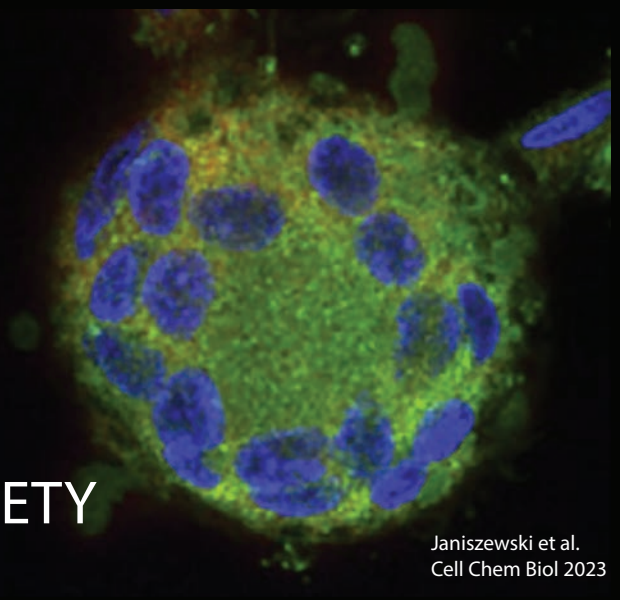
IN THIS ISSUE:

SEPTEMBER 2023

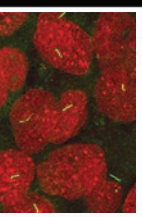


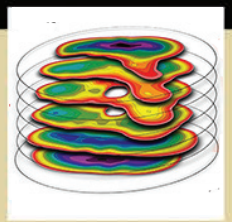
Janiszewski et al.
Cell Chem Biol 2023

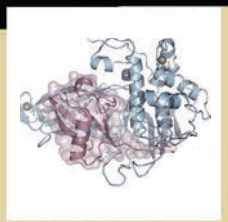
INTERNATIONAL PROTEOLYSIS SOCIETY

QUICKCUTS

Edited by:
Laura Edgington-Mitchell
Daniel Sojka
Kyoko Shirakabe







THE PREMIER RESOURCE
FOR ALL YOUR IMPORTANT PROTEASE NEWS

IPS COUNCIL

COUNCIL MEMBERS - EUROPE/AFRICA
Ruth Geiss-Friedlander - President
Catherine Moali - Secretary
Marcin Drag - Webinar Organiser
Daniel Sojka - QuickCuts Editor

COUNCIL MEMBERS - ASIA/AUSTRALIA
Laura Edgington-Mitchell - Vice President
Eiichiro Nishi - Treasurer
Kyoko Shirakabe - QuickCuts Editor
Mark Gorrell - QuickCuts Editor

COUNCIL MEMBERS - THE AMERICAS
Jeanne Hardy - Webmaster
Antoine Dufour - Social Media Chair
Henry Maun - Industry Liaison
Ana Paula Lima - IPS2025 Chair

Ex Officio
Anthony O'Donoghue - Past IPS President
Olivier Julien - Webmaster

A Message From the President:

Dear IPS community, dear friends

The past years have demonstrated beyond doubt how relevant and dynamic the field of protease research is. This is exactly why the IPS strives to foster a community of researchers with broad expertise ranging from protease discovery to drug development. The IPS is a vibrant society that promotes high quality meetings and webinars. We value the training of young scientists through workshops, highlighting promising young scientists with the Young Investigator Awards and providing travel grants.

After a long break, and many delays due to Corona lockdowns, members of our society finally met in person in Singapore for the 12th general IPS meeting and the accompanying workshops. It was a pleasure to meet so many of you again (in 3D). I had almost forgotten how lively this protease community is! At the meeting, we welcomed Nabil Seidah among our Lifetime members for his exceptional scientific advances and awarded Amy Weeks for her scientific accomplishments with the prestigious Young Investigator award. You will find more about the general IPS meeting, workshops, travel awards and best poster prizes, in the following pages. I wholeheartedly thank Henry Mok Yu-Keung, Jayaraman Sivaraman, Manjunatha Kini and Ann Nee Yong for organizing and hosting this successful meeting. I also thank

Anthony O'Donoghue, Chris Overall, Ulrich auf dem Keller, Konstantinos Kalogeropoulos, Jayaraman Sivaraman, and Choong Yeu Khai for hosting the IPS workshops. Of course, once one IPS general meeting is over, we are already busy preparing for the next one, which will be organized by Ana Paula Lima. The 13th IPS meeting will take place in beautiful Brazil, which has a very large and active protease community, and I am sure that this meeting will also be a great success.

At this point I wish to thank the departing IPS officers Leila Akkari, Joanne Lemieux, Ashley Buckle and Koushi Hidak. Special thanks to Kvido Strisovsky for his work as Secretary in the council, and ex-president Anthony O'Donoghue, who is staying on board as ex-officio. I also extend my warmest thanks to Christian Sommerhoff for his long-time support of the IPS council as webmaster from 2006-2023. I welcome the new members, Henry Maun, Daniel Sojka, Marcin Drag, Ana Paula Lima, Mark Gorrell and Laura Edgington-Mitchell. Catherine Moali is the new Secretary and Laura Edgington-Mitchell is the new Vice President. Eiichiro Nishi will continue as Treasurer. As some of you may have noticed, our webpage was temporarily down. I welcome Olivier Julien who has joined the council as webmaster. Together with Jeanne Hardy, they will renew and restructure the IPS webpage. I hope that we can enjoy the new updated layout soon.

In 2022, we initiated a series of IPS webinars as a response to the world-wide lock downs and travel restrictions caused by the COVID-19 pandemic. Two webinars were held, one on Proteases in Viral Infections and the second on Imaging in Cancer and Inflammation. The positive resonance to these webinars encouraged us to continue with this concept as an integral part of the IPS. We have developed a diverse program, which covers exciting science and highlights different paths to successful scientific careers in academy and industry. The new format will include a single presentation followed by discussions. We aim to alternate webinars between the time zones to enable participation from around the globe. The next webinar for 2023 will be given by Vishva Dixit on different types of cell death and hosted by Marcin Drag.

This letter was supposed to end here. Instead, it is with great sorrow to report that we have lost three dear IPS members, Michael James, Margarete Heck and Ulrich auf dem Keller. My first thoughts are directed to their families, friends, colleagues and lab members. Michael James was elected as a Lifetime Member of IPS in 2017, Margarete Heck was on IPS council from 2015 to 2019 and served as editor of our QuickCuts. Ulrich auf dem Keller was IPS Secretary from 2015 to 2017 and IPS president from 2017 to 2019. It is impossible to summarise the influence that these three giants had in this letter. However, I will sum up here by saying let us remember, let us cherish and continue their spirit of promoting excellent science, networking within the community and mentoring of young scientists.

Ruth and past IPS presidents Anthony O'Donoghue, Ulrich auf dem Keller, Thomas Reinheckel, and Bob Lazarus.

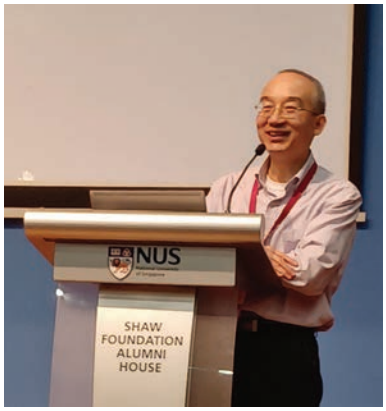
I am honored to serve as the president of IPS, and encourage you to be in contact with the IPS council to give your feedback and suggestions. I most sincerely thank Laura Edgington-Mitchell and her team for editing this issue of QuickCuts. I hope you enjoy reading it!

Best wishes

Ruth Geiss-Friedlander
Email: ruth.geiss-friedlander@mol-med.uni-freiburg.de

IPS 2023 Meeting Report

12th General Meeting of the International Proteolysis Society
National University of Singapore
23-29 June 2023



Many thanks to the organisers!!!

