor of Science in Basic Pharmacy, Shenyang Pharmaceutical University



Graduate Student Activities



Kweku Amponsah-Efah was the first place winner and the People's Choice Award winner at the University of Minnesota Graduate School Three Minute Thesis Competition (November 2018). The title of his presentation was *The Influence of the Strength of Drug-Polymer Interactions*

on the Stability of Amorphous Pharmaceuticals. Kweku went on to represent the university at the regional competition held during the Midwestern Association of Graduate Schools Annual Meeting in St. Louis, Missouri (March 2019). You can view his presentation at z.umn.edu/Kweku3MT2018.

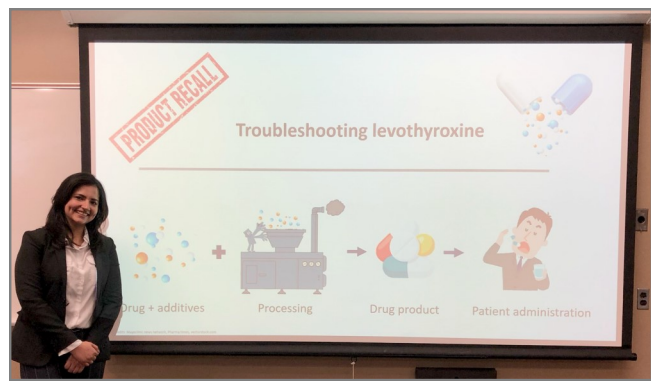
Hongbo Chen received the 2019 American Association of Pharmaceutical Scientists (AAPS) Best Abstract Award. He also received an AAPS travel grant supported by AstraZeneca for his highly ranked paper which he will be presenting at the upcoming AAPS PharmSci 360 annual meeting in San Antonio, Texas (November 2019). Hongbo presented a poster titled *Cocrystal Quasi-Emulsion Solvent Diffusion to Simultaneously Improve Manufacturability and Dissolution of Indomethacin* at the Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting in Minneapolis, Minnesota (May 2019) and the Gordon Research Conference on Preclinical Form and Formulation for Drug Discovery in Waterville Valley, New Hampshire (June 2019). Hongbo participated in the 2nd Annual College of Pharmacy Three Minute Thesis Competition (October 2019) and the title of his presentation was *Spherical Cocrystallization to Enable High Drug Loading Tablet Formulation Development*.

Yiwang Guo received a Graduate Student Award from the International Pharmaceutical Excipient Council (IPEC). She was recognized for recent significant contributions to formulation science and technology through innovative research with excipients. Yiwang participated in the 2nd Annual College of Pharmacy Three Minute Thesis Competition (October 2019) and the title of her presentation was *Orally Administered Drugs: What's Going on in the GI Tract?*

Krutika Harish Jain participated in the 2nd Annual College of Pharmacy Three Minute Thesis Competition

(October 2019) and the title of her presentation was *Pharmaceutical Beauty Contest: Who is the Winner?*

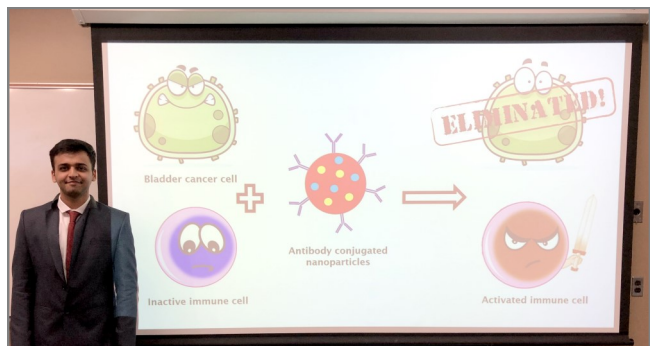
Navpreet Kaur passed her preliminary examination and is continuing to work on her research thesis as a PhD candidate. She presented part of her thesis work titled *Role of Lattice Disorder on the Water Mediated Dissociation of a Pharmaceutical Cocrystal System* at poster sessions at the Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting in Minneapolis, Minnesota (May 2019) and the Gordon Research Conference on Preclinical Form and Formulation for Drug Discovery in Waterville Valley, New Hampshire (June 2019). Navpreet is currently serving as the graduate student representative on the University of Minnesota College of Pharmacy Graduate Education Policy Committee (GEPC), the Pharmaceutics graduate student representative on the University of Minnesota Council of Graduate Students (COGS), and the professional development chair in the University of Minnesota Association of Multicultural Scientists. She is also mentoring two international students in the University of Minnesota International Student and Scholar Services International Buddy Program (IBP). Navpreet participated in the 2nd Annual College of Pharmacy Three Minute Thesis Competition (October 2019) and her presentation was titled *Understanding the Factors Affecting the Stability of Levothyroxine Sodium in a Drug Product Environment*. She was the People's Choice Award runner-up.



Vrishali Salian presented a poster titled *Greater Amyloid Burden Augments Cerebrovascular Inflammation as Evidenced by Higher VCAM-1 Expression in Alzheimer's Disease Transgenic Mice* at the Pharmaceutics Graduate Student Research Meeting (PGSRM) held at the University of Wisconsin-Madison in Madison, Wisconsin (June 2019).

Graduate Student Activities

Manan Shah participated in the 2nd Annual College of Pharmacy Three Minute Thesis Competition (October 2019) and his presentation was titled *Targeted Immune Activation to Treat Bladder Cancer*. He was selected as the Judge's Award runner-up and received a \$500 travel grant.



Jayesh Sonje successfully defended his Master's thesis titled *Mannitol as a Potential Cryoprotectant in Frozen and Freeze-Dried Formulations* in May 2019 and is continuing his education in the PhD program. Jayesh's poster titled *Influence of Excipients on Physical Form of Mannitol in Frozen and Freeze-Dried Formulations* was selected among 25 posters for a People's Choice Award at the on Preclinical Form and Formulation for Drug Discovery in Waterville Valley, New Hampshire (June 2019). He also received a University of Maryland/National Institute of Standards and Technology (NIST) Outreach Program Travel Award for the experimental work he carried out at NIST in Maryland.

