

The PharmaBurgh

The Pitt-Pharmacy AAPS Student Chapter's Newspaper

A Reflection on The Past Year and The Welcoming Message

From Dr. Kerry Empey, PharmD, PhD
Associate Dean, Graduate and Postdoctoral Programs
University of Pittsburgh, School of Pharmacy



Welcome to our incoming MS and PhD students, we are excited to get to know all of you and see all the great things you will accomplish here at PittPharmacy! To our current students, congratulations on another successful year! I am so proud of all your continued successes and scientific discoveries!

You all had a very exciting and productive year with a total of 70 publications, 66 presentations and 21 awards! Noah Neverette was awarded an Irvis Fellowship, Prerna Dodeja was awarded a CTSI Quantitative Methodologies QuMP award, Madeline Lipp became a Postdoctoral Scholar in the CTSI TL1 Fellowship program, and Samantha Bailey joined the FDA as an ORISE Fellow, just to name a few! Be sure to keep sharing all your accomplishments with us and submit them to the [Pharmacy News Request](#) page so we can share them with everyone!

We also saw many changes this year, including changes made to the Graduate Student Cabinet. You all voted for your PhD track representatives and MS representative that make up the new Graduate Student Cabinet. The GSC will meet with myself and Dean Seybert once a month to discuss your successes and your concerns, to brainstorm new ideas, and to relay information back to the student body. The first meeting will take place on September 16th, so be sure to connect with your track/MS representatives before then. To our track and MS representatives, we look forward to working with you and congratulations!

CPS: Samantha Bailey

Medicinal Chemistry:

Clare Hill

POPR: Pooja Rajadhyaksha

Pharmaceutics: Huatian Li

Pharmacology: Sihan Li

PSP: Jingchen Zhai

MS: Anthony Aceto

Students also served very important roles student representatives on School and University Committees. Representing your fellow student body is an important role and your input significantly influences programmatic and curricular decisions. This past year, Britney Stottlemyer and Huiting Jia represented the graduate students on the Graduate Program Curriculum Committee (GPCC) and Shambhavi Parab and Joshua Deppas represented students on the Graduate Program Council (GPC) here in the School of Pharmacy. Additionally, Jacob Cuyler represented all graduate students on the Provost's University Council on Graduate Study (UCGS) committee. Thank you all for your professionalism, leadership, and contribution to the School and the University!

These are one-year positions, so as we head into the new academic term, we will be seeking nominations for new student representatives to serve on these

important committees. If you are interested in an opportunity to enhance your professional development, represent your fellow students, and develop your leadership skills, please send me an email and nominate yourself to be a student representative for the GPC or the GPCC. These spots go quickly, so be sure to reach out soon! The position on the UCGS was recently filled by Christina Kazarov, so be sure to congratulate her!

This year we also saw some amazing defenses and said goodbye to friends as they graduated and forged ahead on each of their unique career paths. Though always somewhat bittersweet to see students go, we are so happy for them and eager to see what they do next! Join me in congratulating our 2024 Grads!

Master of Science

Wen Jing Jiang

Thesis: Synthesis, Exploration, and Bio-Validation of CB2 Receptors Orthosteric and Allosteric Ligands

Advisor: Xiang-Qun Xie, PhD, EMBA

Shichen Li

Thesis: HA-Based Targeting System for Improved Lung Cancer Treatment

Advisor: Song Li, MD, PhD

Mengyao Lu

Thesis: Design, Synthesis, and Biological Validation of Sultam Analogs as Cannabinoid Two (CB2)

Receptors Potential Allosteric Modulators

Advisor: Jaden Jun, PhD

Yiqing Mu

Thesis: Targeting Serpin B9 via Gemcitabine-based siRNA/drug Dual-Nanocarrier for Improved Pancreatic Cancer Therapy

Advisor: Song Li, MD, PhD

Taoyu Niu

Thesis: Development and Test of PBSA Solvation Models for Drug Design

Advisor: Junmei Wang, PhD

Shambhavi Parab

Thesis: Treprostinil Protects Liver from Cardiac Death Donors-Evidence Using Normothermic Machine Perfusion

Advisor: Raman Venkataramanan, PhD

Junnan Qi

Thesis: The Association Between the Use of the Glucagon-like Peptide-1 Receptor Agonist (GLP-1 RA) and Incidence of Dementia: A Retrospective Cohort Study

Advisor: Ying Xue

Fengyang Han

Thesis: Development and Test of New Technologies in Ligand and Structure-Based Drug Design