Henry Mok Yu-Keung (Chair)
Kini Manjunatha
Jayaraman Sivaraman
Ann Nee Yong

NUS National University of Singapore

International Proteolysis Society

IPS 2023 Meeting Report

The 12th General Meeting of the IPS was recently held at the Shaw Foundation Alumni House of the National University of Singapore (NUS). Originally planned for September 2021, the meeting was postponed twice in light of the global COVID-19 pandemic. Chaired by Henry Mok, the organizing team had their work cut out for them, as the planning spanned a period of nearly four years. We are grateful for their resilience and dedication to making it a terrific event fostering collaboration, knowledge exchange, and friendships. The rescheduled event featured immersive pre-event workshops held at NUS from June 23-24, followed by the main IPS Meeting from June 25-29. Despite the postponed dates, the 12th General Meeting flourished, hosting around 120 delegates from diverse corners of the world.

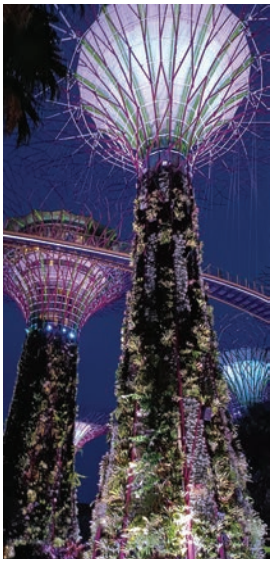
The IPS Meeting spanned five days of intense scientific exploration and dialogue. It was opened by the welcome address of Yu Hao, the Head of the Department of Biological Sciences, NUS on the first morning. The scientific program featured four distinguished keynote speakers including Bob Lazarus (Genentech Inc.), Shun-Ichiro Kawabata (Kyushu University), Jay Fox (University of Virginia) and Nabil Seidah (Montreal Clinical Research Institute, University of Montreal), who delivered talks highlighting the cutting-edge developments in the proteolysis field. Notably, Nabil Seidah was honored with the 2023 IPS Lifetime Achievement Award for his exceptional contributions. The keynote talks were accompanied by the oral presentations of 40 invited speakers and 10 flash-talks selected from poster abstracts. These talks were organised in sessions covering the following major topics: (1) Protein quality control by proteases, (2) Proteases in immunity and cell death, (3) Proteases in cancer and diseases, (4) Intramembrane/membrane-associated proteases, (5) Calpain and cysteine proteases, (6) Proteases as venoms and toxins, (7) Proteases in pathogens and viruses, (8) Targeted protein degradation by proteases, (9) Proteases in cell signaling, and (10) Structural biology of proteases. The conference also featured vibrant poster sessions with presentations of 53 posters that were displayed for the duration of the conference. Poster presentations provided researchers at all stages of their careers the chance to showcase their work and engage in discussions with peers, fostering meaningful discussions and collaborations. The meeting concluded with announcements of poster prizes, travel awards, and the Young Investigator Award (see below).

Beyond its scientific impact, the conference also embraced social and cultural aspects, allowing attendees to explore beautiful Singapore, eat amazing food, and build connections beyond the academic sphere. As the event concluded, participants departed with newfound insights, a strengthened community spirit, and a shared commitment to advancing the understanding of proteases and their multifaceted implications.

We extend our heartfelt appreciation to Henry Mok Yu-Keung (chair), Jayaraman Sivaraman, Manjunatha Kini and Ann Nee Yong, along with their committees, for organizing a remarkable event that exemplified resilience, collaboration, and enthusiasm. The successes achieved, ideas shared, and connections made at the conference are poised to shape the trajectory of proteolysis research. As we wrap up this chapter, we eagerly anticipate the 13th IPS meeting, scheduled for 2025 in Brazil. Join us in continuing this journey of discovery and innovation.

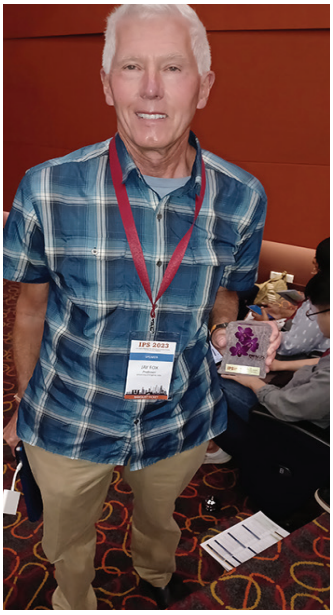
-Daniel Sojka, Centre for Biology, Academy of Sciences of the Czech Republic

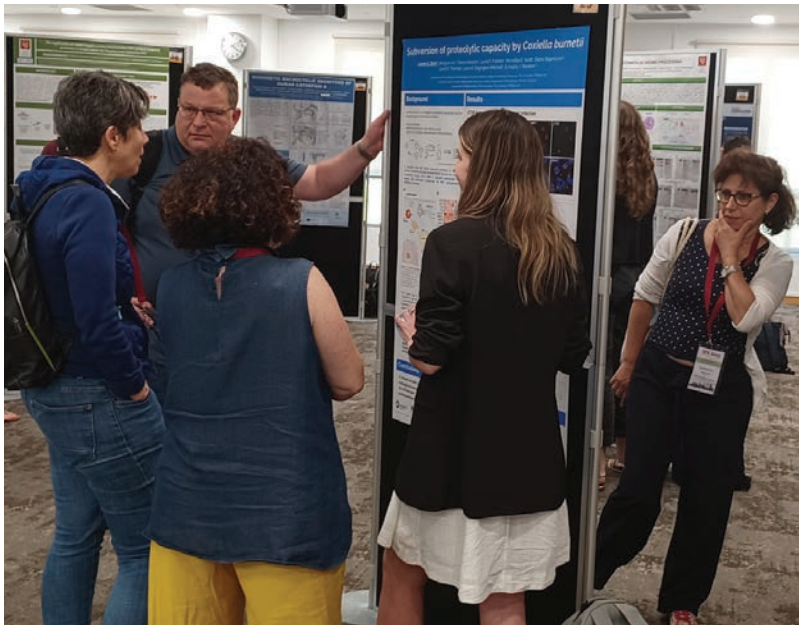
IPS 2023 Meeting Report



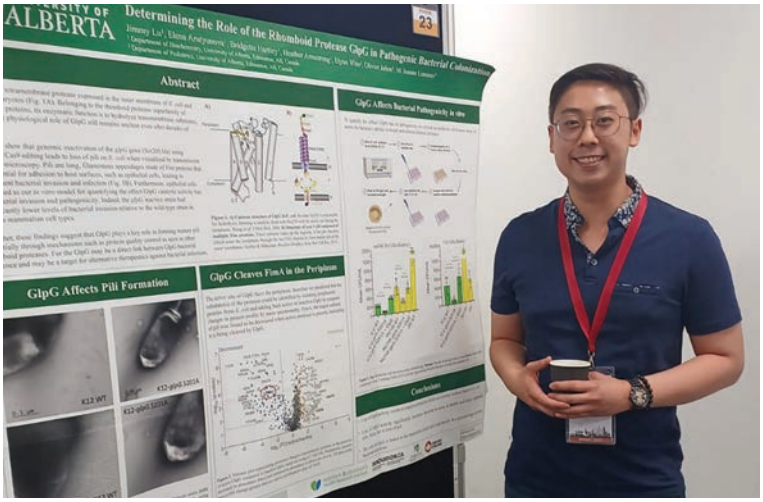
IPS Members in the SARS-CoV MPro Active Site: Art Meets Science
Sculpture by Mara G. Haseltine, Biopolis Epicenter, Singapore