Surabhi Talele completed a summer internship at Genentech in San Francisco, California in the Drug Metabolism and Pharmacokinetics department where she worked on metabolites in safety testing (MIST) and on understanding why certain drug metabolites circulate within the body. Surabhi was voted by the University of Minnesota College of Pharmacy PharmD Class of 2021 as the Best Teaching Assistant for her work in the Pharmacokinetics course in the fall 2018 semester and awarded a 2018-2019 University of Minnesota College of Pharmacy Outstanding Teaching Assistant Recognition Award. Surabhi gave an oral presentation titled *CNS Delivery of Radiosensitizing Agents Inhibiting ATR and DNA-PK Repair Mechanisms to Improve Therapy for Brain Tumors* at the Brain Tumor Program (BTP) Data Club (April 2019) and a poster presentation titled *CNS Delivery of VX-970: A Selective ATR Inhibitor for Radiosensitization in GBM* at the American Association for

Cancer Research (AACR) Annual Meeting in Atlanta, Georgia (April 2019). Surabhi was also selected to give an oral presentation as a young investigator titled *CNS Delivery of VX-970 and M-3814: ATR and DNA-PK Inhibitors for Radiosensitization in GBM* at the Gordon Research Conference on Drug Metabolism in Holderness, New Hampshire (June 2019).



Gerrit Vreeman was awarded a 2018-2019 Outstanding Teaching Assistant Award for his work in the College of Pharmacy's PharmD program.

Kunlin Wang completed a summer internship at Merck & Co., Inc. in Rahway, New Jersey, during which she worked on oral formulation development. Kunlin participated in the 2nd Annual College of Pharmacy Three Minute Thesis Competition (October 2019) and the title of her presentation was *Manipulating Crystals for Elegant Pills*.

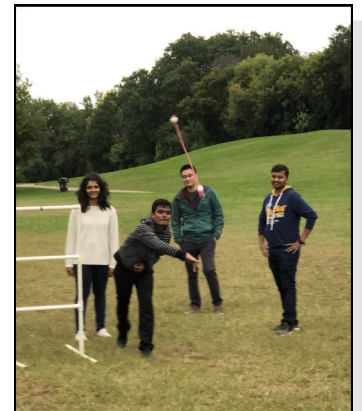
Lushan Wang is planning to defend her Master's thesis titled *Modulating Insulin Signaling and Trafficking in the Blood Brain Endothelium Using Lipid Nanoparticles* at the end of this year and is continuing her education in the PhD program. She presented her Master's thesis work at podium sessions at the Pharmaceutics Graduate Student Research Meeting (PGSRM) at the University of Wisconsin-Madison in Madison, Wisconsin (June 2019).

Andrew Zhou co-wrote a manuscript with Dr. Suresh Swaminathan and Dr. Karunya Kandimalla titled *ApoA-I Crosses the BBB through Clathrin-Independent and Cholesterol-Mediated Endocytosis* that was selected as Editor's Choice by the Journal of Pharmacology and Experimental Therapeutics (PMID: 30971477). He also received a second place podium award for his oral presentation titled *Type II Diabetes Sequelae and Amyloid Beta Exposure Disrupt Insulin Trafficking and Signaling in Alzheimer's Disease Brain* at the Pharmaceutics Graduate Student Research Meeting (PGSRM) at the University of Wisconsin-Madison in Madison, Wisconsin (June 2019).

Graduate Student Organizations

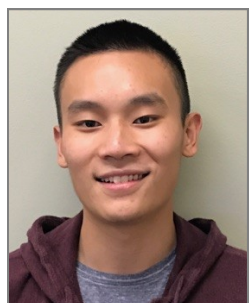
2019 Fall Picnic Hosted by the 2019-2020 Pharmaceutics Graduate Student Representatives Rahul Lalge & Gerrit Vreeman

Students prepared tasty food for the entire Department of Pharmaceutics and their families and friends on the banks of the Mississippi River at the East River Flats Park. Despite the clouds, it was a lovely afternoon and everyone had a great time!



Graduate Student Organizations

AAPS UMN Student Chapter Officers 2019-2020



Andrew Zhou
Pharmaceutics
Chair



Lushan Wang
Pharmaceutics
Chair-Elect



Sneha Rathi
Pharmaceutics
Treasurer



Peng Ge
Medicinal Chemistry
Secretary



Vrishali Salian
Pharmaceutics
Student Outreach
Officer



Rahul Lalge
Pharmaceutics
Web Coordinator &
Social Media
Advertising Officer

Pharmaceutics Graduate Student Representatives 2019-2020



Rahul Lalge



Gerrit Vreeman

Council of Graduate Students (COGS) Pharmaceutics Representative 2019-2020



Navpreet Kaur

People

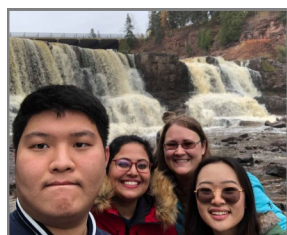
Wenjie Chen, a former post-doctoral associate in Dr. Pang's lab, accepted a post-doctoral fellow position at Virginia Commonwealth University.

Elizabeth de Lange, a friend of the Pharmaceutics department, was awarded an honorary doctorate at Uppsala University in Uppsala, Sweden. The ceremony will take place in late January 2020. She is a professor in predictive pharmacology at Leiden University in Leiden, the Netherlands, which is currently organizing the Quantitative Systems Pharmacology Conference (QSPC2020) which will take place in April 2020.

Marie Gaumet, a former post-doctoral associate in Dr. Siegel's lab, has a new position at Integrated Scientific Services (ISS AG), a company providing services in medical technologies in Geneva, Switzerland. She is still involved in research and development projects, often at the interface of university and industry, but with a new work dimension comprising of business development and project management.

Jibin Guan joined Dr. Pang's lab as a post-doctoral associate. He previously worked at the University of Pittsburgh and earned his PhD in Pharmaceutics at Shenyang Pharmaceutical University.

Hong Guo joined Dr. Pang's lab as a research associate in October 2019.



Amanda Hokanson, Executive Office and Administrative Specialist for Pharmaceutics, recently completed corporate training certification and Instructional Design for eLearning certification and started coursework for her

Master's in French. She will be celebrating her fourth year at the University of Minnesota this December 2019 and continues to help students and staff explore Minnesota and Wisconsin by organizing and leading various social events throughout the year. Although snow tubing was a bust due to blizzards and subzero temperatures, the department celebrated summer by kayaking down the St. Croix River, attending an airshow in Osceola, soaking in the sparkling shorelines of Duluth, delighting in the glow of the Jack-o-Lantern Spectacular at the Minnesota Zoo, and reveling in the historical inaccuracies of the largest Renaissance Festival in the United States. So what's next? Halloween frights await the

brave souls who'll join us on the Dead End Hayride this year and the rest is up to the students! Many are already making requests for future events and the sense of community is growing. If you want to join in on the fun, let us know when you'll be in the Twin Cities!