Advisor: Junmei Wang, PhD

Luxuan Wang

Thesis: Development and Testing of Advanced Drug Design Tools in the Area of AI

Advisor: Junmei Wang, PhD

Ashwin Kumar

Thesis: Design, synthesis, and in vitro profiling of biphenyl spiro amides and AMTB chimeric analogues as TRPM8 antagonists

Advisor: Velvet Journigan

Doctor of Philosophy

Jonathan Birabakaran

Dissertation: Translational Insights into the Pharmacokinetics of Morphine and

M3G in Traumatic Brain Injury: Understanding the Implications for Secondary Injury

Advisor: Philip Empey, PharmD, PhD

Beihong Ji

Dissertation: Applications of ML/DL in Structure-Based Drug Design for Cannabinoid Receptors

Advisor: Junmei Wang, PhD

Zhangyi Luo

Dissertation: Tumor-Targeting Nanoparticles for Improved Cancer Therapy

Advisor: Song Li, MD, PhD

Oshin Miranda

Dissertation: Deciphering the Impact of Health Disparities and Medication use on Risk of Developing Adverse Events Amongst Post-Traumatic Stress Disorder Patients Using Electronic Medical Records

Advisor: LiRong Wang, PhD

Jingyuan Wang

Dissertation: Cell Type-specific effects of Liver X Receptor (LXR) and Estrogen Sulfotransferase (EST) on T-cell Mediated Autoimmune Hepatitis

Advisor: Wen Xie, MD, PhD

Lanting Yang

Dissertation: Effectiveness and Safety Outcomes of SGLT2 Inhibitors in Type 2 Diabetes and Use of Drugs with Nephrotoxic Potential

Advisor: Inmaculada Hernandez, Ph.D., Levent Kirisci, PhD

I am excited to see all the new and exciting things you will all accomplish this year! Each new year comes with new challenges, new successes, and new scientific breakthroughs. The accomplishments, no matter how small, help us through the challenges in pursuit of the next great breakthrough and keep us going! The friends you make along

the way share those challenges and accomplishments with you and will stay with you always!

Graduate school is tough, but it is also one of the best times of your life, so be sure to enjoy the journey!

From Dr. Raman Venkataramanan, Ph.D. FAAPS; FACCP.

Distinguished Service Professor of Pharmaceutical Sciences and Pathology

A warm welcome to you all to the City of Pittsburgh and the University of Pittsburgh School of Pharmacy. Wish you all the very best as you spend the next few years in your life journey with us. You have taken the first step in becoming a pharmaceutical scientist - Join a good graduate program at our school! Now the door is open for you. Take advantage of all the opportunities to learn. Make sure that you get well exposed to all aspect of academic life – not just research; also check out teaching opportunities and service opportunities such as in professional associations.

Teaching: If you are a TA, learn about various aspects of teaching – attend Teaching Institute courses at Pitt; Scholars program at our school (Teach Me To Teach course); other educational seminars; talk to faculty; observe others teaching. Demand more involvement in teaching as a TA and not just be content

with proctoring and grading in a course. Teaching is the best way to make sure that you know the concepts!! You never know that you may have the “Teaching Gene”. Just activate it. A lesson to keep in mind when you teach is “Know your audience”. Develop your communication skills.

Research: Identify your passion area. Take the initiative and Knock at the doors – doors will open; do not be shy. Do not assume things; Constantly ask questions? Be curious. Get involved in writing grants and peer reviewing manuscripts with your PIs. Attend conferences; create networks; develop soft skills.

Service: Be involved in student organizations with in the school; and the University. Join national professional organization to build leadership skills and networking. Join professional societies such as AAPS; ACCP; AACP; ASCPT, ACS etc.

You will learn several life lessons during your journey.

Feel free to share with others. Here are some of my Life lessons:

Find your passion and pursue your passion.

The path to the goal will not be a straight line, there will be ups and downs but be persistent, you will reach your goal.

We are fortunate to be where we are; not everyone is as fortunate; No matter what you decide to do in the future, resolve to make a difference in the lives of others.

Being thankful is a wonderful habit. I am thankful to all my students for the opportunity to share my passion for PK; for contributions to our research work; and being a part of our life journey. The journey continues.....



It is OK to make mistakes but we must learn from the mistakes we make.

Keep an open mind. You never know who will inspire you; where the inspiration will come from – it can from the most unexpected places.

Nurture your body and mind. Have a balanced life – take care of your physical, mental and emotional health-find something other than school work to relax and refresh you.

My door is open all the time; you can reach me at rv@pitt.edu.

Best wishes

From Bailey Tobias, MEd Director of Graduate Programs

Dear MS and PhD Students,

Welcome (and welcome back) to the School of Pharmacy at the University of Pittsburgh! Whether you are just beginning your journey or continuing your studies, I am excited to have you as part of our academic community.