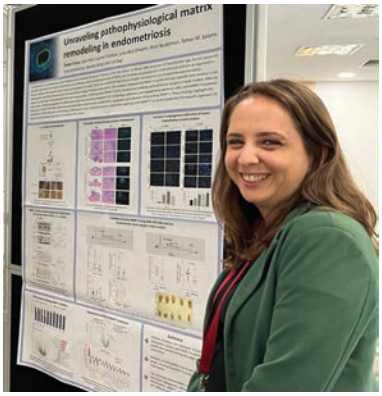
IPS 2023 Meeting Report

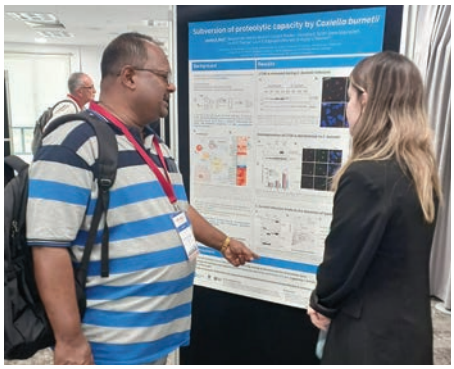




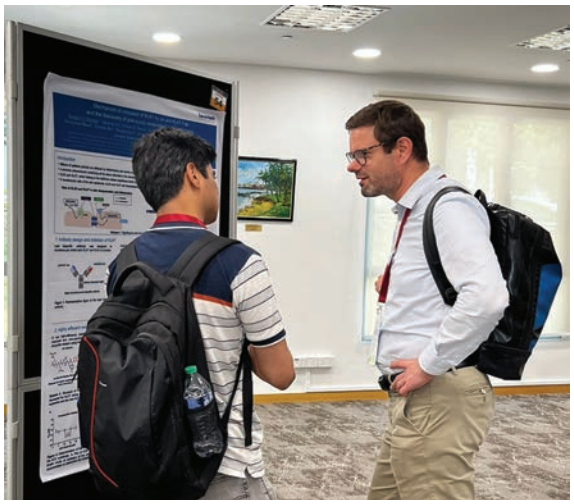
IPS 2023 Meeting Report







IPS 2023 Meeting Report



IPS 2023 Workshop Report

Hands-on Practical Enzyme Kinetics Workshop

Dr Anthony O'Donoghue started off the day leading us through the basics of enzyme kinetics. We learnt about substrate/enzyme/inhibitor interactions and the impacts that different types of inhibitors play on the kinetics of enzymes. We also got some handy tips on the best ways to set up kinetics experiments ourselves. After lunch, we moved into the lab to test our new knowledge hands on. **Dr Cho Yeow Koh** welcomed us into his lab at the National University of Singapore to put our skills to the test to crack the code of the mystery inhibitor. The stakes were high with some travel scholarships on the line but thanks to the world class workshop earlier in the day and newfound collaborations, we worked together to solve the case. Attending this workshop was a fantastic way to start the conference. With 6 participants from around the world, we could meet in a small tutorial setting prior to the conference making it easier to network during the week. The topic was highly relevant and helped to improve my understanding of several presentations during the week and I also learnt more about the society and its aims. A big thank you to Anthony and Cho Yeow for putting together a great workshop! ***-Bethany Anderson (University of Melbourne)***

TAILS Proteomics Substrate Discovery: Data Analysis

Dr Ulrich auf dem Keller and **Dr Chris Overall** led an amazing workshop explaining and exploring the routes to protease substrate discovery. We unpacked the fundamentals of N-terminomics workflows: current methods to enrich native N-termini, various software for downstream analysis, and how to validate identified cleavage events. It was great to hear tips and tricks from the experts themselves. The workshop was attended by 11 participants, including Masters and PhD students, and post-docs from around the world, facilitating the development of an N-terminomics community and opportunities to network and learn from one another. We followed with a hands-on workshop led by **Dr Konstantinos Kalogeropoulos**, using Proteome Discoverer to try some degradomics analysis ourselves. One of the most exciting parts was the introduction of CLIPPER 2.0, to be rolled out in the near future. This software incorporates a range of applications into one pipeline, allowing for a much more streamlined analytical pipeline. Many of us are eagerly anticipating its release! Thank you for running an insightful and worthwhile workshop. ***-Alexander Ziegler (University of Melbourne)***

Determination of three-dimensional structures of proteins and their complexes

Dr Jayaraman Sivaraman commenced the 3D Structures Workshop by explaining the fundamentals of structural biology during the morning session. His lectures covered the major techniques such as X-ray crystallography and cryo-electron microscopy (CryoEM). Following the tea break, he continued with binding studies, covering topics like Isothermal Titration Calorimetry (ITC) and structural Mass Spectrometry (Hydrogen Deuterium eXchange) for mapping interaction interface regions. These sessions were followed by lively discussions. After the lunch break, we participated in a crystallization practical and received demonstrations in the X-ray and CryoEM laboratories. Post-tea break, we engaged in structure-solving tutorial sessions in the computer lab. Each of us was provided with a computer and datasets. Dr. Sivaraman and his team member, **Mr. Choong Yeu Khai**, conducted the tutorial. Initially, they explained the programs used for structure determination, their theoretical background, and the objectives of our tasks. We then worked with experimental diffraction datasets, learning how to process, solve, and refine protein structures. Collectively, this workshop demonstrated how structural biology techniques can be employed to address biological questions. ***-Dr Jayaraman Sivaraman, NUS***

2023 Lifetime Achievement Award

Nabil G. Seidah, PhD, OQ, MRSC, MC, FCAHS

Dr. Nabil Seidah obtained his BSc in 1969 from Cairo University in Egypt, and his PhD in 1973 from Georgetown University, USA. In 1974, he started studying the processing of precursor proteins at the Montreal Clinical Research Institute (Institut de Recherches Cliniques de Montréal) (IRCM), and in 1976 he co-discovered the beta-endorphin and largely contributed to the biochemical characterization of the pro-opio-melanocortin (POMC, the beta-endorphin precursor) and pro-Atrial Natriuretic factor.

He discovered and cloned seven of the nine known secretory serine proteases belonging to the proprotein convertases family. During this period, he greatly contributed to demonstrating that proteolysis by the proprotein convertases is a widely used mechanism that also affects "non-neuropeptide" proteins such as growth factors, α-integrins, receptors, enzymes, membrane-bound transcription factors, and bacterial and viral proteins. In 2003, he identified PCSK9 and showed that point mutations in the PCSK9 gene cause dominant familial hypercholesterolemia, since PCSK9 gain-of-function mutations were linked to the ability of PCSK9 to enhance the degradation of cell surface receptors, such as the low-density lipoprotein receptor (LDLR). Dr Seidah has since worked on the elucidation of the functions and mechanisms of action of PCSK9 both in cells and in vivo, and is developing specific PCSK9 inhibitors as cholesterol lowering drugs. He continues to make new contributions and more recently he demonstrated the spike glycoprotein of the coronavirus 2019-nCoV contains a furin-like cleavage site absent in CoV of the same clade.

Dr Seidah is an internationally recognized world leader in convertases and their physiological roles, with more than 800 peer reviewed manuscripts that have been cited >63,000 times. He has also contributed to the training of the next generation of researchers. Over the last 49 years, he has attracted more than 150 graduate students, trainees and post-doctoral fellows.

In 1991, Dr Seidah was elected fellow of the Royal Society of Canada. He received the 1995 Medical Research Council Scientist Award. He has been a member of the Order of Quebec since 1997 and of the Order of Canada since 1999. In 2001, he received the McLaughlin Medal of the Royal Society of Canada and the Parizeau Prize of the Association Canadienne-Française pour l'Avancement des Sciences (ACFAS). Since 2003, Dr Seidah has held a Tier-1 Canada chair on "Precursor Proteolysis". In 2009, he received the Pfizer Distinguished Cardiovascular-Metabolic Research Jean-Davignon Award. In 2013, he was awarded the Queen Elizabeth II Diamond Jubilee Medal. In 2016, he was selected as the recipient of the annual CIHR-ICRH Distinguished Lecturer Award in Cardiovascular Sciences in Canada. In 2018, he was selected for the prestigious Akira Endo Award for his seminal contributions to PCSK9 that led to a new powerful treatment for atherosclerosis. In 2021, he was elected Fellow of the Canadian Academy of Health Sciences (FCAHS) and was selected for the KUWAIT 2021 prize (KFAS) honoring medical research scientists of Arab descent. In 2023, he was awarded the prestigeous Allyn Taylor International Prize in Medicine.

We thank Nabil for delivering an inspring Lifetime Achievement Lecture in Singapore and wish him warmest congratulations for his tremendous contributions to the field.

