

**From the Director:**

Dear PI4D members,

The PI4D Distinguished Lecture series is up and running! A couple of weeks ago, we hosted Scott Hultgren, a member of the National Academy of Sciences since 2011, who spoke about the molecular details of host pathogen interactions in urinary tract infections (UTIs). Our plan is to continue to invite other investigators that have risen to a high level of distinction so that we can explore areas of collaboration and partnership with them, and perhaps attract them as leading faculty hires to Purdue. We are seeking your nominations of high-ranking investigators you would like to invite to campus. Please, send us their name and contact information. We will do our best to invite as many faculty as possible and continue building our community of world-class investigators like you.

- Dr. Richard Kuhn
Director, PI4D

PI4D to Host the Indiana Bioscience Research Institute Seminar on October 26th

PI4D is pleased to host leading investigators from the Indiana Bioscience Research Institute (IBRI) to learn about their research initiatives and identify areas for collaboration. Michael Pugia, Research Fellow & Director, Single Cell Bioanalytics Center, will be accompanied by Staff Scientists Raluca Ostafe and Zane Baird. Dr. Pugia joined IBRI in 2016 following a successful 30-year career in the biomedical in-vitro diagnostic industry. There he contributed to more than 20 new product launches for Bayer and Siemens and spent 15 years as a director of research and development working on next generation analytical and diagnostic technologies in collaboration with leading institutions and companies. His primary research interest is the development of single-cell bioanalytical technology for proteomic biomarkers discovery in the fields of endocrinology and oncology.

SPECIAL SEMINAR - Dr. Pugia will be providing a talk entitled: *The role of the C-Terminal Fragment of the adiponectin receptor in the transition from the innate to adaptive immunity.*

DATE – October 26th

TIME – 9:00am to 10:00am

LOCATION – Drug Main floor Conference room

Please, encourage your lab groups to attend!

PI4D Mini-Symposium: New Frontiers in Immunology

PI4D is excited to present a special mini-symposium in immunology with special guests Claudia Kemper and Ben Afzali. Dr. Kemper is Senior Investigator Laboratory of Complement and Inflammation Research at the National Heart, Lung, and Blood Institute, and Dr. Afzali is Clinical Fellow in the Department of Immunoregulation & Immune Intervention at King's College, London. They will be joined by some of our newest PI4D members who will cover various aspects of research and technological advances in the field of immunology.

DATE – October 27th

TIME – 1:00pm to 4:00pm

LOCATION – MRGN 121

Agenda

New Frontiers in Immunology

1:00-1:20pm	Rob Stahelin (MCMP)	“Ebola virus and Marburg virus use different mechanisms of lipid gymnastics to assemble and exit the host cell”
1:25-1:45pm	Gaurav Chopra (CHEM)	“Chemical perturbation of immune microenvironments”
1:50-2:10pm	Elsje Pienaar (BME)	“Systems biology approaches in tuberculosis disease and treatment”
2:15-2:35pm		“Pan-cancer analysis of EBV-host interaction”

Majid Kazemian
(BIOCHEM)

Ben Afzali, King's

2:40-3:15 pm College, London “BACH 2 basics: from transcription factors to cell biology”

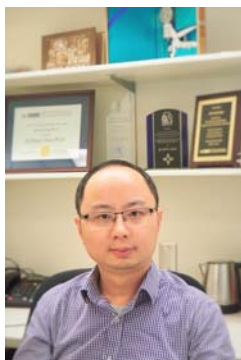
Claudia Kemper,

3:20-3:55pm NHLBI, NIH

“An unexpected Force from within: key roles for complement
in normal cell physiology”

This event is open to everybody. Please help us spread the word!

PI4D Members Profile



Dr. Qi (Tony) Zhou

Interviewed and written by Diana Cortes-Selva

Dr. Zhou joined Purdue in October 2015 as an Assistant Professor in the Department of Industrial and Physical Pharmacy. With extensive research experience abroad, he became a Purdue Faculty following his post-doctoral training at the University of Sydney, Australia. In less than 2 years from joining Purdue, Dr. Zhou was awarded a R01 grant with \$2.4M total funding from NIH/NIAID to develop new therapies to treat drug-resistant lung infections.

When asked to describe his research Dr. Zhou explains: “lung diseases are generally very difficult to treat, for many medications conventional dosage forms such as oral or intravenous medicines don’t go to the disease sites in the lungs very efficiently; this is why for lung diseases, pulmonary drug delivery system or inhaled medicines are preferred. We can formulate inhaled medicines, deliver them directly to the lung and they can cure diseases in a much more effective and safer way”.