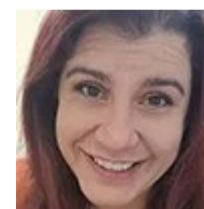
For our new students, congratulations on taking this important step toward advancing your education and career. You are joining a diverse group of

scholars, researchers, and practitioners committed to excellence in the field of pharmacy. I am eager to support you as you embark on your graduate studies, and I hope that your time here will be rewarding and everything that you've imagined.

To our returning students, welcome back! I am delighted to continue this journey with you. Your dedication and hard work have already made a

significant impact, and I look forward to seeing how you will build on your achievements this year.

As you begin your coursework, research, and extracurricular experiences, remember that you are not alone. The faculty, staff, and fellow students are here to support you every step of the way. Take advantage of the many resources available and don't



hesitate to reach out if you need assistance or guidance.

Thank you for choosing to pursue your graduate education with us. I look forward to the contributions you will make to our community and to the field of pharmacy.

Wishing you a successful and fulfilling academic year!

From Lori M. Altenbaugh, Graduate Program Coordinator

Welcome to all the new students and our current students! I am so happy that you are here with us at the School of Pharmacy and look forward to working

with each and every one of you. My office is in Salk Hall room 5016, Student Services. I work remotely on Monday and Tuesdays. I am in the

office on Wednesday, Thursday, and Fridays



Featured Faculty

Dr. Junmei Wang is an Associate Professor of Pharmaceutical Sciences and a member of the Computational Chemical Genomics Screening Center (www.CBLigand.org/CCGS), University of Pittsburgh School of Pharmacy. Dr. Wang received his PhD from Peking University in China, and he was trained as a postdoctoral associate with Dr. Peter Kollman at the University of California San Francisco. Before joining the University of Pittsburgh, Dr. Wang was an associate professor at the University of Texas Southwestern Medical Center. Dr. Wang is also a long-term active developer of the Amber force field and software (www.ambermd.org). He and other collaborators developed a set of popular AMBER force fields, including FF99, GAFF/GAFF2, and polarizable FF based on Thole's dipole-interaction models as well as the Antechamber module implemented in AMBER software packages.

General things

How did you feel at the time when you first became a faculty at our school?

I was very excited becoming a faculty member at our school. A big reason for me leaving UT Southwestern Medical Center, a research university, and joining PITT Pharmacy is that I enjoy teaching very much. It was very fulfilling to participate in the creation of the new graduate program – Pharmacometrics and Systems Pharmacology (PSP) and two new graduate courses: Systems Pharmacology (Pharm 3068) and Pharmacometrics (Pharm3069). I am also very grateful for our students and school that awarded me as the Graduate Faculty of the Year twice within four years.

Do you have any advice or any words for upcoming students?

First, study hard to make sure you achieve at least satisfactory grades for all courses; second, work closely with your adviser on your thesis, come out a long-term goal accompanied with short-term plans to conduct meaningful research. You may also consider writing a review article on your research topic so that you know the latest advances of the research topic and understand how your research will contribute to the field.

What do you want to achieve in your career?

As a computational chemist, my career goal is to develop the optimal force field models to enhance the success rate of rational drug design and develop user-friendly software tools for other biomedical researchers. I am also very interested in designing and discovering novel inhibitors of amyloid oligomerization/aggregation.

Ultimately, I hope some of those inhibitors can become drug candidates for treating Alzheimer's disease.

Courses and teaching

What courses are you currently teaching?

I currently teach one PharmD course, Principles of drug action (Pharm 5118) and several graduate courses including Systems Pharmacology (Pharm 3068), Pharmacometrics (Pharm 3069), Foundations of Pharmaceutical Sciences (Pharm 3071), Advanced Pharmacokinetics (Pharm 3002), Advanced Statistics (Pharm 3045), and Applied Multivariate Statistical Analysis in Pharmaceutical Sciences (Pharm 3073).

In your opinion, what are the most important attributes of a good instructor?

I think a good instructor should take time to prepare the teaching materials, especially to make sure the materials reflect the latest development in the field. The instructor should introduce the teaching materials in a clear and

logical fashion and keep students engaged through quizzes, group discussions, Q&A, and hands-on activities. The instructor should explore new teaching methods to improve the teaching quality.

What is your preferred teaching style?

I prefer to first give a thorough introduction so that the students have a big picture of the topic, and then introduce some essential concepts followed by practical applications. I also prefer to apply hands-on exercises that guide students in a step-by-step fashion to reproduce the essential findings of mini projects that adopted from recent publications. The feedback of many students indicates that these hands-on exercises have allowed them to learn how to approach and solve real-world problems.