-M Joanne Lemieux, University of Alberta

2023 Young Investigator Award

Amy M. Weeks, PhD

Dr. Amy Weeks obtained her Bachelor of Science degree in Chemistry in 2007 from the Massachusetts Institute of Technology, where she performed thesis research with Dr. Stuart Licht. She earned her Ph.D. in Chemistry in the Chemical Biology Graduate Program at the University of California, Berkeley, under the guidance of Dr. Michelle Chang. From 2013–2019, she was a postdoctoral fellow in the laboratory of Dr. James Wells at the University of California, San Francisco. She joined the faculty of the Department of Biochemistry at the University of Wisconsin-Madison as an assistant professor in Fall 2019.

Amy's research group develops and applies tools for spatially and temporally resolved analysis of post-translational modifications (PTMs) inside living cells. Recent improvements in mass spectrometry have enabled deep profiling of PTMs, leading to the identification of hundreds of thousands of modification sites in human cells. However, only a few percent of these have been functionally assigned, largely by painstaking biochemical experiments on individual proteins. An emerging theme among the identified mechanisms by which PTMs program biological function is their ability to trigger spatial reorganization of substrate proteins, including formation of protein complexes, recruitment of proteins to biochemical compartments, and shuttling of proteins between cellular organelles. A complete understanding of PTM function therefore requires spatial resolution that is unobtainable using existing techniques, which require cell lysis prior to PTM enrichment. The Weeks Lab uses protein engineering to repurpose native enzymes as spatially targeted tools for covalent capture of PTMs, enabling their enrichment, sequencing, and quantification by LC-MS/MS. This work bridges the gap between proximity labeling approaches to studying the proteome, which provide spatial information, and proteome-wide approaches for identification of PTMs, which provide clues about protein function. Spatially and temporally resolved PTM maps not only provide molecular insights into biological function, but also have the potential to uncover new biomarkers and therapeutic targets relevant to the treatment of human disease.

Amy's work has so far resulted in 20 publications that have been cited ~800 times, with clear evidence of a steeply rising trajectory. She has received numerous awards among which include the Helen Hay Whitney Foundation Postdoctoral Fellowshipin 2014, a Burroughs Wellcome Fund Career Award at the Scientific Interface in 2017, a Packard Fellowship in Science and Engineering in 2021, and the NIH Director's New Innovator Award in 2022. She is a member of the Early Career Advisory Board for ACS Chemical Biology. Amy is an active member of the protease community, having given numerous invited talks at both IPS and protease Gordon Conferences. In 2022, she was elected to co-Chair the Gordon Research Seminar on Proteolytic Enzymes and their Inhibitors.

We congratulate Amy on this very well deserved Young Investigator Award and look forward to exciting things to come from the Weeks Lab.

-Laura Edgington-Mitchell, University of Melbourne

IPS 2023 Awards

Poster Prizes

Anjana Shenoy (Weizmann Institute of Science, Israel) - Exploring MMP7 proteolytic network in pancreatic cancer uncovers novel substrates

Ayaka Watanabe (University of Tokyo, Japan) - Identifying the neurological pool of proteins which aggregate upon aging in mice and elucidating their physiological significance

Lauren Bird (The University of Melbourne, Australia) - Subversion of proteolytic capacity by *Coxiella burnetii*



Travel Awards

Bethany Anderson
Kathrin Bach
Kajal Daware
JiaLi C Huang
Sonali Sonali
Tamás Dobai
YiQun Amy Qu
Daniel Vogele
Fabian Wojtalla
Faith Ozhelvaci
Anjana Shenoy
Sin-Yi Lee
Sizhu Amelia Chen
Lauren Bird
Ayaka Watanabe
Jimmy Lu
Malgorzata Kalinka
Mohamed Amine Jmel
Lisa Heß
Afshin Derakhshani
Alexander Ziegler
Tamar Gross
Yusen Men
Nicholas Young
Konstantinos Kalogeropoulos
Miguel Consenza
Natalia Ćwilichowska

Save the date for our 3rd IPS Webinar

Vishva M. Dixit, M.D.

Vice President of Early Discovery Research at Genentech, Inc

Vishva has made many contributions to biomedicine and his work on cell death and inflammation is prominent in introductory textbooks of biology and medicine. After beginning his career as a physician in Kenya, Vishva moved to the United States where he trained as a Pathologist at Washington University, St. Louis. Prior to his current position at Genentech, he was Professor of Pathology at the University of Michigan. Vishva's pioneering studies defined the biochemical framework illuminating many of the key components of the cell death pathway. He identified numerous proteins in the cell death cascade and determined how they functioned at a molecular level. More recent work has involved the role of cell death pathways in inflammation.

Vishva's groundbreaking research has resulted in numerous honors including:

- William B. Coley Award for Distinguished Research in Basic and Tumor Immunology
- Dr A.H. Heineken Prize for Medicine
- Vilcek Prize in Biomedical Science
- Member, National Academy of Sciences
- Foreign Member of the Royal Society (ForMemRS)
- Member, National Academy of Medicine
- Fellow, American Academy of Arts and Sciences
- Foreign Member of The Royal Netherlands Academy of Arts and Sciences
- Foreign Member, European Molecular Biology Organization

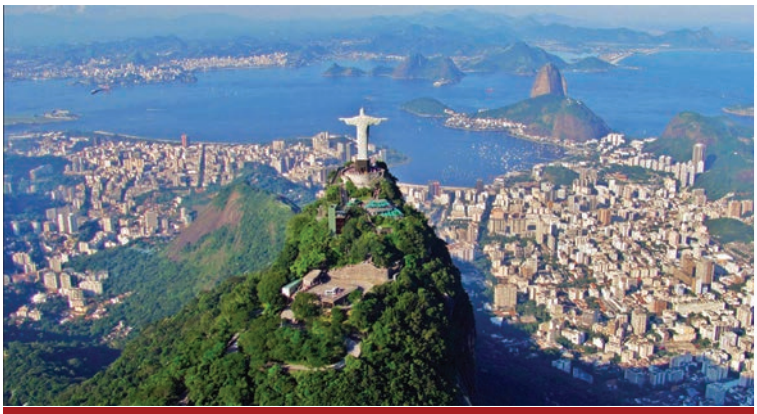
Please save the date for Vishva's webinar:

Monday 20th November 2023
8:30 am PST (California)
4:30 pm GMT (London)
3:30 am AEST (Melbourne - 21st)

Registration for this virtual event will be available on the IPS website soon!

Announcing IPS 2025

Búzios, Brazil
26-31 October 2025
Atlântico Convention and Resort
Chair: Dr Ana Paula C. A. Lima

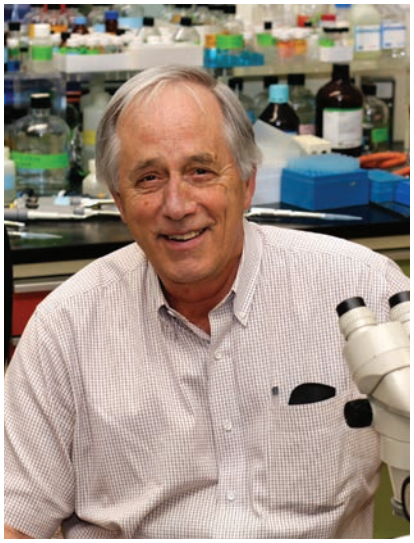


Early Career Workshops will be held ahead of the meeting at Federal University of Rio de Janeiro

Watch this space for more details!

