

# **20<sup>th</sup> anniversary edition of the Pacific Coast Protease Workshop**

**Palm Canyon Resort  
Borrego Springs, California**



**April 21 – 24, 2024**

Organized by Matt Bogyo, Olivier Julien, Anthony  
O'Donoghue, Antoine Dufour and Scott Snipas

# ABOUT THE WORKSHOP

This workshop is designed to provide a stimulating expert environment for the discussion of new information on proteolytic enzymes, their substrates, their inhibitors, and their function.

The objective is to provide trainees (junior faculty, post-docs, and graduate students) with experience in presenting their work to an expert audience, chairing scientific sessions, and to foster collaborations. Expert external faculty will give guest presentations and stimulate discussions.

The work presented here is state-of-the-art and much is yet to be published. Consequently, professional use of the data and ideas learned at the workshop is prohibited without the expressed consent of the respective presenters and their supervisors.



**There will be awards at the end of the workshop,  
including the coveted "Half Moon" for the best  
presentation.**

## **SPONSORS**

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# PRESENTATIONS AND ABSTRACTS

**Trainee talks are 15 min (12 min + 3 min discussion).**

**Guest faculty talks are 30 min (25 min + 5 min discussion).**

**Speaker abstracts are listed in order of presentation.**







## Sunday, April 21<sup>st</sup>

3:00 pm	Matt, Anthony, OJ and Tony	Welcome!	Location: Upstairs Conference Room
<i>Chairs: Lawrence Liu and John Bennett</i>			
Time	Speaker	Title	Lab
3:20 pm	Charles Craik	Monitoring enzyme activity <i>in vivo</i> to visualize disease	Outside Expert
3:50 pm	Tulsi Upadhyay	The rational design of an activity-based imaging probe targeting a serine hydrolase in <i>Staphylococcus aureus</i> infection	Bogyo
4:05 pm	Amelia Chen	SARS-COV-2 M <sup>pro</sup> protease variants of concern display altered viral substrate and cell host target galectin-8 processing but retain sensitivity toward antivirals	Lemieux
4:20 pm	Luiz de Almeida	Exploring the role of proteases in distinguishing Crohn's disease phenotypes	Dufour
4:35 pm	Diego Trujillo	Characterizing the subunit specificity of the <i>Giardia lamblia</i> proteasome using commercially available inhibitors and the activity-based probe MV151	O'Donoghue
4:50 pm	<i>15 min Discussion</i>		
5:05 pm	Coffee break	Location: Conference Room	



*Chairs: Taylor Bador and Jeyun Jo*

<b>Time</b>	<b>Speaker</b>	<b>Title</b>	<b>Lab</b>
5:35 pm	Laura Edgington-Mitchell	Profiling protease activity using activity-based probes	Outside Expert
6:05 pm	Will Leiter	Spatially Resolved Profiling of Proteolytic Activity	Weeks
6:20 pm	Emily Woods	Targeting a <i>Staphylococcus aureus</i> serine hydrolase to create an ultrasound contrast agent for improved diagnosis of endocarditis	Bogyo
6:35 pm	Matt Ravalin	Engineering cellular responses to pericellular proteolysis with synthetic protease-activated receptors	Ting
6:50 pm	Shiyu Chen	A FAP-Cat L AND-gate probe for selective and sensitive cancer imaging	Bogyo
7:05 pm	Timothy Harris	Structural exploration of ByeTACs: bypassing an E3 ligase for targeted protein degradation	Trader
7:20 pm	Dinner	Pizza at Carlee's 660 Palm Canyon Dr, Borrego Springs, CA 92004, US	





## Monday, April 22<sup>nd</sup>

*Chairs: Timothy Harris and Matt Ravalin*

Time	Speaker	Title	Lab
8:30 am	Breakfast	Location: Big Horn Bar and Grill	
9:00 am	Ed Sturrock	An ACE in the hole: Changing paradigms in angiotensin-converting enzyme (ACE) inhibition	Outside Expert
9:30 am	Kate Kragness	Effects of small molecule proteasome activators on cellular stress pathways	Trader
9:45 am	Henry Wang	Proteomic profiling of multiple sclerosis brains reveals regional and cell-type expression differences linked to disease onset	Julien
10:00 am	Alyssa Carter	Elucidating the Role of FabH in <i>C. difficile</i> Infection and Sporulation for the Development of a Narrow-Spectrum Antibiotic	Bogyo
10:15 am		15 min Discussion	
10:30 am	Coffee break	Location: Conference Room	



