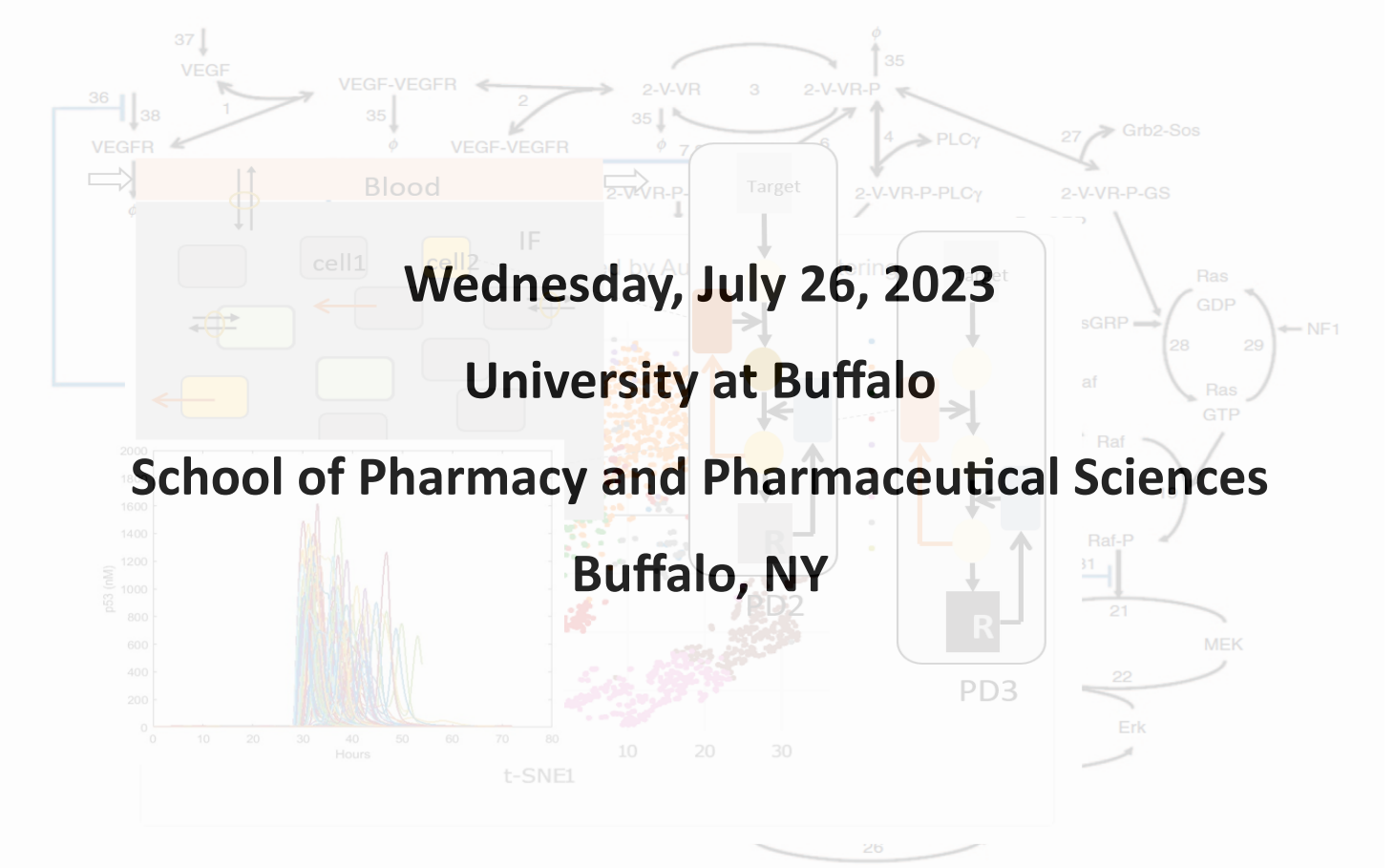
University at Buffalo

School of Pharmacy and Pharmaceutical Sciences

Sixth Annual

Quantitative Systems Pharmacology

Symposium 2023



Wednesday, July 26, 2023

University at Buffalo

School of Pharmacy and Pharmaceutical Sciences

Buffalo, NY

The Symposium brings together scientists interested in quantitative systems pharmacology (QSP) to present and discuss contemporary approaches, including the challenges and opportunities for advancing the science and practice of QSP. It is hoped the symposium serves to stimulate collaborations and synergies amongst its participants to promote discoveries in the field of QSP.

