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
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!
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
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

**Shenyue 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**
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 Pflepsen, 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

pharmacy.umn.edu/pharmaceutics
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).
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 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 Outstanding Teaching Assistant Recognition Award. She presented her Master’s thesis work at podia sessions at the Pharmaceutics Graduate Student Research Meeting (PGSRM) at the University of Wisconsin-Madison in Madison, Wisconsin (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 podia 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).
2019 Fall Picnic Hosted by the 2019-2010 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

pharmacy.umn.edu/pharmaceutics
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

[Image 1: Group photo with people standing outdoors]

[Image 2: Graduates in front of a sign reading "Congratulations Pharmaceutics 2019 Graduates!"

[Image 3: Group photo with people in front of a sign for the College of Pharmacy Three-Minute Thesis (JMT) Competition]

[Image 4: Group photo with people in a formal setting]

[Image 5: A person in academic regalia standing in front of a crowd]

[Image 6: Group photo with people in a natural outdoor setting]
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).


- **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 Trials, 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 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.
Dr. Siegel was invited to give the following presentations this past year:


**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.** 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).

- **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).
**Faculty News & Activities**


**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. Effective Drug Delivery: Role of the Physical Form of Active Pharmaceutical Ingredients and Excipients. University of Kentucky, Lexington, Kentucky (March 2019).


- Suryanarayanan R. Role of the Physical Form of the Active Pharmaceutical Ingredient and Excipients.
Faculty News & Activities


- 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:


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


Recent Publications


Recent Publications


Recent Publications


You’re Invited!

MINNESOTA ALUMNI BREAKFAST
Monday, November 4, 2019
7:00 to 8:00 AM
Grand Hyatt San Antonio
3rd Floor
Travis AB

AAPS PharmSci 360
San Antonio, TX
November 3-6, 2019