*Chairs: Daniel Young and Kate Kragness*

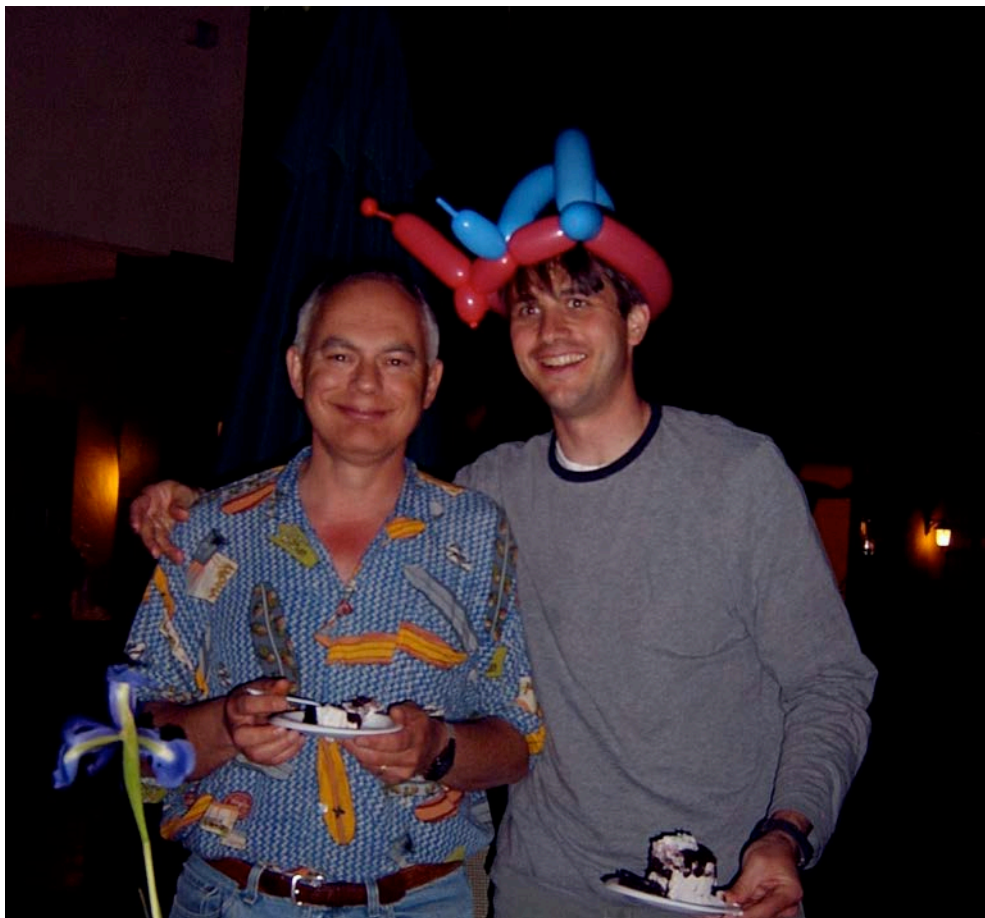
<b>Time</b>	<b>Speaker</b>	<b>Title</b>	<b>Lab</b>
11:00 am	Danielle Dettling	Protease profiling of the patient tumor microenvironment for biomarker and therapeutic applications in solid cancers	Knudsen
11:15 pm	Taylor Bador	Role of HTRA1 in the annulus fibrosus between non-deformity degenerative and degenerative scoliosis patients	Dufour
11:30 am	Kristyna Blazkova	Identification of microbial proteases that modulate the activity of the protease-activated receptor 2	Bogyo
11:45 am	Heegwang Roh	Directed evolution of Light-Activated Tetanus NeuroToxin (LATeNT) for spatiotemporally controlled inhibition of neurotransmitter release	Ting
12:00 pm	lunch	Location: Conference Room	
1:00 pm-	Borrego Springs	Hike, Lawn games and Trivia game at night	
7:00 pm	Dinner	Location: Brewery dinner, take out salad and BBQ	