Katie M. James, Pharmaceutics Office Supervisor and Graduate Program Coordinator, participated in the American Brain Tumor Association's Breakthrough for Brain Tumors BT5K Run and

Walk with her two sisters, Kristina and Stacy, in October 2019. They braved a cold and snowy day to walk in the event in memory of their mother who died in June 2009 from a brain tumor. Katie will be celebrating eight years with the University of Minnesota this December 2019.



Bhushan Munjal joined Dr. Sury's lab as a post-doctoral associate in June 2019. He was previously employed at Fresenius Kabi Oncology, Ltd. for four years and Ranbaxy Research Laboratories for two years. He earned his PhD in Pharmaceutics and Master's of Pharmacy from the National Institute

of Pharmaceutical Education and Research (NIPER), SAS Nagar and his Bachelor's of Pharmacy from the University of Delhi. Bhushan and his wife welcomed their precious and beautiful baby daughter, Pranika, into the world in August 2019.



Jeanene Noll "retired" from her work as a temporary worker for many of the units in the University of Minnesota College of Pharmacy, including the Department of Pharmaceutics, in

September 2019. Jeanene originally came to the college for a 12-week assignment in April 2012 and stayed on for over seven years! While she has decided to put an end to her regular schedule, she will still serve in an "on call" capacity.

Satyanarayana Reddy Perumalla, a former post-doctoral associate in Dr. Sun's lab, started a contract research organization (CRO), Seven Star Pharmaceutical Services, earlier this year. His company's focus is on solving drug

People

development problems through solid state chemistry/material science and engineering principles. Programs include salt screening, co-crystal screening, crystallization screening, polymorph screening, amorphization, scale-up crystallization, physico-chemical properties testing, particle engineering, and structure elucidation of solid forms by single crystal x-ray diffraction.

Joshua Prince, a University of Minnesota Chemical Engineering undergraduate student, worked in Dr. Sun's lab from January to May 2019.

Yudong Shan of Huadong Pharmaceuticals joined Dr. Sun's lab as a visiting scientist in August 2019.

Kannan Sivaprakasam, a former research associate in Dr. Sury's lab, recently received tenure and was promoted to full professor in the Department of Chemistry and Biochemistry at St. Cloud State University in July 2019.

Tang Tang, a former post-doctoral associate in Dr. Pang's lab, accepted a position at Yale University.

Alpana Thorat, a former post-doctoral associate in Dr. Sury's lab, accepted a position as a post-doctoral research associate at the MIT School of Engineering.

Jody Tracy helped to organize the first full-day Women in Technology (WIT) event at the University of Minnesota in August 2019. "WIT and You: Finding Your Place in

Technology" had 100 attendees (78 in person and 22 online). Jody celebrated 11 years of services at the University of Minnesota in September 2019.

Yushuang Wei was promoted from a post-doctoral associate to a research associate in Dr. Pang's lab in October 2019.

Jun Wen, a professor in the Department of Pharmaceutics at Shanghai Changhai Hospital, joined Dr. Sun's lab as a visiting scientist in May 2019.

Xian Wu joined Dr. Pang's lab as a post-doctoral associate in June 2019.

Pengshuai Zhang will be joining Dr. Sury's lab in November 2019 as a visiting scholar from Zhengzhou University School of Chemical Engineering and Energy in Zhengzhou, China.

Shuangling Zhang, a former post-doctoral associate in Dr. Elmquist's lab, is currently working in the Business Development department of Shenzhen Salubris Pharmaceuticals. She is responsible for the scientific evaluation of in-licensing projects and also actively looking for biological drug candidates at pre-clinical or clinical stage in the cardiovascular, metabolic, and oncology fields. She looks forward to collaborating with Pharmaceutics alumni!

University of Minnesota Celebrates the Inauguration of President Joan T.A. Gabel



On Friday, September 20, 2019 the University of Minnesota officially inaugurated its 17th president, Joan T.A. Gabel, in a ceremonial transition into Gabel's presidency, which began July 1, 2019.

The events wrapped up a week-long celebration welcoming President Gabel to the University's top administrative position, activities that blended long-held university traditions with new approaches that emphasized accessibility, inclusivity, innovation, discovery, and fiscal stewardship.

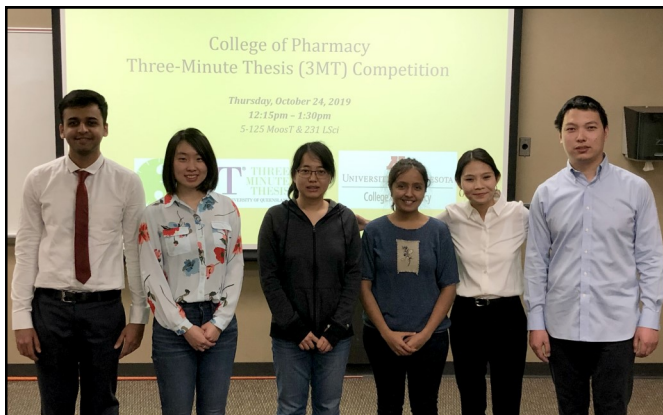
"It is my great honor to lead the University of Minnesota, an institution that's never been one for shortcuts or settling for less, or for those who prefer leisure over grit or seek only the form without the substance," President Gabel said. "Ours is a history defined by risk-takers and doers, creators and discoverers — some celebrated as Nobel Laureates, Olympians, and titans of industry — but

ultimately, and collectively, by those whose talent and resourcefulness have transformed our state and society for the better."

President Gabel was inaugurated at a brief installation ceremony inside the McNamara Alumni Center, which was livestreamed for the first time in the university's history. Members of the campus community lined up along Scholars Walk to greet President Gabel on her way to Northrop Mall, where she delivered her inaugural address on the iconic steps of Northrop Memorial Auditorium.