Impressively, he has been awarded a NIH R01 grant on his first submission to the NIH. “You can

say it's kind of lucky, because I submit the first time and get that grant" said Dr. Zhou. "But I would say it's not only luck, because you have to get prepared for this opportunity falling on you. This is also what I advise my students - it's never too early to get prepared. I have continued this project for the last five years. Back in Australia, I brought the ideas to the new postdoc group after my PhD. I developed these ideas into my first independent grant, a National Career Development Fellowship, equivalent to a NIH K01 award. After this, we applied to and got a National Grant, equivalent to R01, and then a year later we obtained another National Major Grant, just before I moved to Purdue. I have published about 50 articles and among them, 20 are published after I moved to Purdue, which formed a solid foundation as the preliminary data for this (NIH R01) application. Actually, this (NIH grant) is the outcome of a continuous effort" added Dr. Zhou.

Thus far, the most memorable moment in his Academic life happened a few months ago. "Early of this year, I got the New Investigator Award from the International Society of Aerosols in Medicine, and my student got the Excellent Student Award from that society. For me I'm even happier that my student got that award, than just me getting it. Another interesting thing is that in the oral presentation competition my student beat me and other professors, and was awarded the Best Presenter Award. I'm not disappointed or embarrassed at all, I'm so proud of it because I believe as an educator, the biggest success is that your students are doing better than you", narrated Dr. Zhou.

In regards to his experience at Purdue, Dr. Zhou calls the University "a big family, with so many innovations and collaborations happening". In regards to the Purdue Institute of Immunology, Inflammation and Infectious Disease (PI4D) he says, "PI4D is a fantastic organization, the collaboration happens every day with excellent support, I think that is very good for the young scientists like me to grow".

For more information on Dr. Zhou and his novel research: <http://www.ipph.purdue.edu/directory/?uid=zhou659>



Dr. Fangjia Lu

Interviewed and written by Diana Cortes-Selva

Dr. Lu is a research assistant in Dr. Harm HogenEsch's lab in the College of Veterinary Medicine. Originally from China, he transferred to Purdue after two years at Shanghai Jiaotong University to pursue undergraduate studies in Biological Science. He fell in love with research and Purdue's environment and decided to stay in West Lafayette to obtain his Master and PhD degree. Dr. Lu's

research focuses on the study and development of vaccine adjuvants. About his research Dr. Lu explains: “I work mainly with vaccine adjuvants, which is the material included in the vaccine formulations to make them work better. Currently, for human vaccines in the US there is only one type of adjuvant approved, called aluminum adjuvants. For animal vaccine there are more types, but mainly aluminum or oil emulsions, which bring various problems including low compatibility with attenuated live viruses and low thermostability. In this case, there is a need for new adjuvant materials. My research investigates the mechanism of how adjuvants work, focusing on the immediate inflammatory response and its impact on the final immune protection. We also explore new materials to be used as adjuvants. Currently we are working on a plant-derived nanoparticle that is easy to be produced and we have found it to be a very good adjuvant material. Efforts have been taken to explore its potential it to be used in marketed vaccines, and we plan to focus on animal vaccines first”.

Dr. Lu and his colleagues are currently involved in the commercialization of this novel plant-derived vaccine adjuvant. Purdue Research Foundation (PRF) has patented the nanoparticles as vaccine adjuvants, and the technology is in the process of acquiring the full patent from the United States Patent and Trademark Office. Moreover, to fulfill their entrepreneurial passion, they have recently established a company and have licensed the technologies from PRF. “We just finished the National Science Foundation I-Corps Program, in which we talked to probable customers and other vaccine companies in the ecosystem to explore the marketing potential of this technology”, said Dr. Lu.

When asked about his advice to other scientists interested in entrepreneurship and commercialization of basic research projects he replied: “When you do research, pay attention to the IP (Intellectual Property). Purdue has been doing a great job to secure the IP. If you see something special in your research, make sure to file the IP and get it protected. Second, there are many resources that are very helpful and unique at Purdue, like Purdue Research Foundation and Purdue Foundry. Do seek help from them, reach out to them; I am proud to say they are very willing to help the researchers here”. For more information on Dr. Lu’s research please visit: <http://www.vet.purdue.edu/discovery/HogenEsch/index.php>

Bill and Melinda Gates Grand Challenges Explorations Round 20

Grand Challenges Explorations Round 20 is now open for proposals. All three of the GCE projects are health-related, as described below:

Submission deadline: **Wednesday, November 8, 2017, 11:30 am U.S. Pacific Daylight Time (2:30 p.m. Eastern)**

Amount: Up to \$100,000

More details can be found here: <https://gcgh.grandchallenges.org/grant-opportunities>

- [Novel Approaches for Improving Timeliness of Routine Immunization Birthdose and Healthcare Worker Skill in Low-Resource Settings;](#)
- [Healthy Minds for Adolescent Mothers: Achieving Healthy Outcomes for the Family;](#)
- [Innovations for Integrated Diagnostics Systems](#)

Please feel free to contact me with any questions or if you'd like any assistance with the proposal.