## Tuesday, April 23<sup>rd</sup>

Chairs: Luiz de Almeida and Nikki Pedowitz

Time	Speaker	Title	Lab
8:30 am	Breakfast	Location: Big Horn Bar and Grill	
9:00 am	Lakshmi Wijeyewickrema	What's a girl like me, doing in a place like this, talking about proteases.	Outside Expert
9:30 am	Jiyun Zhu	Identification and Characterization of Dengue and Zika NS2B/NS3 Protease Inhibitors Using High-throughput Screening Method	Bogyo
9:45 am	Daniel Young	The role of Calpain-3 in Limb Girdle Muscular Dystrophy Type 2A	Dufour
10:00 am	Sijie Wang	Development of Cyclic Covalent Inhibitors Targeting SARS-COV2 Spike/ACE2 Protein-Protein Interaction via Phage Display	Bogyo
10:15 am		15 min Discussion	
10:30 am	Coffee break	Location: Conference Room	



Chairs: Henry Wan and Tulsı Upadhyay

Time	Speaker	Title	Lab
11:00 am	Lawrence Liu	Clickable probes for proteasomes: synthesis and applications	O'Donoghue
11:15 am	Marijn Hollander	Development of FphB-selective oxadiazolone activity-based probes for detection and imaging of <i>Staphylococcus aureus</i> biofilms	Bogyo
11:30 pm	Lindsey Lin	Development of a multi-scale proximity labeling platform for interactome profiling	Wells
11:45 pm		15 min Discussion	
12:00 pm	Lunch	Location: Big Horn Bar and Grill	





Chairs: Lindsey Lin and Amelia Chen

Time	Speaker	Title	Lab
1:00 pm	Howard Fearnhead	Non-lethal roles for killer caspases	Outside Expert
1:30 pm	John Bennett	Mixed Alkyl/Aryl Phosphonates Identify Metabolic Serine Hydrolases as Antimalarial Targets	Bogyo
1:45 pm	Kyle Anderson	Structure-Guided Design of Focused Synthetic Fab Libraries for Efficient Protease Inhibitor Discovery	Craik
2:00 pm	Jeyun Jo	Cyclic Peptides as Scaffolds for the Synthesis of Selective Covalent Protease Probes	Bogyo
2:15 pm	Andrea Pence	Isolation and Characterization of <i>Spodoptera frugiperda</i> 20S Proteasome	O'Donoghue
2:30 pm		15 min Discussion	
		Free time	
7:30 pm	Dinner and Awards	Location: Big Horn Bar and Grill	



Wednesday, April 24<sup>th</sup>

9:00 am	Departure
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## Emails

mbogyo@stanford.edu
tulsiu@stanford.edu
jiyunzhu@stanford.edu
jeyunjo@stanford.edu
jmbennet@stanford.edu
amcarter@stanford.edu
pedowitz@stanford.edu
emilywoods@stanford.edu
blazkova@stanford.edu
sc5900@stanford.edu
sijiew@stanford.edu
gsalvesen@sbpdiscovery.org
ssnipas@sbpdiscovery.org
ajodonoghue@health.ucsd.edu
ljliu@ucsd.edu
dtrujill@health.ucsd.edu
apence@health.ucsd.edu
charles.craik@ucsf.edu
Kyle.Anderson@ucsf.edu
antoine.dufour@ucalgary.ca
taylor.bader2@ucalgary.ca
luizgustavo.almeida@ucalgary.ca
daniel.young1@ucalgary.ca
ojulien@ualberta.ca
henry6@ualberta.ca
mlemieux@ualberta.ca
sizhu@ualberta.ca
lindseyzhilin@gmail.com
wleiter@wisc.edu
mravalin@stanford.edu
hgroh@stanford.edu
timotjh2@uci.edu
kkragnes@uci.edu
groborz.katarzyna@gene.com
paulina.kasperkiewicz@gmail.com
giselle.knudsen@alaunusbio.com
danielle.dettling@alaunusbio.com
lazarus.bob@gene.com
maun.henry@gene.com
boris.turk@ijs.si
laura.edgingtonmitchell@unimelb.edu.au
howard.fearnhead@universityofgalway.ie
marcin.drag@pwr.edu.pl
edward.sturrock@uct.ac.za
L.Wijeyewickrema@latrobe.edu.au
marcin.poreba@pwr.edu.pl