Source: twin-cities.umn.edu/news-events/university-minnesota-celebrates-inauguration-president-joan-ta-gabel

A Year in Pictures



Faculty News & Activities

Professor William F. Elmquist



Dr. William Elmquist was the faculty keynote speaker at the University of Minnesota College of Pharmacy Hooding Ceremony at TCF Bank Stadium in May 2019.

Dr. Elmquist was invited to give the following presentations this past year:

- *Factors Influencing the Distribution of Free Drug to Tumors in the CNS.* Society for Neuro-Oncology, 23rd Annual Meeting and Education Day, CNS Anticancer Drug Discovery and Development, New Orleans, Louisiana (November 2018).
- *Drugs, Radiation, and Brain Barriers: What Do We Know for Sure?* Oregon Health and Science University Blood-Brain Barrier Program, 25th Annual Blood-Brain Barrier Consortium Meeting, Portland, Oregon (March 2019).
- *Anticancer Drug Delivery Across the BBB.* American Association of Pharmaceutical Scientists (AAPS) and the International Brain Barriers Society (IBBS) Targeting Brain Barriers Workshop, Herndon, Virginia (April 2019).
- *Drug Transport at the BBB: A Critical Determinant of Efficacy in Brain Tumors.* Pediatric Brain Tumor Foundation, Translating Discoveries to Cure the Kids (TD2) Conference, San Francisco, California (May 2019).
- *How Much is Enough?* Adult Brain Tumor Consortium (ABTC) Workshop, Brain Tumor Clinical Trails, Johns Hopkins Hospital, Baltimore, Maryland (September 2019).
- *Examining the Folklore Surrounding the Treatment of Brain Tumors.* Forbeck Forums, Diffuse Intrinsic Pontine Glioma (DIPG) Consensus Meeting, Lake Geneva, Wisconsin (October 2019).

Elmquist lab members participated again this year in the American Brain Tumor Association's Breakthrough for Brain Tumors BT5K Run and Walk in October 2019. The team raised funds and awareness for brain tumor research.

Professor Carolyn A. Fairbanks



Dr. Carolyn Fairbanks is in her second year as Associate Dean for Research for the College of Pharmacy, representing the college to the Council of Research Associate Deans. She also serves on the Opioid Advisory Task Force of the University of Minnesota. She co-leads the University of Minnesota Pain

Consortium (pain.umn.edu) which is supported by a generous gift from the Hubbard Broadcasting Foundation and matched with support from the Office of the Vice President for Research, the Office of Academic Clinical Affairs, and the Medical Discovery Team on Addiction. In 2019, she joined the Somatosensory and Pain Systems (SPS) Study Section which reviews research applications on pain, analgesia, and somatosensory systems in animals and humans. She also reviews grant applications for the Blueprint Neurotherapeutics Network (BPN): Small Molecule Drug Discovery and Development for Disorders of the Nervous System initiative. Dr. Fairbanks hosted a short course and pain conference jointly offered by the University of Minnesota Pain Consortium and the Karolinska Institutet and held on the Twin Cities campus in June 2019 (pain.umn.edu/events/karolinska-umn-partnership).

Dr. Fairbanks delivered a Darwin Keynote Speaker Address at Indiana State University (ISU) in Terra Haute, Indiana where she was invited specifically as the 11th Annual Women in Science speaker. This event is part of the annual Women's History Month celebrations at ISU. Her talk was titled *Chronic Pain and Opioid Addiction: The Search for New Treatments*.

Dr. Fairbanks (Principal Investigator) and George Wilcox (Co-Investigator, Department of Neuroscience) received a \$4.5 million grant from the Department of Defense Congressionally Directed Medical Research Program for their project titled *Therapeutic Development of Non-Opioid Strategically Substituted Agmatines for Chronic Pain Management*. This program arises from their long-term collaboration with Herb Nagasawa (Center for Drug Design) and the efforts of pharmacology team members Cristina Peterson and Kelley Kitto (Department of Neuroscience). The program has been facilitated with contributions by Gunda Georg (Department of Medicinal Chemistry and the Institute for Therapeutics Discovery and Development) and Sudhakar

Faculty News & Activities

Jakkaraj (Institute for Therapeutics Discovery and Development). The Department of Defense pre-proposal and full application was enabled from the additional supportive efforts of Cory Goracke-Postle and Becca Cuellar of the Office of the Associate Dean for Research and the University of Minnesota Pain Consortium. Vadim Gurvich (Institute for Therapeutics Discovery and Development), Robert Schumacher (Center for Translational Medicine), and Beverly Norris (Center for Translational Medicine) will contribute important roles in the implementation of the program. Support for the preliminary data that led to the newly awarded program was provided by an Academic Health Center Faculty Development Award, a gift from the Noble Family to the College of Pharmacy, a MN-REACH Cycle 5 award, and a previous Department of Defense Congressionally Directed Medical Research Program award.

Professor Karunya Kandimalla



Dr. Karunya Kandimalla was interviewed by Allen Saakyan of the YouTube series “Simulation” on the connections between metabolic syndrome, including cardiovascular diseases and diabetes, and Alzheimer’s disease. You can view the interview at z.umn.edu/Simulation367.

Dr. Kandimalla’s lab continues to investigate cerebrovascular contributions to Alzheimer’s disease and developing diagnostic probes for the early detection of brain insulin resistance in Alzheimer’s disease patients. Further, they have been developing systems pharmacology approaches to repositioning and repurposing diabetes drugs to treat Alzheimer’s disease.

Dr. Kandimalla was invited to speak at the 14th Alzheimer’s Disease/Parkinson’s Disease (AD/PD) Conference in Lisbon, Portugal (March 2019).



Professor Hongbo Pang

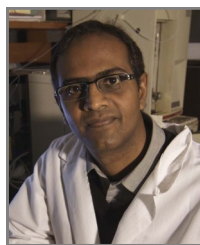


Dr. Hongbo Pang received a four year National Institutes of Health (NIH) Research Project Grant (R01) from the National Institute of General Medical Sciences (NIGMS). Dr. Pang is the principal investigator of this grant which started in September 2019.

Dr. Pang was invited to give the following presentations this past year:

- *Peptide Targeting for Novel Biology and Therapies*. Soochow University, Suzhou, China (April 2019).
- *Peptide-Guided Drug Delivery to Modulate Macrophage Function and Infection*. Cold Spring Harbor Asia Conference, Suzhou, China (April 2019).
- *Peptide Targeting to Explore Novel Biomarker and Biology*. 17th International Nanomedicine and Drug Delivery Symposium (nanoDDS), Cambridge, Massachusetts (September 2019).