Research

Could you briefly describe your research interests?

I have a broad range of research interests utilizing computers to assist biomedical research. The mission of our research group is to develop high-quality force field models so that the calculated binding free energy between an arbitrary ligand and a protein or nucleic acid receptor is within 0.8 kcal/mol, which corresponds to $4x k_i$ or IC_{50} . We are also interested in implementing the newly developed

force field models into user-friendly software tools to enhance the success rate of rational drug discovery.

What attributes do you think are essential for a student to be successful in research?

I think two attributes are essential. First, a student should be aware of the latest advances of their research field, discuss their interests with their mentor(s) and lab members, and then conceive a research project that is both novel and executable within the graduate career. Second, work hard to realize the novel ideas, seek advice and adjust strategies if necessary, and do not give up easily.

What do you find most fulfilling about being a scientist?

I am very pleased my work including force fields, computational algorithms and protocols, and software can benefit others' research projects. Those force field models and software can also enhance the success rate of drug design in others' drug discovery projects.

Life in Pittsburgh

Can you recommend any must-visit museums, parks, or recreational areas in Pittsburgh?

Carnegie Science Center, Heinz History Center, Carnegie Natural History Museum, and Mt. Washington

Esteemed Alumni



Zoe Vaughn, PhD

Zoe was born and raised in Rochester NY and then went to the University of Buffalo (SUNY) for her bachelors in chemistry and a minor in medicinal chemistry. Throughout her time at UB Zoe was very involved in two research labs, the Western New York Prosperity Fellowship, the gospel choir, and the UB STEP program. In 2018 she was accepted into The University of Pittsburgh pharmaceutical science Ph.D. program where she began her journey in the medicinal chemistry track. Zoe could not have picked a better Ph.D. program because of the interdisciplinary nature of the school and the degree. Zoe always says how she wanted to be able to see the chemistry she does matter and she has been able to gain that from the pharmaceutical science program. Zoe's research involved being a scientific liaison between synthesizing novel inhibitors as well testing these inhibitors in biological assays for use in acute kidney injury. She considers it pure joy to have persevered to this point and according to accessible records she will be the first African American woman to graduate with a Ph.D. from the pharmaceutical science program here at Pitt. Directly after transitioning into a University of Pittsburgh alumni Zoe moved to Baltimore, Maryland to begin her post-doctoral work, at the US Army Medical Research Institute of Chemical Defense. Which is the Department of Defense's lead laboratory for medical chemical defense research. Her current work focuses on the design and synthesis of novel countermeasures for the treatment of chemical warfare agents. Zoe is also the founder of the #addlife scholarship, a scholarship given to high school students that look like her in hopes to pull up the next generation up the ladder. In 2024 she expanded her

scholarship to the cities that she has resided in during her academic journey, because of this one of her awardees was in Buffalo and the other in Rochester. While she was awarding the student in Rochester, she was also the keynote speaker for the 45th annual Black scholars Ceremony that is hosted by the Urban League of Rochester. Lastly, at the 4th annual Stemniore conference Zoe was awarded the second-best oral presentation. Zoe is incredibly honored to have been selected as an esteemed alumni and hopes to continue to make large impacts on her professional journey.

Can you share your career journey since graduating? What were some pivotal moments that shaped your professional path?

After graduating in summer of 2023, I moved to right outside of Baltimore, Maryland to begin my post-doctoral work, at the US Army Medical Research Institute of Chemical Defense (USAMRICD). Which is the Department of Defense's lead laboratory for medical chemical defense research. My current work is largely organic and medicinal chemistry focused where I primarily work on the design and synthesis of novel countermeasures for the treatment of chemical warfare agents. While I never thought I would be a government chemist I believe it has been an amazing journey and I believe it has helped me figure out what kind of scientist I want to become. Earlier this year I applied for my first full grant and the paperwork associated with it was intense, but I realized how much I enjoyed proposing a novel idea that was simply mine. This was a pivotal moment for me because it opened my eyes to a route, I never thought I would take (I did not even know it was an option) but as I completed the proposal, I began to think about having my own lab in the government. While I still have not solidified what my next steps will be after my post-doctoral fellowship the freedom surrounding generating ideas from scratch that I had to convince other people were good was very exciting for me, the autonomy that was associated with the proposal writing was new and

exhilarating for me and I believe it is something I will continue to pursue as I move through other stages on my professional journey.