Best regards,

Mary Nauman

Director of Strategic Initiatives

Corporate and Foundation Relations

Purdue Research Foundation

403. W. Wood Street, West Lafayette IN 47907

(765) 494-2728 (office)

(765) 418-1114 (cell)

**Walther Oncology Physical Sciences & Engineering
Research Embedding Program**

Request for Embedding Project Proposals

Initial Tier One Planning Projects (\$40,000 each)

Tier Two Follow-up Projects (Up to \$200,000 - \$250,000 each)

Tier one Due Dates: September 6, 2017, and Jan 10, 2018

The Walther Oncology Physical Sciences and Engineering Research Embedding Program (Walther Embedding Program), a joint program between the Indiana University Simon Cancer Center (IUSCC) and Purdue Center for Cancer Research, announces Phase 2 of the Embedding Program. The program is funded by the Walther Cancer Foundation with the goal of creating an environment where clinical perspectives drive the design of new technologies and predictive models to increase the effectiveness of cancer detection, diagnosis, and treatment. The program funds interdisciplinary, collaborative projects between Purdue University and IUSCC. Each team must include: 1) at least

one Purdue faculty PI either from the physical or chemical sciences, computer science, mathematics, or engineering, 2) at least one senior clinical faculty PI from the IUSCC, 3) a Purdue postdoctoral trainee/senior graduate student, and 4) an IUSCC medical fellow/resident/junior faculty. There is an expectation that each funded trainee will spend significant time embedded in the other team members' laboratory/environment or clinic.

Successful Research Embedding Teams will be awarded funds to support the following:

1. Postdoctoral trainee/senior graduate student salary
2. Medical fellow/resident/junior faculty salary
3. Project supplies as appropriate to the project
4. Travel between institutions

The program is structured in a two-tier award system.

Tier One

Tier One projects(\$40,000/project) will support small, "embedding" pilot projects for the development of innovative ideas for the clinical translational of new technologies. Successful Tier One projects, upon completion, will have demonstrated: 1) an in-depth, impactful, and implemented embedding plan for the junior trainees (postdocs, senior graduate students, medical fellows/resident, or IUSCC junior faculty) in each research team; 2) a carefully developed research plan that demonstrates the clinical influence in the design of advanced technologies/models/tools; and 3) preliminary prototype/data/technology that demonstrates the feasibility and clinical impact of the project. The project period is five months and no-cost extensions are not allowed. There are two application deadlines for the Tier One program: September 6, 2017, and Jan 10, 2018. (Online submission will be open on August 1, and December 1, 2017.)

Tier Two

Based on the successful implementation of the embedding plan, and scientific and technical merit, the three most successful Tier One projects will be awarded up to an additional \$200,000 - \$250,000 each during the Tier Two, or implementation phase of the project. During this phase, a continued iterative refinement will occur through scheduled progress meetings with the Walther Embedding Program leadership team. Tier Two project period is one year and six months.

All project are expected to result in a high impact on the career direction of the funded trainees, high quality publications and as appropriate, applications to federal funding agencies for fellowships or grants or advancement to commercialization of new technologies/tools.

Interested faculty in need of collaborators should contact Luanne Bermel at Purdue University (lmi@purdue.edu; 765.496.9316) or Elizabeth Parsons at the IUSCC (eparsons@iupui.edu; 317.278.0078).

Have a start up? You may be interested in the Entrepreneurship resource portal. Feel free to check it out at <https://ihif.org/2017/07/13/entrepreneurship-resource-portal/>

Funding Opportunities

Opportunity	Award Amount	Deadline
<u>Research to Advance Vaccine Safety (R01)</u>	Varies	October 5, 2017
<u>NIH Novel Approaches to Understanding, Preventing and Treating Lyme Disease and Tick-borne coinfections (R21)</u>	200,000	October 16, 2017
<u>**Gates Foundation Grand Challenges Explorations (Rd 20)</u>	100,000	November 8, 2017
<u>NSF Ecology and Evolution of Infectious Diseases (EEID)</u>	Varies	November 15, 2017
<u>NIH Oral HIVacc: Synergistic Strategies to Systemic Vaccination (R01)</u>	Varies	November 24, 2017
<u>Walther Oncology Physical Sciences & Engineering Research Embedding Program</u>	40,000	January 10, 2018
<u>HHS-CDC Reducing disparities in vaccination coverage by poverty status among young children: An assessment of parental experience, barriers, and challenges with accessing quality vaccination services)</u>	300,000	January 18, 2018
<u>HHS-CDC Economic Studies of Immunization Policies and Practices</u>	300,000	February 22, 2018
<u>NIH Notice of Intent to Publish Funding Opportunity Announcements to Promoter Implementation Science (R01) and Dissemination and Implementation Studies (R18)</u>	Varies	Calendar Year
<u>NIH-NIAID Omnibus Broad Agency Announcement</u>	Varies	Varies

**Newly added

Additional Resources from NIH:

<https://public.csr.nih.gov/Pages/csrwebinar.aspx>

Send us your images and news stories! Images and stories can be deposited [here](#), or email us at pi4d@purdue.edu