Professor Jayanth Panyam



Dr. Jayanth Panyam was appointed as a member of the National Institutes of Health (NIH) Gene and Drug Delivery (GDD) study section starting July 1, 2019 and will serve for a period of four years. Dr. Panyam has also been named Dean of the Temple University School of Pharmacy and will assume his new

role on November 1, 2019. Please see page 19 for the full announcement.

Professor Ronald A. Siegel



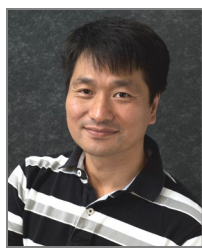
Dr. Ronald Siegel continues to direct the Biomaterials and Pharmaceutical Materials (BPM) program for Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) and serves on the advisory board for the Medical Devices Center at the University of Minnesota.

Faculty News & Activities

Dr. Siegel was invited to give the following presentations this past year:

- *Artificial Gut Simulator for Simultaneous Evaluation of Dissolution and Absorption of Supersaturating Drug Formulations.* Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting, Minneapolis, Minnesota (May 2019).
- *Preclinical Studies of an Intranasal Prodrug/Enzyme Formulation to Treat Seizure Emergencies.* Controlled and Modified Drug Release Summit, Philadelphia, Pennsylvania (August 2019).

Professor Changquan Calvin Sun



Dr. Changquan Calvin Sun received the Ralph Shangraw Memorial Award from the International Pharmaceutical Excipients Council (IPEC) in September 2019 and was named an Outstanding Reviewer for the Journal of Pharmaceutical Sciences in April 2019.

Dr. Sun was invited to give the following presentations this past year:

- *Integrated Crystal and Particle Engineering for Expedited Development of Tablets.* Huazhong Pharmaceuticals, Hangzhou, China (March 2019).
- *Developing High Quality Tablet Through Crystal Engineering.* Graduate School of Pharmaceutical Sciences, Chiba University, Chiba, Japan (March 2019).
- *Developing High Quality Tablet Through Crystal Engineering.* Takeda Pharmaceutical Co. Ltd., Shonan Health Innovation Park, Tokyo, Japan (March 2019).
- *Crystal and Particle Engineering Strategies to Enable Efficient Direct Compression Tablet Development of Pharmaceuticals.* 139th Annual Meeting of the Pharmaceutical Society of Japan, Makuhari Messe, Japan (March 2019).
- *Integrated Particle and Crystal Engineering for Successful Tablet Development.* Genentech, San Francisco, California (May 2019).
- *Crystal Engineering in Pharmaceutical Development.* Genentech, San Francisco, California (May 2019).
- *Punch Sticking – Mechanism, Influencing Factors, and Strategies to Overcome It.* Center for Integrated Material Science and Engineering for Pharmaceutical Products (CIMSEPP) Workshop, New Jersey Institute of Technology, Newark, New Jersey (June 2019).
- *Expedited Development of High Quality Tablet Products Enabled by Crystal and Particle Engineering.* Center for Integrated Material Science and Engineering for Pharmaceutical Products (CIMSEPP) Workshop, New Jersey Institute of Technology, Newark, New Jersey (June 2019).
- *Challenges and Opportunities in Powder Compaction – Roles of Material Properties, Compaction Parameters, and Formulation Approaches.* Functional Material Synthesis and Integration, Materials Science Division, Lawrence Livermore National Laboratory, Livermore, California (August 2019).
- *Enabling Direct Compression of Low Dose Drugs Using Mesoporous Carrier – Drug Composites.* International Society for Pharmaceutical Engineering Annual Meeting, Las Vegas, Nevada (October 2019).
- *Integrated Crystal and Particle Engineering for Expedited Development of Tablets.* GlaxoSmithKline, Brentford, England (December 2018).
- *Integrated Crystal and Particle Engineering for Expedited Development of Tablets.* University of Surrey, Guildford, England (December 2018).
- *Addressing Formulation Challenges by Crystal Engineering.* 2nd Annual Virtual Formulation Laboratory Meeting, Sedgefield, England (December 2018).
- *Integrated Crystal and Particle Engineering for Expedited Development of Tablets.* Celgene Corporation, Summit, New Jersey (December 2018).
- *A Look into Pharmaceutical Materials Science and Engineering.* Department of Chemical and Life Science Engineering, Virginia Commonwealth University, Richmond, Virginia (February 2019).

Faculty News & Activities

- *Prologue: An Update on Continuous Manufacturing in Pharmaceutical Industry*. Continuous Manufacturing Symposium, PharmSci 360, San Antonio, Texas (November 2019).

Professor Raj G. Suryanarayanan



Dr. Raj Suryanarayanan was selected professor of the spring semester by the PharmD Class of 2022. He was also elected as a member of the inaugural Scientific Advisory Board (SAB) for the Advanced Lyophilization Technology Hub (LyoHub). The goal of LyoHub is to advance the science and technology of freeze-drying/lyophilization. LyoHub's members include companies in the pharmaceutical and food processing sectors, equipment manufacturers, and university researchers who combine their expertise and resources to accomplish the goal.

The University of Minnesota hosted the Center for Pharmaceutical Processing Research (CPPR) Biannual Meeting in October 2019. Dr. Sury served as the site director and made event arrangements with the assistance of Jody Tracy. The event, which is held every six months at rotating institutions, was a success and will likely be held at the University of Minnesota every two years going forward with Dr. Sury continuing to serve as the site director. CPPR is an industry/university research center focusing on new technology for pharmaceutical processing, fostering collaborative research projects between industrial and academic scientists, and promoting an interdisciplinary approach to training students in pharmaceutical process research and development.