What advice would you give to graduate students about making the most of their time in graduate school, both academically and professionally

If at all possible, do internships! During my time in graduate school, I was able to do an internship at Merck and I do believe it changed my life. Not only, did I gain a fresh perspective and hands on experience as to the diversity of spaces to do medicinal chemistry, but I also was able to gain a new sense of confidence through the research I was doing and the mentors I gained while there. I highly encourage gaining some exposure with an internship during graduate school because they can really help shape you into the scientist you desire to be! Also attending and presenting at conferences, it is very key to be able to do both. I believe presenting for the public makes you a more well-rounded scientist, gaining understanding of what people outside of your lab or department think about your research is very important in potentially landing a job in the future or adding someone to your network. Conferences are a great way to spark new ideas, gain collaborators, or even get a job I would encourage graduate students to attend and present at as many conferences as possible.

How did you build your professional network during and after graduate school, and what role did mentorship play in your career development?

As an introvert, I had to be and still have to be very intentional about networking. When it comes to conferences, work related happy hours, or even networking events I try to make a minimum of two to three meaningful connections. For me this involves doing research on the people I believe will be at these events whether I know about their area of research, or have read a paper, or simply know about their company I try to prepare well for these social settings to try and optimize them

and not drain my battery. Usually when you have done your homework on people, they are very open to talking more about themselves or their research. I also believe it is super important, if possible, to connect back to you or the work you are doing, this way it will not feel one sided and you will be able to really engage with the person you are speaking with. I believe it is by the help of mentors that I am where I am today, I believe I have the acquired the best mentors from my undergrad mentor, to my Merck internship mentor, and even now my fantastic post-doctoral mentor at USAMRICD. Each of these mentors I believe see something in me that I often struggle to see, they each have fought for me to have a seat at the table, and they each have allowed me to be scientifically creative and really pouring into my ideas to make them a reality. Behind anyone doing something worth noting, I believe there is a great mentor helping shape their journey into what it is.



Yuangchen, PhD

Dissertation title:

Engineering nanoparticles for cancer therapy

Reflection: My journey in the graduate program has been marked by challenges, triumphs, and countless moments of growth. I am lifted by the unwavering support and camaraderie of my peers and mentors. The spirit of collaboration and mutual encouragement from everyone around served as a guiding light, illuminating my path forward even in the face of adversity.

Featured Students



Madeline Lipp.
PhD Candidate

I completed a B.S. in Microbiology at Michigan State University followed by a PharmD and PGY1 Residency at the University of Michigan. I am completing my PhD in the lab of Kerry Empey PharmD, PhD where I study the targeting of tissue resident memory T cells (TRMs) in RSV immunization. I have also been able to work with my co-advisor and TL1 primary advisor, Mark Snyder MD, where I have had the opportunity to study TRMs in human lung transplant. In addition to the TL1 fellowship, I have also been fortunate enough to complete a predoctoral T32 through the Department of Immunology, and received an AFPE Pre-doctoral Fellowship. What motivated you to pursue graduate school, and how did you find your interest in the field?

During my patient care experiences as a pharmacist, I felt that I was missing out on the drug development and target identification processes. I considered doing a fellowship but felt that a PhD would best prepare me for the type of research career that I wanted to have. I have always been interested in infectious diseases and prevention, so the opportunity to work with Dr. Empey who specializes in RSV immunology and immunization research was a great match.

What challenges have you faced during your graduate training, and how have you overcome them?

I have had plenty of challenges- one that I would highlight is the challenge of needing to learn a bunch of new skills in the relatively short period of graduate training. It's easy to feel incompetent, but when you step back and realize just how much you have learned at the end of it all, it's incredibly rewarding.

How does it feel to receive the TL1 fellowship, and what have you gained from the experience?

I was thrilled to receive the TL1 fellowship, as it is allowing me to gain further experience with Dr. Snyder in research methods that were not a major component of my PhD work. It's also a great opportunity for career development, mentorship, and of course an opportune time to complete more publications.

How do you think graduate students can prepare to be successful in their graduate training and future careers?

For me, I found that making connections with those working in my field both within and outside the university has fostered a highly collaborative educational experience that I know I can leverage as I look forward to starting my post-doctoral career.

When you're not doing research, what do you enjoy?

I am an avid reader so I can usually be found with a book. I also enjoy traveling when I can, going home to Michigan to enjoy lake life, and spending time with my supportive partner (and cat!)



Jacob Cuyler,
PhD Candidate

My name is Jacob Cuyler, a PhD Candidate in Dr. Sean Xie's laboratory. I grew up in Syracuse NY and received my bachelor's degree from Nazareth University in Rochester NY. I am in the medicinal chemistry track and my main research focus is on the cannabinoid system and its potential application/involvement in pancreatic cancer. I am honored to have received the 2023 Teaching Assistant Excellence Award from the Department in 2023. In addition to my research, I served a one-year term on the University Council of

Graduate Studies. I am also an active member of our school's Justice, Equity, Diversity and Inclusion (JEDI) Committee.