In Memorium: *Dr Michael James*

Michael James (1940-2023)
D.Phil. (Oxon), FRS, FRSC, D.Sc. (Man)



It is with sadness to announce the passing of our long-time colleague, Dr Michael James. Dr. James received a BSc and an MSc from the University of Manitoba. He earned his doctorate from Oxford University where he was a student of Nobel Laureate Prof. Dorothy Hodgkin, OM, FRS. Dr. James was elected Fellow of the Royal Society of Canada in 1985 and Fellow of the Royal Society of London in 1989. Dr. James' research career extended over 50 years at the Department of Biochemistry, University of Alberta. Over the years his research interests were mainly in the area of hydrolytic enzymes, especially proteases and glycoside hydrolases. Dr. James is a structural biologist who uses the methods of X-ray Crystallography to determine the three-dimensional atomic structures of macromolecules in order to correlate their structures to their biological functions. The James lab determined the first protein structure in Canada, which was a bacterial serine protease, SGPB. Shortly thereafter, in collaboration with Dr. Theo Hofmann at the Biochemistry Department, University of Toronto, the members of the James' lab determined the structure of Penicillopepsin, the first aspartic proteinase to have a structure determined. A very productive collaboration with the late Professor Michael Laskowski Jr. of the Chemistry Department, Purdue University helped to elucidate the general mechanism of inhibition of the serine peptidases by small protein inhibitors (complexes of SGPB and the turkey ovomucoids). Eventually, the James lab turned its interest to the proteolytic enzymes from picornaviruses. Members of the James lab determined the structures of the 3C proteinases from hepatitis A virus and that of polio virus. Another viral protease which structure was determined by members of the James lab was the 2A proteinase from rhinovirus. All of these molecules are potential targets for antiviral drug development. In collaboration with the Canadian company ViroChem Pharma members of the James Lab determined the structures of allosteric inhibitors of NS5B, the RNA dependent RNA polymerase from Hepatitis C virus. The company took several of these non-nucleotide inhibitors to Phase II clinical trials. Prior to 2004, five families of proteolytic enzymes were known. A sixth family, the glutamic peptidases was discovered in the collaboration between the members of the James Lab and Prof. Kohei Oda of Kyoto, Japan. Over his career, he received many awards in recognition of his stellar research: he was an Elected Fellow of the Royal Society (Canada), an Elected Fellow of the Royal Society (London) and was awarded the University prize (the highest prize at the University of Alberta). In 2017 he was awarded the IPS lifetime membership, for which I introduced him.

Dr Michael James was my post-doctoral mentor. In 2002 shortly after 9/11, I moved from New York City to Edmonton, joining Michael's vibrant lab. At the time, Michael had 21 people in the group. His lab provided a welcoming space for people to work independently and collaboratively on various projects, resulting in a fun and scientifically exciting workplace. A common eating area often allowed for close interactions with our supervisor. During its tenure, (1974-2023) the Michael Lab published over 250 research papers and trained some 250 graduate students and postdoctoral fellows, many of whom went on to distinguished independent careers of their own. His last published paper, on a protease from a virus that causes porcine epidemic diarrhea, was special in having his daughter Michelle as a co-author (Shamsi et al., 2022).

In June of 2023, the month before he died, he was appointed an Officer of the Order of Canada, one of Canada's highest honours. Michael James died on the 24th of July 2023 after a short admission to the University of Alberta Hospital. He is survived by his three children, Daphne and Marcus from his first marriage to Pat, and Michelle from his third marriage to Deborah.

An Obituary will be published in Acta Cryst D

-M Joanne Lemieux, Professor, Department Biochemistry, University of Alberta

In Memorium: *Dr Ulrich auf dem Keller*

Dear IPS community, dear friends,

It is with great sorrow that we have learned that our dear colleague and friend Ulrich auf dem Keller passed away suddenly last month. Our first thoughts go to his family and relatives, and to members of his group at the Technical University of Denmark (DTU) to whom we express our most sincere condolences.
We are all shocked and devastated by this dramatic event not only because Ulrich was still very young but also because it leaves a great void in our community.

Ulrich will first be remembered as a brilliant scientist with more than 90 publications before the age of 50. He contributed to the development of the TAILS approach when he was a post-doc in the lab of Christopher Overall at the University of British Columbia and largely demonstrated the potential of degradomics and systems biology for protease research. Many of us already feel that they are indebted to him for developing very useful techniques and tools and for inspiring new avenues of research. Ulrich was also a highly appreciated group leader and head of section at DTU. He has trained several PhD students and post-docs and we would like to assure them of the continuous support of the whole IPS community.

Ulrich joined our society in 2007 and since then has been very active in the community. He was elected as Secretary of IPS in 2015 and then President in 2017. He continued to serve as an ex-officio council member until June 2023. We will remember him for being very modest and friendly, a mentor of young scientists, and for actively promoting networking within the protease field. As only one of many examples, Ulrich initiated the IPS Young Investigator Award that is now awarded every two years to a talented young scientist.

His enthusiasm, his sharp mind, his love for science, his commitment, his kindness, his humour and his supportive attitude will be greatly missed. He was a friend and a colleague, and his death is an enormous loss to the scientific community.

It is impossible to summarize Ulrich's contribution to the protease field in a few lines, so we will continue to celebrate his memory in different ways. Since the sad news of his death has spread, many members of our society already expressed their will to contribute a text about Ulrich and we warmly thank them. This shows the great esteem for Ulrich within our members and led us to propose a special issue of the Quickcuts dedicated to him to be published in October. **If you would like to tell us more about how Ulrich inspired your research, your career, or your life, please send your contributions to Laura Edgington-Mitchell (laura.edgingtonmitchell@unimelb.edu.au) before October 15th.** We also welcome you to send photos of Ulrich for the issue.

A memorial service will be held at DTU on September 15th (3-5 pm). It is open to everyone who knew Ulrich and a short text will be read for IPS. More information can be found here: https://www.linkedin.com/company/dtu-bioengineering/

On behalf of IPS council,

Ruth Geiss-Friedlander, Catherine Moali, Laura Edgington-Mitchell and Anthony O'Donoghue

In Memorium: *Dr Margarete Heck*

Margarete was born in 1959 in Munich to a Latvian mother and a German father. She was raised in the Catskill Mountains of New York State where she developed a deep connection to all living creatures, as her father was director of a private zoo: the Catskill Game Farm. She studied at SUNY Plattsburgh and EMBL Heidelberg and received her PhD from Johns Hopkins University. Margarete was a postdoctoral fellow at the Carnegie Institution of Washington and became Assistant Professor at Johns Hopkins. In 1996, Margarete moved with her husband Bill Earnshaw and their children Charles and Irina from the USA to the University of Edinburgh in Scotland.

Margarete was an independent investigator and led her research group first focusing on Drosophila models, but also establishing zebrafish and mouse models while working with cell cultures as well. Most recently, Margarete and her group members engaged in analysing her favourite protease in many of its facets, including in human sera and patient cohorts. We are incredibly lucky that Margarete discovered Invadolysin. The protease community couldn't know at that time, how enriching Margarete's work with this unique metalloprotease would be. This protein is vital, essential in metabolism, and links the cell cycle and chromosome arrangements with mitosis and cell migration. Invadolysin is also localized on lipid droplets within mammalian cells, unique of its kind. Numerous forms of this metalloprotease are still to be discovered and it would need another lifetime to fully describe its connections to hormonal signalling. In essence, Invadolysin could only be discovered by this outstanding researcher, our Margarete Heck.

Margarete had many fruitful collaborations. She generously offered her time and energy to mentor her own and other groups' students. Margarete encouraged countless PhD students, postdoctoral fellows, and Professors alike to continue with their quests in research, in their careers, in their family lives. She supervised mini-projects and honors students, welcomed visitors and became deeply involved as Director for Research in the Clinical Sciences Teaching Organization of the Deanery of Clinical Sciences of the University of Edinburgh. Margarete was a Program Director of the Master of Science by Research in the Biomedical Sciences and Deputy Director of the Wellcome Trust 4-Yr PhD program in "The Cellular and Molecular Basis of Disease". Margarete also helped young universities, serving as a Member of their Sounding Board.

Margarete was open to and inviting new aspects of learning, studying and applying research results. She has set up and fostered postgraduate programs and university departments alike. Margarete stood up for her ideas. She was the best example for her colleagues and friends to do the same - friendly, engaged, joyful and rigorous. Margarete was committed to excellence in science and to support the education and training of junior scientists. There wasn't a Gordon or IPS conference, nor a Winter School where Margarete wouldn't speak in a mentor's panel or be a great role model when delivering inspiring lectures or being a session moderator. Those who interacted with Margarete personally, and these were most probably each one and all of us, know about her warmth and friendship and commitment to life.

-continued

Margarete and I met at a post-session event of a protease meeting. Of course, she started the conversation straight-forward and to the point. Instead of talking about the most amazing protease she was working on, she said "I like your style and want to go shopping with you". So, we became best friends, went to many conferences, shared rooms, visited each other at home, laughed together, traveled together, did countless shopping tours, had great dinners and decent evening gin sessions … and we were talking about science and published together.