Dr. Sury and his research group were invited to give the following presentations this past year:

- Suryanarayanan R. *Monitoring Phase Transitions in Frozen Systems and During Freeze-Drying: Potential Implications on Product Performance*. Global Pharmaceutical Development Biologics, Sanofi, Framingham, Massachusetts (December 2018).
- Suryanarayanan R. *Effective Drug Delivery: Role of the Physical Form of Active Pharmaceutical Ingredients and Excipients*. University of Kentucky, Lexington, Kentucky (March 2019).
- Sonje J, Thakral S, Suryanarayanan R. *Effect of Process Variables on Physical State of Mannitol in Tert-Butyl Alcohol-Water Frozen Systems*. International Society of Lyophilization - Freeze Drying (ISL-FD) Midwest Chapter Annual Meeting, Chicago, Illinois (April 2019).
- Thakral S, Sonje J, Suryanarayanan R. *Anomalous Behavior of Mannitol Hemi-Hydrate: Implications on Sucrose Crystallization in Colyophilized Systems*. International Society of Lyophilization - Freeze Drying (ISL-FD) Midwest Chapter Annual Meeting, Chicago, Illinois (April 2019).
- Thorat A, Suryanarayanan R. *Characterization of Phosphate Buffered Saline (PBS) in Frozen State and After Freeze-Drying*. International Society of Lyophilization - Freeze Drying (ISL-FD) Midwest Chapter Annual Meeting, Chicago, Illinois (April 2019).
- Amponsah-Efah K, Mistry P, Eisenhart R, Suryanarayanan R. *The Influence of Drug-Polymer Interactions on the Dissolution of Amorphous Solid Dispersions*. Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting, Minneapolis, Minnesota (May 2019).
- Kaur N, Suryanarayanan R. *The Role of Lattice Disorder in Water Mediated Dissociation of Pharmaceutical Cocrystal Systems*. Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting, Minneapolis, Minnesota (May 2019).
- Sahoo A, Suryanarayanan R, Siegel R. *Evaluation of Critical Polymer Concentration (C*) Using Drug as Solvent and Their Effect on Crystallization of Drug*. Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting, Minneapolis, Minnesota (May 2019).
- Suryanarayanan R. *Phase Behavior of API: Role of Excipients*. Merck, Rahway, New Jersey (May 2019).
- Suryanarayanan R. *Processing-Induced Transformations*. Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting, Minneapolis, Minnesota (May 2019).
- Suryanarayanan R. *Role of the Physical Form of the Active Pharmaceutical Ingredient and Excipients*.

Faculty News & Activities

16th Pharmaceutical Powder X-Ray Diffraction Symposium, 2nd Spring Pharmaceutical Synchrotron X-Ray Powder Diffraction Workshop, Paul Scherrer Institute, Switzerland (May 2019).

- Tanaka R, Duggirala NK, Hattori Y, Otsuka M, Suryanarayanan R. *Role and Mechanism of Soluble Polymer for In-Situ Indomethacin-Saccharin Cocrystallization During High-Shear Wet Granulation*. Industrial Partners for Research in Interfacial and Materials Engineering (IPRIME) Annual Meeting, Minneapolis, Minnesota (May 2019).
- Suryanarayanan R. *Physical Stability of Amorphous Pharmaceuticals*. Applied Materials, Santa Clara, California (August 2019).
- Suryanarayanan R. *Lattice Disorder: Implications in Dosage Form Design*. Genentech, South San Francisco, California (August 2019).
- Suryanarayanan R. *Phase Transformations During Freezing and Freeze-Drying: Potential Implications on Product Performance*. Genentech, South San Francisco, California (August 2019).
- Suryanarayanan R. *Dissolution Enhancement by Modulating the Physical Form of the API*. Society for Pharmaceutical Dissolution Science (SPDS), 7th Annual International Conference Disso India, Chandigarh, India (September 2019).

Professor Timothy S. Wiedmann



Dr. Timothy Wiedmann once again helped coordinate the internship of six students from Shenyang Pharmaceutical University, located in Liaoning Province in northeast China. The students spent the spring semester in five different laboratories as part of their requirements for their Bachelor of Science in Pharmacy degree.

He also continues to participate in AeroCore, an internal/external research organization at the University of Minnesota that conducts inhalation research studies. AeroCore is currently supporting a project with Dr. Lisa Peterson, *Interactions Between Tobacco Smoke Constituents in Rodent*

Tumor Models, and a project with Dr. Stephen Hecht, *e-Cigarettes: Formaldehyde DNA Adducts, Oxidative Damage, and Potential Toxicity and Carcinogenesis*. The research of Dr. Natalia Tretyakova (Department of Medicinal Chemistry) continues, which involves rodent exposure to cigarette smoke and measurement of the formation of DNA adducts. A most rewarding funded project by Dr. Amir Naqwi (Abbe Vision) was completed in which the distribution of lung surfactant was determined following administration to newborn, surfactant deficient pigs using a novel aerosol generation device. Finally, a new proposal by Dr. Naqwi, *Tools for Improved Translation of Novel Inhalable Therapeutics*, has been funded.

Dr. Wiedmann continues his phase retirement, which is currently planned to extend for an additional three years.

Dr. Wiedmann and his research team was invited to give the following presentations this past year:

- Vevang K, Seabloom D, Wiedmann T, Tăbăran A-F, O'Sullivan MG, Peterson LA. *Toxicity of Inhaled Furan in Mice*. Masonic Cancer Center, Minneapolis, Minnesota (April 2019).
- Olsen TW, Wiedmann T, Dyer R, Paley D, Wabner K, Schmitt J, Sellers J, Chae JB, Singh R, Chrenek M. *A Pharmacokinetic Analysis of a Biodegradable Suprachoroidal Sustained Drug Delivery Device for the Bile Acid Tauroursodeoxycholic Acid in the Porcine Model*. Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Vancouver, Canada (April 2019).
- Wang L, Wiedmann T, Kandimalla K. *Modulating Insulin Signaling/Trafficking at the Blood Brain Barrier Endothelium in Alzheimer's Brain*. Pharmaceutics Graduate Student Research Meeting (PGSRM), University of Wisconsin-Madison, Madison, Wisconsin (June 2019).
- Peterson LA, Oram MK, Seabloom D, Smith WE, Vevang KR, Flavin M, Tăbăran A-F, Cornax I, O'Sullivan MG, Upadhyaya P, Zhang L, Hecht SS, Balbo S, Wiedmann T. *Interactions Between Tobacco Smoke Chemicals in Rodent Tumor Models*. Environmental Carcinogenesis: Potential Pathway to Cancer Prevention, American Association for Cancer Research, Charlotte, North Carolina (June 2019).

