2022 Retreat
Graduate Training Program in Quantitative and Chemical Biology

August 12-13, 2022
Dimension Mill
642 N. Madison St, Bloomington, IN 47404

Friday, August 12, 2022

5:00 - 5:30 pm	Check in, Poster Set Up Small plates, Cash bar* opens; until 10:00 pm	
5:30 - 5:40 pm	Welcome	Prof. David Giedroc QCB ambassadors: Abigail Garrett (Winkler), Jessie Gudorf (VanNieuwenhze)
5:40 – 6:00 pm	*Design and Synthesis of SHIP1 Inhibitor Targets for Applications Against Alzheimer's Disease*	Ria Kidner (Gerdt), *internship recap*
6:00 – 6:20 pm	*Micromechanical Cell Sorting Powered by Optoelectronic Tweezers*	Brigham Pope (Jacobson), *internship recap*
6:20 – 6:50 pm	New Trainee ice-breaker	All
6:50 – 7:10 pm	*Controlling enzyme catalysis with genetically encoded chemical switches* (**virtual**)	Yasmine Zubi (Lewis)
7:10 – 8:00 pm	*Biosynthesis and Engineering of Macrocyclic Peptides*	Prof. Wilfred van der Donk, *UIUC* and *HHMI*
8:00 – 8:30 pm	Informal discussion/social time with Prof. van der Donk	All
8:30-10:00 pm	**Poster session I** (see list below)	All

Chemistry-Biology Interface Program
QCB
Quantitative and Chemical Biology

Saturday, August 13, 2022

9:00 - 9:30 am	Check in and gather; coffee	
9:30 - 10:30 am	QCB Alumni Panel (**virtual**) Industry, Law, and Academia, Oh My!	Brenna Walsh (Giedroc), Chelsea Rintelmann (Pohl), Brennan Murphy (VanNieuwenhze)
10:30 – 10:45 am	*Evaluation of de novo Purine Synthesis Inhibitors as Cancer Therapeutics*	Morgan Nyman (Dann)
10:45 – 11:00 am	*SARS-CoV-2 Nucleocapsid Protein forms multiprotein complexes with nucleic acid*	Patrick Laughlin (Zlotnick)
11:00 – 11:50 am	*Translational Research in Autoimmunity and Neuroinflammation*	Dr. Tim Richardson, *IUSM-Purdue TREAT-AD Center*
11:50 – 12:15 pm	Informal discussion with Prof. Richardson	All
12:15 – 1:15 pm	**LUNCH* and Poster session II**	
1:15 – 2:15 pm	Social activities	Abigail Garrett (Winkler), Jessie Gudorf (VanNieuwenhze)
2:15 – 2:30 pm	*Role of the intrinsically disordered RNA binding protein EWS as an oncogenic transcriptional co-regulator*	Renee Kinne (Hollenhorst)
2:30 – 2:45 pm	*Cellular Mn/Zn ratio influences phosphoglucomutase activity and capsule production in Streptococcus pneumoniae*	Averi McFarland (Winkler)
2:45 – 3:00 pm	Wrap-up	Prof. Mike VanNieuwenzhe

Friday evening small plates and cash bar, and lunch on Saturday are being provided by **One World Catering.*

Poster presentations (alphabetical)

Andrew Bach (Snaddon)
Forming Fluorine-Containing Fully-Substituted Stereogenic Centers Using Cooperative Catalysis
acbach@iu.edu

Ying-Chih 'Ella' Chuang (McKinlay)
Adenine cross-feeding in a synthetic bacterial community
chuangyi@iu.edu

Timothy Cioffi (Shaw)
Transverse Cortical Microtubule Array Architecture in Arabidopsis thaliana
timcioff@iu.edu

Rajkumar Dhanaraju (Bell)
Structure and function of a novel and essential DNA replication factor
rajdhana@iu.edu

Abigail Garrett (Winkler)**
The roles of c-di-AMP in the cellular physiology of Streptococcus pneumoniae
ahgarret@iu.edu

Allan Gramillo (Fuqua)
Mechanistic basis of a functionally redundant paralog under phosphorus limitation that enhances surface attachment in Agrobacterium tumafaciens
agramil@iu.edu

Jessica A. Gudorf (VanNieuwenhze)**
Progress Towards More Efficacious Medicine: Antibiotics and Antidotes
jegudorf@iu.edu

Kelly Hartsough (Walczak)
Induced endoreplication by Aurora B kinase inhibition as a model for tumor heterogeneity
Email: khartso@iu.edu

Matthew Jordan (Giedroc)
Resisting zinc starvation: A QueD2 "low-zinc" enzyme paralog in Acinetobacter baumannii queuosine-tRNA biosynthesis
mattjord@indiana.edu

Ria Kidner (Gerdt)§
Uncovering the Molecular Cues that Drive the Symbiosis between Capsaspora owczarzaki and Biomphalaria glabrata: A Potential Agent Against Schistosomiasis
rqkidner@iu.edu

Renee Kinne (Hollenhorst)
Role of the intrinsically disordered RNA binding protein EWS as an oncogenic transcriptional co-regulator
rekinne@iu.edu

Lily M. Klapper (VanNieuwenzhe)
Total Synthesis of Macrocyclic Polypeptide Antibiotics
lklapper@iu.edu

Patrick Laughlin (Zlotnick)
Capsid assembly modifiers stabilize hexameric lattices while destabilizing native icosahedral symmetry
pmlaughl@iu.edu

Victoria Lopez (Tracey)
Testing the function of Discoidin Domain Receptors in the Nervous System
velopez@iu.edu

Michaela K. Loveless (Flood)
Ultrabright Fluorescent Nanoparticles for Bioimaging Based on SMILES
lovelesm@iu.edu

Claire Mammoser (Thielges)
Influence of Redox Partner and Protein Scaffold on Protein Electron Transfer Properties Investigated by Infrared Spectroscopy
cmammose@iu.edu

Averi McFarland (Winkler)
Cellular Mn/Zn ratio influences phosphoglucomutase activity and capsule production in Streptococcus pneumoniae D39
avemcfar@iu.edu

Morgan Nyman (Dann)
Targeting and Understanding Enzymes within the 1C Metabolic Pathway
monyman@iu.edu

Brigham Pope (Jacobson)§
Fabrication of Annular Plasmonic Nanolenses for Microfluidic Incorporation of Self-focusing Optic Tweezers
blpope@iu.edu

Hunter Richman (Yu)
Monitoring the Influence of pam3 on Phagosome Maturation Using Bifunctional Janus-particles
huntrich@iu.edu.

Caitlin Roof (Lewis)
Biosensors for the directed evolution of flavin dependent halogenases
croof@iu.edu

Austin Tedman (Schlebach)
Coordination of -1 Programmed Ribosomal Frameshifting by RNA and Nascent Chain Features Revealed by Deep Mutational Scanning
atedman@iu.edu

Kristen White (Dragnea)
An electrostatic model to investigate the dynamics of multicore virus-like particles
kw98@iu.edu

Other student and trainee attendees

Prashant Kumar (Pohl)
pprashan@iu.edu

Gayani Ranasinghe (Mukhopadhyay)
garanas@iu.edu

**Immediate past QCB Ambassadors (2021-2022), primary retreat organizers, and moderators
§Current academic year QCB Ambassadors (2022-2023)