Margarete was and is such an inspiration in many aspects, to make good friends and celebrate life, but also to take things at work not so seriously. Margarete always insisted on enjoying life, every single minute of it. I visited my dear friend Margarete a few days before she passed away – there are no words to express how much I miss her. My heart is broken, but I am glad and grateful that we could spent a precious afternoon together, chatting and laughing as well. I will try to follow her advice, every day, and I know that she is around every single minute.

-Klaudia Brix

I met Margarete in 2008 at my first GRC at Colby Sawyer, she rescued me because I had locked myself out of my room. Those damn dorm rooms, neither of us ever missed those. The next 15 years seemed to have flown by. We complain about social media, but thank God for Facebook messenger, because I can read through all the messages, we have sent each other over that time. I can't really count how many times we have seen each other since and it doesn't really matter because she wiggled herself into my heart, right from that first meeting. In some ways, she has rescued me several times since. Her infectious joie de vivre, her zest for life, her boundless generosity, her unwavering kindness, and her remarkable talent for forging connections and friendships with people from all walks of life have left an indelible mark on me. There are too many memories (often in the background of a protease meeting), too many late nights, too many great meals, too much laughter, too many shoe shops, too much Polish vodka, although right now it seems like there really wasn't enough. We should have had more. Much more. My favourite memory is from before the GRC last year, we spent a few days in Florence, we had a wonderful dinner with Jan, Asia and Juhi, and then the two of us sat in the Piazza del Duomo where we lingered until the very last establishment closed its doors. It was just the two of us, bathed in the splendour of that magnificent setting, sharing our stories. Every moment with Margarete was magical, and I am so grateful to the protease community that I was given the privilege of experiencing Margarete's extraordinary magic for fifteen years. I carry her in my heart always. In the words of her devoted husband Bill, take a loved one, grasp a gin - or a margarita and drink a toast to she-who-never- left-the-party as long as there was conversation to be had and love to be shared.

-Lakshmi Wijeyewickrema

-continued

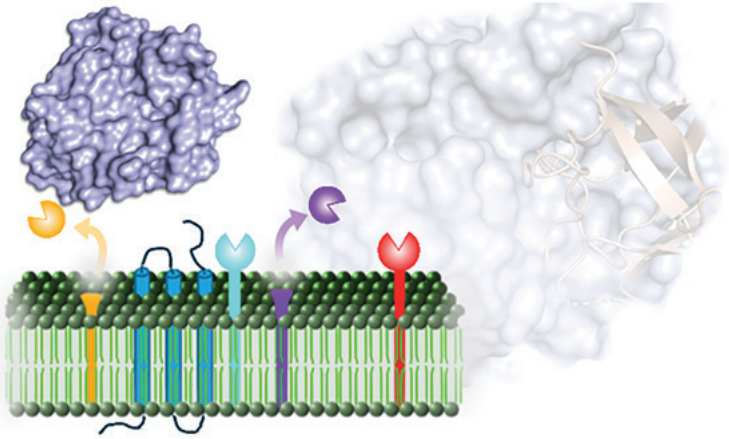
Rafi Fridman once remarked to me with astonishment that "You [referring to participants in a Brdo protease meeting] seem like you are friends." Margarete epitomized this truth of the protease community that we are friends and family who share our personal lives as well as our scientific lives with one another.

Margarete came into my world at an IPS satellite meeting on kallikreins in Santorini that preceded the 5th IPS meeting in Patras, Greece. We bonded over our loves for travel, food/drink, ceramics and family. Over the years Margarete and I shared fun adventures in conjunction with meetings: e.g., to Port Douglas, Queensland where we snorkeled on the Great Barrier Reef, shopped for opals, indigenous art and sarongs and stayed in a 50's retro motel near 4 Mile Beach; to the Northern Territory where we were driven by a feral tour guide on an outback safari with swag camping to Uluru and Kings Canyon and celebrated the Melbourne Cup at a bar in Alice Springs; to Penang where we stayed at the Blue Mansion, a film site in Indochine with Catherine Deneuve and Crazy Rich Asians; to Tioman Island, a snorkeling and diving destination rumored to be the legendary Bali Hai. Tioman was the most memorable not only for its extreme drought (we brought water from the sea for the toilet and sponge bathed only on the last day, each using one bottle of drinking water), but also for the incredible sting ray, prawn and fish lunches and dinners and the snorkeling with me caught in a rip current and rescued by a life preserver thrown from a fishing boat. What incredible times we had! How sad I am while also being happy for all that we shared and that Margarete was my friend.
-Bonnie Sloane

Meeting Announcement

Serine proteases in pericellular proteolysis and signaling

Nov. 2–3, 2023
Virtual



The 2023 virtual meeting on serine proteases in pericellular proteolysis and signaling continues the tradition of the ASBMB special symposium on membrane-anchored serine proteases with the expanded focus on other related serine proteases that function in the pericellular environment.

The conference traditionally brings together leading researchers from across the globe in the fields of serine proteases and pericellular proteolysis, providing them with a forum to present their latest findings, exchange ideas, demonstrate novel technologies and network to form collaborations.

A major foundation of the conference is providing a comfortable venue for junior investigators at the graduate student and postdoctoral level to discuss their current research, have opportunities to meet with experts in the field and forge new scientific interactions crucial to their career development. We are planning an interactive poster session for Q&A with open access to poster presenters' video recordings throughout the conference to increase the visibility of their work.

With the success of the last meeting, we will continue to meet virtually so that the conference is accessible to students and investigators from around the world and to those from other fields where pericellular proteolysis is implicated.

In addition to the roles of serine proteases in physiological and pathophysiological cellular regulation, the meeting will broadly cover topics including:

- Biosynthesis
- Trafficking and post-translational modifications
- Endogenous and pharmacological inhibitors
- Developmental and other physiological functions
- Mechanisms of dysregulation and pathological consequences
- Molecular mechanisms of protease-mediated signaling
- Novel technologies for better understanding the mechanisms of proteases

Organisers

Grant E. Blouse
Catalyst Biosciences

Anthony O'Donoghue
University of California, San Diego

WHEN: 2-3 November 2023
WHERE: Virtual
WEBSITE: https://www.asbmb.org/meetings-events/serine-proteases-2023

Meeting Announcement

Foto: © T. Klinger

Founded by Hans Fritz and Vito Turk more than three decades ago, the Winter School continues to provide a scientifically stimulating and personally outstandingly open atmosphere to researchers on proteolytic enzymes. By its tradition, the Winter School provides a forum primarily to young scientists allowing them to present their exciting and /or intriguing results for discussion with leading experts. The exceptional success story of the Winter School also relates to the beautiful scenery of the Tiers valley which serves as an ideal incubator for scientific exchange. The splendid spirit of the Winter School in Tiers attracts scientists from Europe and worldwide, covering diverse and vibrant fields of protease research, such as mechanistic studies on proteases in their molecular, cellular and organismic context. Participate and enjoy this unique event! Registration for 2024 starts November 2023.

WHEN: 28 February - 3 March 2024
WHERE: Tiers, Italy
WEBSITE: https://www.plus.ac.at/biowissenschaften/der-fachbereich/arbeitsgruppen/brandstetter/winter-school-tiers/

ProteoCure

PROTEOCURE

cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Link zu externer Seite
Funded by the European Union

PARIS LODRON UNIVERSITY SALZBURG

ICA
PhD program - University of Salzburg

DSP
Biomolecules

Meeting Announcements

Plasminogen Activation and Extracellular Proteolysis
Gordon Research Conference

Extracellular Proteolysis in Human Disease: Cutting-Edge Research, Emerging Therapeutics, and Clinical Outcomes