Faculty News & Activities

- Peterson LA, Seabloom D, Smith WE, Vevang KR, Oram MK, O'Sullivan MG, Upadhyaya P, Zhang L, Hecht SS, Balbo S, Wiedmann T. *Carbon Dioxide Enhances the Pulmonary Carcinogenic Activity of the Tobacco Specific Nitrosamine, 4-(Methylnitrosamino)-1-(3-Pyridyl)-1-Butanone (NNK)*. American Chemical Society Annual Meeting, San Diego, California (August 2019).
- Roberts K, Wiedmann T, Naqwi A. *Intra-Laryngeal Sprayer for Exogenous Surfactant Delivery to Preterm Neonates*. Pediatric Device Innovation Consortium (PDIC) Meeting, Boston, Massachusetts (September 2019).

Jayanth Panyam Appointed Dean at Temple University College of Pharmacy



Jayanth Panyam, PhD, Endowed Professor of Targeted Drug Delivery and Department Head, Department of Pharmaceutics, has been named Dean of the Temple University School of Pharmacy. He assumes his new role on November 1, 2019.

A native of Chennai, India, Dr. Panyam came to the United States in 1999 as a graduate student. He earned his PhD in Pharmaceutical Sciences from the University of Nebraska Medical Center in 2003; a Master's of Pharmaceutics from Banaras Hindu University in India in 1999; and a Bachelor's of Pharmacy from the Tamil Nadu Dr. MGR Medical University in India in 1997. He subsequently joined Wayne State University in 2003 as an assistant professor.

Since 2007, he has been on faculty at the University of Minnesota College of Pharmacy, where he has risen through the academic ranks, becoming a tenured professor and head of the Department of Pharmaceutics in 2015. He was appointed to an endowed professorship in targeted drug delivery in 2017. In addition, he has been a member of the Masonic Cancer Center in the Twin Cities since 2007.

Dr. Panyam has a long history of pharmaceutical teaching and research; his current research is focused on investigating the mechanisms of nanotechnology-based anticancer drug delivery. As a researcher, he has amassed more than 11,000 citations of his research, which focuses on cutting-edge areas such as chemoprevention, drug delivery, nanotechnology, and tumor targeting. Over the years, he has won numerous honors and awards for his research and teaching, including the Thomas Jefferson Ingenuity Award for Creativity and Ingenuity in Doctoral Research from the University of Nebraska Medical Center. He has also been named a Wilson Scholar by the Ralph C. Wilson Foundation. While at the University of Minnesota he has been recognized for his commitment and excellence in education and was voted by students Professor of the Semester twice. He has also served as a member of the editorial advisory board for the Journal of Pharmaceutical Sciences since 2013.

At Temple, Dr. Panyam will lead the pharmacy school which has a distinguished history. Dr. Panyam succeeds Peter H. Doukas, the school's longtime dean, who stepped down at the end of the 2018-19 academic year.

Throughout the years, Dr. Panyam has been a highly committed educator, researcher, and leader here at the University of Minnesota College of Pharmacy. We thank him for his valuable contributions. Please join me in congratulating Dr. Panyam.

Lynda S. Welage, PharmD, FCCP
Dean and Professor
University of Minnesota College of Pharmacy

Recent Publications

Ahlschwede KM, Curran GL, Rosenberg JT, Grant SC, Sarkar G, Jenkins RB, Ramakrishnan S, Poduslo JF, **Kandimalla KK**. Cationic Carrier Peptide Enhances Cerebrovascular Targeting of Nanoparticles in Alzheimer's Disease Brain. *Nanomedicine*, 16:258-266 (2019). PMID: 30300748

Brown DA, Sarkar G, Decklever TD, Curran GL, Sarkar AJ, Schmeichel AM, Swaminathan SK, **Kandimalla KK**, Jenkins RB, Burns TC, Lowe VJ. K16ApoE Enhances A β -Associated 11C-PiB Deposition and PET Signal in APP/ PS1 Transgenic Mice. *J Alzheimers Dis Parkinsonism*, 9(3):468.

Bruce DJ, Peterson CD, Kitto KF, Akgun E, Lazzaroni S, Portoghese PS, **Fairbanks CA**, Wilcox GL. Combination of a Delta-Opioid Receptor Agonist and Loperamide Produces Peripherally-Mediated Analgesic Synergy in Mice. *Anesthesiology*, 131(3):649-63 (2019).

Chang S-Y, **Sun CC**. Effect of Particle Size on Interfacial Bonding Strength of Bilayer Tablets. *Powder Technol*, 356:97-101 (2019).

Chang S-Y, **Sun CC**. Insights into the Effect of Compaction Pressure and Material Properties on Interfacial Bonding Strength of Bilayer Tablets. *Powder Technol*, 354:867-76 (2019).

Chang S-Y, **Sun CC**. Minimum Interfacial Bonding Strength for Bilayer Tablets Determined Using a Survival Test. *Pharm Res*, 36:139 (2019).

Chang S-Y, Wang C, **Sun CC**. Relationship Between Hydrate Stability and Accuracy of True Density Measured by Helium Pycnometry. *Int J Pharm*, 567:118444 (2019).

Chen H, Aburub A, **Sun CC**. Direct Compression Tablet Containing 99% Active – A Tale of Spherical Crystallization. *J Pharm Sci*, 108:1396-1400 (2019).

Chen H, Guo Y, Wang C, Dun J, **Sun CC**. Spherical Cocrystallization – An Enabling Technology for the Development of High Dose Direct Compression Tablets of Poorly Soluble Drugs. *Cryst Growth Des*, 19:2503-10 (2019).

Chen H, Wang C, **Sun CC**. Profoundly Improved Plasticity and Tabletability of Griseofulvin by In-Situ Solvation and Desolvation During Spherical Crystallization. *Cryst Growth Des*, 19:2350-7 (2019).

Duggirala NK, Li J, Kumar NK, Gopinath T, **Suryanarayanan R**. A Supramolecular Synthon Approach to Design Amorphous Solid Dispersions with Exceptional Physical Stability. *ChemComm*, 55(39):5551-4 (2019).