What motivated you to pursue graduate school and how did you find your interest in the field?

I became motivated to pursue grad school after I was an undergraduate research assistant for all four years at Nazareth College in Rochester, New York. My Bachelor's degree is in Biochemistry, but my interest in the Pharmaceutical Sciences was triggered by an elective course in drug design and development. Initially, I was only interested in chemistry, but after arriving at Pitt Pharmacy, I was exposed to a breadth of research, and I began to develop an interest in pharmacology and drug mechanism studies.

What challenges have you faced during your graduate training, and how have you overcome them?

I can easily become excited about a new idea or project but sometimes that can take away from my current projects. The last two years of grad school have helped me nail down my project and time management skills that I lacked in my first few years at Pitt.

How does it feel to be a teaching assistant, and what do you gain from the experience?

When I first came to Pitt, I was a nervous public speaker. With the help of department seminars and my time as a TA, I really began to develop my public speaking skills and I became much more confident in my ability. If I hadn't sought out additional teaching responsibilities as a TA, I would not have realized how much I enjoyed teaching, and probably wouldn't have had the level of improvement in the public speaking I do today.

How do you think graduate students can prepare to be successful in their graduate training and future career?

I highly recommend pursuing leadership opportunities either within the School of Pharmacy, or even larger University level opportunities. I have learned so much about leadership and management from my time on various

committees that I feel will be invaluable to my future career, regardless of field.

I've found one of the simplest ways to learn and develop as a scientist has been by attending the department seminars and asking questions.

When you're not doing research, what do you enjoy?

-Outside of the lab, my favorite things are trail running, camping, and exploring breweries around Pittsburgh.



I also have two dogs at home that I love to spend time with.

In addition, I'm also a massive fan of soccer and American football, proudly supporting West Ham United and the New York Jets.

Prerna Dodeja,
PhD Candidate

Prerna Dodeja is a PhD Candidate at the School of Pharmacy, advised by Raman Venkataramanan, PhD and Jan H. Beumer, PharmD, PhD. Her research focuses on model-based dose optimization of drugs in pregnant, postpartum and lactating women. She earned a BS in Pharmacy from Mumbai, India and joined PittPharmacy for her MS in 2019. Prerna has garnered numerous prestigious awards, including the first place in the 3-Minute Thesis Competition at Pitt School of Pharmacy and the highly competitive CTSI Quantitative Methodologies Pilot Grant Funding. Her work aims to transform pharmacotherapy for maternal-fetal health.

What motivated you to pursue graduate school, and how did you find your interest in the field?

As a child, I was always inquisitive. My family also told me the adage: "If you don't ask why, knowledge shall die." I did well academically and was particularly interested in science. My interest grew as I took advanced courses in high school, and the career path sounded like a great fit for me. After pointing out my scientific acumen, my teacher at school said that I would become a scientist someday. Graduate school was a natural path since I wanted to become an independent scientist and contribute to significant discoveries.

Pharmacokinetics is not a very common area of interest in India where I grew up. However, I had trained in the quantitative disciplines of math and computer science during high school and could grasp pharmacokinetic concepts relatively quickly. Moreover, Dr. Venkataramanan introduced me to the world of research in the field and made me fall in love with the subject.

What challenges have you faced during your graduate training, and how have you overcome them?

Graduate training is rarely smooth; however, the best way out is through. I have been very fortunate to be advised by Dr. Venkataramanan and Dr.

Beumer, both of whom are not only brilliant researchers but also kind and positive mentors. The greatest challenge I have faced was learning and implementing pharmacometric skills. I chose to take on pharmacokinetic modeling and simulation, with limited knowledge or guidance on conducting them. I overcame these challenges mainly by picking up the skills myself through patient trial and error and learning from experts. Moreover, I had to learn to be self-reliant and work through challenging code or model errors with a calm and level head.

How does it feel to be the winner of the school-wide 3MT competition, and what have you gained from the experience?

Winning the school-wide 3-Minute Thesis (3MT) competition was a rewarding experience. It was a great confidence boost, knowing I was able to break down my dissertation to its most critical components. Preparing for the competition helped me take a step back from my work and think about how to present it in a way that is understandable to someone who hasn't been working on the project for years like I have. I had to assume that the audience had no idea what I was talking

about, so I had to figure out how to take them through the story I was trying to tell. This is an important skill when interviewing for jobs, so I appreciate the lower stakes (and fun!) way to get more practice with it. On a more personal note, the 3MT experience also contributed to a sense of pride and excitement towards my role in research and knowledge creation.

How do you think graduate students can prepare to be successful in their graduate training and future careers?