February 18 - 23, 2024

Chairs
Li Zhang and Ruby HP. Law

Vice Chairs
Ze Zheng and Paul Y. Kim

Contact Chairs

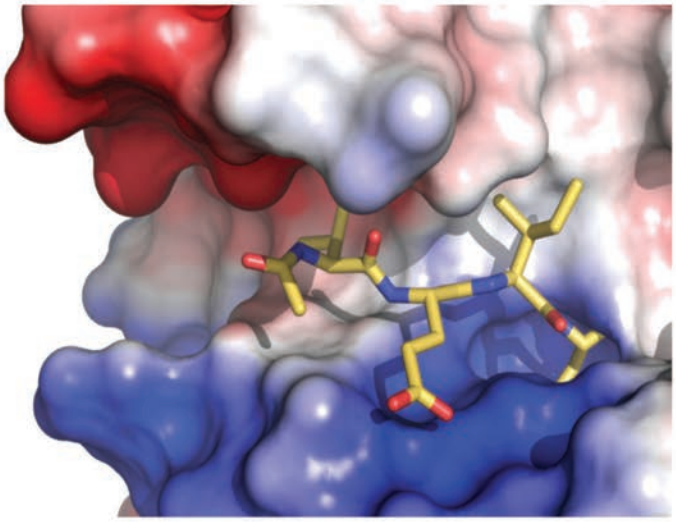
Four Points Sheraton / Holiday Inn Express
1050 Schooner Drive
Ventura, CA, United States

Plasminogen Activation and Extracellular Proteolysis (GRS)
Gordon Research Seminar

Advancement in Translational Research in Fibrinolysis and Proteolysis: Bench to Bed - Bed to Bench

February 17 - 18, 2024

Chairs
Anton Ilich and Francesca Ferraresso



Proteolytic Enzymes and Their Inhibitors
Gordon Research Conference

Recent Advances Impacting Human Health

June 9 - 14, 2024

Chair
Jeanne A. Hardy

Vice Chair
Galia Blum

Contact Chairs

Renaissance Tuscany Il Ciocco
Via Giovanni Pascoli
Lucca (Barga), LU, Italy

Proteolytic Enzymes and Their Inhibitors (GRS)
Gordon Research Seminar

Exploring the Role of Proteolysis in Health and Disease

June 8 - 9, 2024

Chairs
Robin Krystufek and Nathan GF. Leborgne

Job Advertisement

MINISTRY OF SCIENCE AND INNOVATION
CSIC HIGHER SCIENTIFIC RESEARCH COUNCIL
MOLECULAR BIOLOGY INSTITUTE OF BARCELONA (IBMB)

Parc Científic de Barcelona
UNIVERSITAT DE BARCELONA

Ph.D. position in biochemistry / molecular biology

A position is available for a Ph.D. student to work in protein biochemistry and molecular biology. The hosting place is the Proteolysis Lab of the Molecular Biology Institute of Barcelona (IBMB) from the Higher Scientific Research Council (CSIC) in Barcelona (Catalonia, Spain). The IBMB is located within the premises of the Barcelona Science Park (PCB), a major pole for excellence in research in biomedicine and biotechnology in Barcelona city.

The candidate must be highly self-motivated and dedicated, be able to work independently but also to synergetically interact with other lab members, and have previous experience in protein biochemistry and molecular biology. Candidates should already have a Master's degree in a relevant discipline. Tasks will include cloning, overexpression, and purification of proteins, as well as biochemical and biophysical assays of biotechnologically or biomedically relevant proteins.

Funding for four years will be provided by an FPI fellowship from the Spanish Ministry of Science and Innovation. The tentative start of the fellowship and thus the position would be in early 2024.

Interested persons should apply exclusively per e-mail as soon as possible and in any case before September 30, 2023, and send a detailed CV, as well as a covering letter including motivation and contact details of two referees to F. Xavier Gomis-Rüth (xgrcri@ibmb.csic.es). International candidates are particularly encouraged to apply.

Proteolysis Lab:
www.ibmb.csic.es/proteolysis
PCB:
www.pcb.ub.edu

Job Advertisement

International Collaboration on Repair Discoveries: a research centre in the UBC Faculty of Medicine and VCH Research Institute

POSTDOCTORAL FELLOW, IMMUNOLOGY

We are seeking a highly-motivated Postdoctoral Fellow with strong leadership ability and well-rounded, hands-on expertise in immunology, cell biology, and molecular biology. The successful applicant will work full-time under the supervision of Dr. David Granville for a two-year term with the possibility of extension. The position start date is flexible.

JOB SUMMARY:
Granzymes are a family of serine proteases with 5 members (GzmA, B, H, K, M) identified in humans. With the exception of Granzyme A and Granzyme B, very little is known about the other 3 proteases, providing many opportunities to carve out a niche for discovery, translation, therapeutics development, patents, and publications. Recently, a number of high impact studies have implicated a key role for GzmK and/or subsets of GzmK+ T cells in inflammaging and/or immune-mediated diseases. Our research program spans basic molecular biology, biochemistry, and proteomics through to target validation, proof-of-concept in animal and human models, and collaborations with clinicians and industry. The Postdoctoral Fellow (PDF) will be responsible for conceiving, designing, and implementing basic and translational research studies characterizing granzyme K (and other granzymes) in immune cell populations and their pathophysiological roles in the context of pruritus and/or inflammation in aging skin and/or other chronic, inflammatory conditions. The position will also provide opportunities in drug discovery in addition to collaborating and with both industry and leading academic collaborators at UBC and abroad.

ORGANIZATIONAL STATUS:
The PDF will be employed by the Department of Pathology and Laboratory Medicine, Faculty of Medicine at the University of British Columbia. The Granville Laboratory is located within the International Collaboration for Repair Discoveries (ICORD) Centre, Vancouver Coastal Health Research Institute (www.vchri.ca) in Vancouver, British Columbia, Canada. The candidate will report to Dr. Granville directly and will play a senior leadership role in the laboratory that includes overseeing the research activities of graduate students, undergraduate students, and technicians. More information on the Granville Laboratory can be found at https://granzymes.com.

WORK PERFORMED:
- Provide leadership and strategic direction pertaining to basic/translational research/proteomics/degradomics/transcriptomics investigating the role of granzymes in immune cell populations pertaining to chronic and/or age-related pathologies
- Design and implement research plans
- Foster research collaborations and work jointly with academic, clinical, industry, and other partners
- Scientifically document lab experiments, data analysis, interpretations
- Write manuscripts, present results at internal and external meetings
- Identify funding opportunities as well as write grant proposals with supervisor as a co-applicant
- Lead and mentor junior trainees in the laboratory

CONSEQUENCE OF ERROR:
This is a senior research position that plays a critical role in the development of this novel field. The PDF is accountable for the quality and integrity of the research and data, including analyses and interpretation, as well as the effective and efficient management of research projects and deliverables. This position requires innovation, strategic planning, and adaptability. Incorrect decisions or actions may damage the reputation of the laboratory, lead to loss of credibility in this field, and be financially costly.

SUPERVISION RECEIVED:
The PDF will work with a high degree of independence and set priorities under broad directives from Dr. Granville. This position will also provide the candidate with professional development opportunities as well as a high level of exposure to translation, commercialization, and industry.

SUPERVISION EXERCISED:
The PDF will be expected to provide direction and mentorship to graduate and undergraduate students under the supervision of Dr. Granville.