Wednesday, July 26, 2023

8:00 am Registration and continental breakfast

8:30 am
Welcome and Introductory Remarks
James Gallo, PharmD, PhD
Empire Innovation Professor, Pharmaceutical Sciences, University at Buffalo

Donald Mager, PharmD, PhD, FCP
Professor and Chair, Pharmaceutical Sciences, University at Buffalo

8:45 am
Hacking Biology's Regulatory Programming to Drive Targeted Drug Repurposing
Gordon Broderick, PhD
Director, Center for Clinical Systems Biology, Rochester General Hospital

9:30 am
Leveraging Immune-immune Interactions in the Tumor Microenvironment in Rational Design of Cancer Therapies
Sepideh Dolatshahi, PhD
Assistant Professor, Biomedical Engineering, University of Virginia

10:15 am Networking and Coffee Break

10:45 am
A Systems Approach to Understand Variability in Antibody-Fc Receptor Interactions after Vaccination
Kelly Arnold, PhD
Associate Professor, Biomedical Engineering, University of Michigan

11:30 am
Computational Modeling to Solve the Mystery of Complex Biological Functions and Regulations
Ranjan Dash, PhD
Professor, Biomedical Engineering and Physiology, Medical College of Wisconsin

12:15 pm Lunch

1:15 pm

Guiding Model-driven Combination Dose Selection using Multi-objective Synergy Optimization

Jana Gevertz, PhD

Professor, Department of Mathematics and Statistics, The College of New Jersey

2:00 pm

From Data to Knowledge in Network-driven Cellular Processes

Carlos Lopez, PhD

Principal Scientist, Lead, Multi-scale Modeling Group, Altos Labs.

2:45 pm Networking and Coffee Break

3:15 pm

Predicting Function of Microbial Communities for Therapeutic Benefit

Jason Papin, PhD

Harrison Distinguished Teaching Professor, Biomedical Engineering, University of Virginia

4:00 pm Reception

Speakers

Kelly Arnold is an Associate Professor in Biomedical Engineering at the University of Michigan. Her research is focused on using quantitative approaches to gain new insight into the microbiome and the immune response to infection, vaccination, and injury.

Gordon Broderick is an engineer by training and holds a doctorate in chemical engineering from the University of Montreal as well as a Master's in chemical engineering and an undergraduate in mechanical engineering both from McGill University. He received post-doctoral training in cancer genomics at McGill's School of Computer Science, and computational biochemistry at the University of Alberta. His current research examines immune and endocrine dysfunction from an integrated systems perspective. His group applies information and dynamic systems theory to tap into the neuro-endocrine immune communication highway in order to decipher and redirect pathogenic conversations with well-chosen and well-timed pharmaceutical messages. His work is funded under awards from the U.S. Department of Defense, the Department of Veterans Affairs and the National Institutes of Health (NIH).

Ranjan Dash is a Professor of Biomedical Engineering (BME) and Physiology at the Medical College of Wisconsin (MCW) and Co-director of the Joint MCW and Marquette University BME Graduate Program. His lab uses combined computational modeling and experimental techniques to study gene regulatory networks, mitochondrial and cellular metabolic functions in different tissues under normal and disease conditions. In addition, his lab works on physiologically-based pharmacokinetic and pharmacodynamic modeling of drugs to characterize important molecular targets indicative of tissue/organ viability and injury.

Sepideh Dolatshahi is an Assistant Professor of Biomedical Engineering at the University of Virginia (UVA), a core member of UVA Cancer Center, and a member of the Carter Immunology Center. Her Systems Immunology lab at UVA combines multiplex experimental measurements with computational modeling (including statistical machine learning, network inference, information theory, signal processing and kinetic-dynamic modeling) to solve problems in the context of cancer, infectious diseases, and neonatal-maternal immunology.

Jana Gevertz is a Professor in the Department of Mathematics and Statistics at The College of New Jersey who works on data-driven modeling of cancer treatment. She is the recipient of multiple teaching awards and has served as the research mentor for over twenty undergraduate students. She is currently the treasurer of the Society for Mathematical Biology, and a visiting scientist at Merck Serono's Translational Quantitative Pharmacology group.

Carlos Lopez received his BSc and BLA degrees from University of Miami, his PhD in Physical Chemistry from University of Pennsylvania, had a postdoctoral position at UT-Austin, and was the HW Pierce/King Trust Research Fellow at Harvard Medical School. Dr. Lopez has received multiple prestigious appointments and awards, including serving as the Vanderbilt University-Oak Ridge National Lab Liaison (2017-2019) and recently attaining an NSF CAREER Award (2019). His work employs novel theoretical, computational and modeling approaches, in combination with experimental data, to explain and predict cellular dynamic processes across multiple scales.

Jason Papin is the Harrison Distinguished Teaching Professor of Biomedical Engineering at the University of Virginia. His lab works on problems in systems biology, metabolic network analysis, infectious disease, toxicology, and cancer, developing computational approaches for integrating high-throughput data into predictive computational models. Jason also serves as co-Editor-in-Chief of PLOS Computational Biology.