Students should first develop clarity on their research question. This involves understanding the scope of their field, identifying gaps in current knowledge, and formulating questions that are both impactful and manageable. Students should also actively seek out mentors who can provide guidance and feedback, not just on their research, but also on personal development. It is very important not to take any constructive criticism personally, since graduate school will be replete with such feedback. Additionally, developing a set of transferable skills, such as data analysis, writing, public speaking,

organization and project management, can help in future careers. Most importantly, learning to enjoy the journey is key. Earning a Ph.D. is akin to running a marathon. As graduate students, we must learn to pace ourselves and take care of our physical and mental health to reach the finish line.

When you're not doing research, what do you enjoy?

In my spare time, I enjoy reading (non-fiction, philosophy), playing the guitar, and imbibing copious amounts of coffee. I also prioritize relaxation by doing yoga and meditation. Recently, I have become an avid runner. You may find me running around Shadyside after a long day of work.

Scientific breakthrough

nature communications



Article

<https://doi.org/10.1038/s41467-023-44572-6>

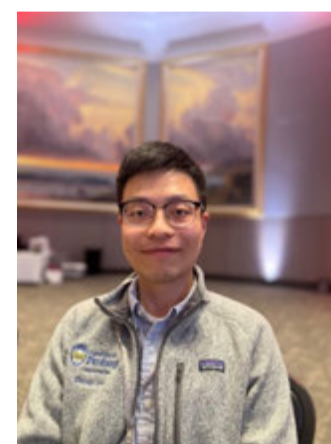
Inhibition of iRhom1 by CD44-targeting nanocarrier for improved cancer immunochemotherapy

Received: 16 February 2023

Accepted: 20 December 2023

Published online: 04 January 2024

Zhangyi Luo^{1,2}, Yixian Huang^{1,2}, Neelu Batra³, Yuang Chen^{1,2}, Haozhe Huang^{1,2}, Yifei Wang^{1,2}, Ziqian Zhang^{1,2}, Shichen Li^{1,2}, Chien-Yu Chen^{1,2}, Zehua Wang^{1,2}, Jingjing Sun^{1,2}, Qiming Jane Wang⁴, Da Yang^{1,2}, Binfeng Lu⁵, James F. Conway⁶, Lu-Yuan Li^{2,7}, Ai-Ming Yu² & Song Li^{1,2} ✉



Zhangyi Luo, PhD

Abstract

The multifaceted chemo-immune resistance is the principal barrier to achieving cure in cancer patients. Identifying a target that is critically involved in chemo-immune-resistance represents an attractive strategy to improve cancer treatment. iRhom1 plays a role in cancer cell proliferation

and its expression is negatively correlated with immune cell infiltration. Here we show that iRhom1 decreases chemotherapy sensitivity by regulating the MAPK14-HSP27 axis. In addition, iRhom1 inhibits the cytotoxic T-cell response by reducing the stability of ERAP1 protein and the ERAP1-mediated antigen processing and presentation. To facilitate the therapeutic translation of these findings, we develop a biodegradable nanocarrier

that is effective in codelivery of iRhom pre-siRNA (pre-siiRhom) and chemotherapeutic drugs. This nanocarrier is effective in tumor targeting and penetration through both enhanced permeability and retention effect and CD44-mediated transcytosis in tumor endothelial cells as well as tumor cells.

Inhibition of iRhom1 further facilitates tumor targeting and uptake through

inhibition of CD44 cleavage. Co-delivery of pre-siiRhom and a chemotherapy agent leads to enhanced antitumor efficacy and activated tumor immune microenvironment in multiple cancer models in female mice. Targeting iRhom1 together with chemotherapy could represent a strategy to overcome chemo-immune resistance in cancer treatment.

Living in Pittsburgh



Grocery Stores:

- Aldi and Giant Eagles** (Nice for daily grocery shopping!)
- Robert Wholey & Co. Inc.** (Fresh meats & seafood)
- Strip District Meats, Inc.** (Different kinds of meats)
- Penn Avenue Fish Co** (Nice sashimi & poke bowls)
- Salem Market & Grill** (Halal grocery store, nice beef & lamb)
- Las Palmas Pittsburgh #2** (Great taco!)
- Lotus Food Company** (Asian grocery store with delivery-to-door service)

University:

- Cathedral of Learning** ('Hogwarts School', a beautiful place for studying!)
- Soldiers and Sailors Memorial Hall and Museum** (Enjoy the sunshine on the lawn)
- Hillman Library** (Good for study)
- Peterson Student Center** (Large gym & basketball playground (sometimes have basketball games, check email!))
- Trees Hall** (Large swimming pool (pay attention to its opening time) & basketball playground.)
- Bellefield** (Swimming pool, a badminton court here.)