Fung MH, **Suryanarayanan R**. Effect of Organic Acids on Molecular Mobility, Physical Stability, and Dissolution of Ternary Ketoconazole Spray Dried Dispersions. *Mol Pharm*, 16(1):41-8 (2018). DOI: 10.1021/acs.molpharmaceut.8b00593

Gali CC, Fanaee-Danesh E, Zandl-Lang M, Albrecher NM, Tam-Amersdorfer C, Stracke A, Sachdev V, Reichmann F, Sun Y, Avdili A, Reiter M, Kratky D, Holzer P, Lass A, **Kandimalla KK**, Panzenboeck U. Amyloid-Beta Impairs Insulin Signaling by Accelerating Autophagy-Lysosomal Degradation of LRP-1 and IR- β in Blood-Brain Barrier Endothelial Cells In Vitro and in 3XTg-AD Mice. *Mol Cell Neurosci*, 99:103390 (2019). PMID: 31276749

Gampa G, Kim M, Mohammad AS, Parrish KE, Mladek AC, Sarkaria JN, **Elmqvist WF**. Brain Distribution and Active Efflux of Three panRAF Inhibitors: Considerations in the Treatment of Melanoma Brain Metastases. *J Pharmacol Exp Ther*, 368(3):446-61 (2019). DOI: 10.1124/jpet.118.253708

Guo Y, Wang C, Dun J, Du L, Hawley M, **Sun CC**. Mechanism for the Reduced Dissolution of Ritonavir Tablets by Sodium Lauryl Sulfate. *J Pharm Sci*, 108:516-24 (2019).

Hirschberg C, Boetker J, Risbo J, **Sun CC**, Rantanen J. Expedited Investigation of Powder Caking Aided by Rapid 3D Prototyping of Testing Devices. *J Pharm Sci*, (2019). DOI: 10.1016/j.xphs.2019.07.022

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- Hirschberg C, Jensen NS, Bøtger J, Madsen AØ, Kääriäinen TO, Kaarianinen M-L, Hoppu P, George SM, Murtomaa M, **Sun CC**, Risbo J, Rantanen J. Improving Powder Characteristic by Surface Modification Using Atomic Layer Deposition (ALD). *Org Process Dev*, 2019. DOI: 10.1021/acs.oprd.9b00247 [Accepted]
- Hirschberg C, **Sun CC**, Risbo J, Rantanen J. Effects of Water on Powder Flowability of Diverse Powders Assessed by Complimentary Techniques. *J Pharm Sci*, 2019, 108:2613-20.
- Hivechi A, Bahrami S, **Siegel RA**. Drug Release and Biodegradability of Electrospun Cellulose Nanocrystal Reinforced Polycaprolactone. *Mater Sci Eng C*, 2019, 94:929-37. DOI: 10.1016/j.msec.2018.10.037
- Hivechi A, Bahrami S, **Siegel RA**. Investigation of Morphological, Mechanical, and Biological Properties of Cellulose Nanocrystal Reinforced Electrospun Gelatin Nanofibers. *Int J Biol Macromol*, 2019, 124:411-7. DOI: 10.1016/ijbiomac.2018.11.214
- Hu S, Mishra MK, **Sun CC**. Twistable Pharmaceutical Crystal Exhibiting Exceptional Plasticity and Tableability. *Chem Mater*, 2019, 31:3818-22. [Cover Article]
- Kalscheuer S, Khanna V, Kim HK, Li S, Sachdev D, DeCarlo A, Yang D, **Panyam J**. Discovery of HSPG2 (Perlecan) as a Therapeutic Target in Triple Negative Breast Cancer. *Sci Rep*, 2019, 9:12492. DOI: 10.1038/s41598-019-48993-6
- Kaur N, Duggirala NK, **Suryanarayanan R**. The Role of Lattice Disorder in Water Mediated Dissociation of Pharmaceutical Cocrystal Systems. *Mol Pharm*, 2019, 16(7):3167-77.
- Khanna V, Kalscheuer S, Kirtane A, Zhang W, **Panyam J**. Perlecan Targeted Nanoparticles for Drug Delivery to Triple Negative Breast Cancer. *Fut Drug Discov*, 2019, 1(1):FDD8.
- Khanna V, Kim HK, Zhang W, Larson P, Ferguson DM, **Panyam J**. Novel Small Molecule TLR7/8 Agonists for Enhancing NK Cell-Mediated ADCC. *Cancer Res*, 2019, 79(13):4129.
- Kim HK, Griffith TS, **Panyam J**. Poly(d,l-lactide-co-glycolide) Nanoparticles as a Vaccine Delivery Platform for TLR7/8 Agonist-Based Cancer Vaccine. *J Pharmacol Exp Ther*, 370(3):715-24 (2019).
- Kim HK, Khanna V, Kucaba TA, Zhang W, Ferguson DM, Griffith TS, **Panyam J**. Combination of Sunitinib and PD-L1 Blockade Enhances Anticancer Efficacy of TLR7/8 Agonist-Based Nanovaccine. *Mol Pharmaceutics*, 2019, 16(3):1200-10.
- Kim M, Laramy JK, Gampa G, Parrish KE, Brundage RC, Sarkaria JN, **Elmquist WF**. Brain Distributional Kinetics of a Novel MDM2 Inhibitor SAR405838: Implications for Use in Brain Tumor Therapy. *Drug Metab Dispos*, 2019. DOI: 10.1124/dmd.119.088716 [Epub Ahead of Print]
- Kim M, Laramy JK, Mohammad AS, Talele S, Fisher J, Sarkaria JN, **Elmquist WF**. Brain Distribution of a Panel of Epidermal Growth Factor Receptor Inhibitors Using Cassette Dosing in Wild-Type and Abcb1/Abcg2-Deficient Mice. *Drug Metab Dispos*, 2019, 47(4):393-404. DOI: 10.1124/dmd.118.084210
- Kittikunakorn N, Koleng III JJ, Listro T, **Sun CC**, Zhang F. Effects of Thermal Binders on Chemical Stabilities and Tableability of Gabapentin Granules Prepared by Twin-Screw Melt Granulation. *Int J Pharm*, 2019, 559:37-47.
- Kittikunakorn N, **Sun CC**, Zhang F. Effect of Screw Profile and Processing Conditions on Physical Transformation and Chemical Degradation of Gabapentin During Twin-Screw Melt Granulation. *Eur J Pharm Sci*, 2019, 131:243-53.
- Koranne S, Krzyaniak JF, Luthra S, Arora KK, **Suryanarayanan R**. Role of Conformer and Excipient Properties on the Solid-State Stability of Theophylline Cocrystals. *Cryst Growth Des*, 2019, 19(2):868-75.

Recent Publications

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