Where are the Starbucks:

- UPMC Presbyterian** (Sometimes cannot order ahead)
- Forbes Tower L1** (Forbes Avenue)
- Amos Hall** (4022 Fifth Ave (can be crowded))
- Across the street from the Carnegie Museum of Art** (425 S Craig St)

Downtown Pittsburgh:

- Point State Park** (Super nice river view with a high fountain)
- Duquesne Incline—Mt Washington** (Amazing city view & nice restaurants—good for dating 😊)
- Skyline Pittsburgh Overlook** (A must-see Pittsburgh view)
- National Aviary** (Bird lovers??)
- Heinz Field NFL** (Go Steelers!)

Museum:

- Carnegie Museum of Art + Carnegie Museum of Natural History** (Pitt free, expect summer/winter holidays)
- The Andy Warhol Museum**
- Fort Pitt Museum**
- Mattress Factory**

Others:

- Phipps Conservatory and Botanical Gardens** (Seasonal exhibitions)
- Schenley Park** (Skating park here)
- Allegheny Observatory** (American astronomical research institution)
- Kennywood Park** (Be sure to go on Halloween!)
- Seven Springs Mountain Resort** (Let's go skiing!)
- Raccoon Creek State Park Wildflower Reserve**
- Moraine State Park**
- Fallingwater & Chiophyle State Park**

Movie:

- Manor Theatre**
- AMC Waterfront 22**

All About AAPS and GSO

All About AAPS!

Founded in 1986, the American Association of Pharmaceutical Scientists (AAPS) is a professional, scientific organization of approximately 7,000 individual members and over 10,000 actively participating stakeholders employed in academia, industry, government, and other pharmaceutical science-related research institutes worldwide. Our AAPS student chapter provides exceptional opportunities for young scientists to connect with AAPS member scientists, build their professional networks, and tap into meaningful career advice.

Time to Get Involved!

All members of the PittPharmacy graduate school are considered local members of AAPS. Students have the opportunity to become national members of AAPS through www.aaps.org where they can sign up and join with annual dues costing \$50. Additionally, AAPS offers various leadership opportunities through formal positions (i.e. Chair, Chair Elect, **Vice-Chair, Secretary, Treasurer, Head of Outreach, Head of Multimedia**), **informal positions (members of the outreach & multimedia committees), and volunteer roles.** All highlighted positions are open this year!! Elections are held every September, if you are interested in any of the opening positions (several positions can be chosen), make sure to register for the election with Xig53@pitt.edu!

All new students are welcome to run!

All graduate students will vote for the upcoming year's leadership board for 2023-2024. For more information, please contact:

Xiaojiang Guo,

Chair of AAPS 2024-25

XIG53@pitt.edu

Or

Jiayi Yuan,

Chair-Elect of AAPS 2024-25

JIY106@pitt.edu

All About PS-GSO!

My full name is Pharmaceutical Sciences Graduate Student Organization (PS-GSO) of the University of Pittsburgh. PS-GSO is to represent, advocate for, and connect graduate students across various disciplines and backgrounds. We strive to address the unique needs and challenges faced by graduate students, offering valuable resources, activities, events, networking opportunities, and a platform to voice their concerns.

PS-GSO: All full-time and part-time graduate students enrolled in the school of pharmacy and in good academic standing are automatically considered to be members. There are four main officers: President, Vice-President, Business Manager and Media Assistant. The officers shall be elected every two years by the graduate students. Here are the responsibilities of each officer.

President:

Chen Jiang

The President shall (1) administer the affairs of the organization in line with its general policies and procedures, (2) issue all notices, and (3) send and answer correspondence.

Vice President:

Yixuan Hao

The Vice-President shall (1) perform all duties of the President in the absence of that officer and (2) assist the President with the oversight of the student organization.

Financial Manager:

Xiaotong Li

The Financial Manger shall overlook all financial issues including budget, expenditure, and annual report. She/he shall (1) pay all bills incurred by the PS-GSO with the approval of the President, (2) pay bills from officers and representatives according to PS-GSO guidelines, (3) keep records of all financial transactions, and (4) give a statement of finance as often as required.

Media Manager:

Lianjin Cai

The media assistant shall (1) record the roll and minutes of the organization meetings, (2) shall keep accurate records of all meetings and other proceedings, and most importantly, (3) maintain and updating the social media page to reflect recent events and future plan.

For more information, please contact:

Chen Jiang,

Chair of GSO 2023-25

CHJ51@pitt.edu

Social accounts! Looking for more? Please follow AAPS and GSO's social media accounts!