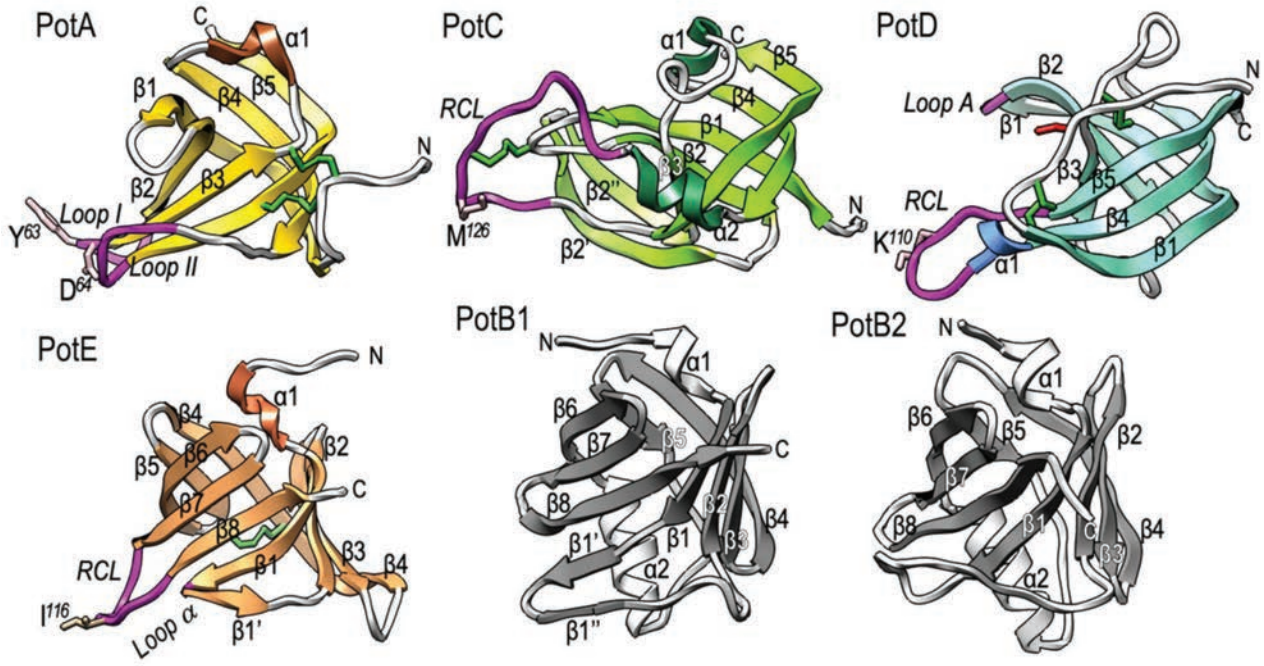
QUALIFICATIONS:
- PhD with expertise in immunology, cell biology, and molecular biology
- A proven track record with a minimum of 2-3 first author publications in reputable journals
- Expertise in immunology is essential while previous experience in protease/extracellular matrix/proteo glycan biology, molecular biology, animal models of disease, transcriptomics, proteomics, and histology is an asset
- Demonstrated experience in experimental design, analyses and scientific writing
- Previous experience in manuscript/proposal writing is an asset
- Excellent written and oral communication skills
- Exceptional interpersonal and organizational skills

If you are interested in this position, please submit a cover letter and CV in 1 PDF file to Dr. Karen Jung PhD at **kjung@icord.org**. The position will remain open until filled. UBC hires on the basis of merit and is strongly committed to equity and diversity within its community.

Protease Paper Highlight

Książek, M., Goulas, T., Mizgalska, D., Rodríguez-Banqueri, A., Eckhard, U., Veillard, F., Waligórska, I., Benedyk-Machaczka, M., Sochaj-Gregorczyk, A. M., Madej, M., Thøgersen, I. B., Enghild, J. J., Cuppari, A., Arolas, J. L., de Diego, I., López-Pelegrín, M., Garcia-Ferrer, I., Guevara, T., Dive, V., Zani, M. L., Moreau, T., **Potempa, J., & Gomis-Rüth, F. X.** (2023). **A unique network of attack, defence and competence on the outer membrane of the periodontitis pathogen Tannerella forsythia.** Chem Sci, 14(4), 869-888. **doi:10.1039/d2sc04166a**

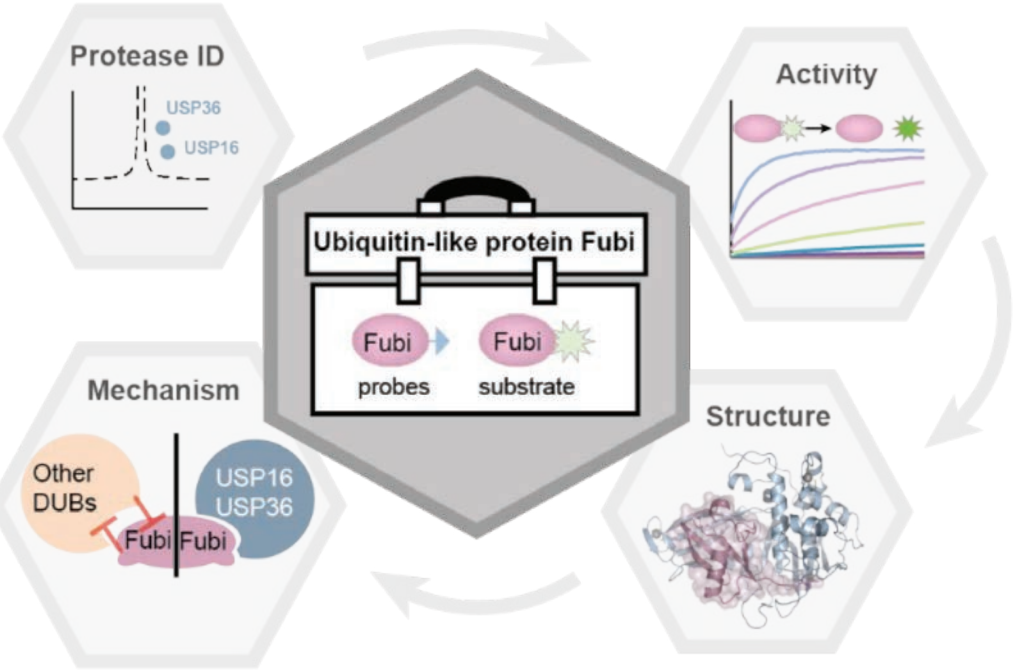
Periodontopathogenic Tannerella forsythia uniquely secretes six peptidases of disparate catalytic classes and families that operate as virulence factors during infection of the gums, the KLIKK-peptidases. Their coding genes are immediately downstream of novel ORFs encoding the 98–132 residue potempins (Pot) A, B1, B2, C, D and E. These are outer-membrane-anchored lipoproteins that specifically and potently inhibit the respective downstream peptidase through stable complexes that protect the outer membrane of T. forsythia, as shown in vivo. Remarkably, PotA also contributes to bacterial fitness in vivo and specifically inhibits matrix metallopeptidase (MMP) 12, a major defence component of oral macrophages, thus featuring a novel and highly-specific physiological MMP inhibitor. Information from 11 structures and high-confidence homology models showed that the potempins are distinct β-barrels with either a five-stranded OB-fold (PotA, PotC and PotD) or an eight-stranded up-and-down fold (PotE, PotB1 and PotB2), which are novel for peptidase inhibitors. Specific loops insert like wedges into the active-site cleft of the genetically-linked peptidase to specifically block it either via a new "bilobal" or the classic "standard" mechanism of inhibition. These results discover a unique, tightly-regulated proteolytic armamentarium for virulence and competence, the KLIKK-peptidase/potempin system.



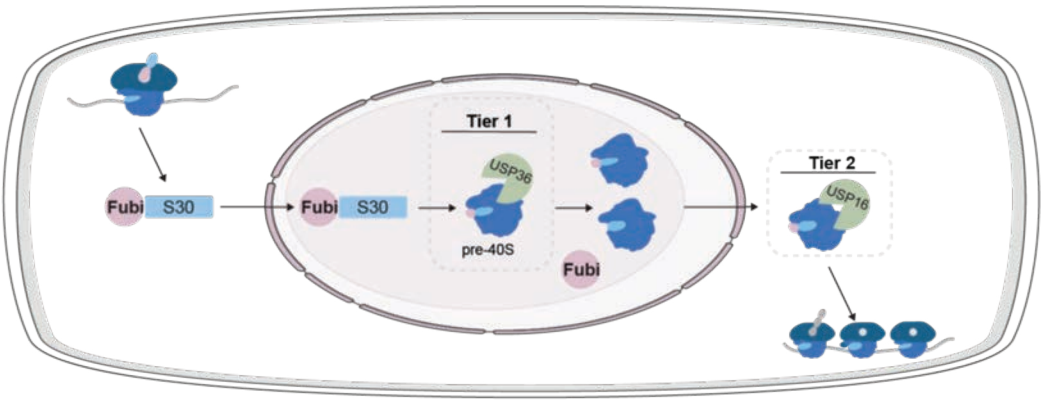
Ribbon-type plot of potempins. The experimentally determined stuctures (PotA, PotC, PotD and PotE) are coloured, those for which computational predictions were obtained (PotB1 and PotB2) are in gray tones.

Protease Paper Highlight

O'Dea, R., Kazi, N., Hoffmann-Benito, A., Zhao, Z., Recknagel, S., Wendrich, K., Janning, P., & **Gersch, M**. (2023). **Molecular basis for ubiquitin/Fubi cross-reactivity in USP16 and USP36**. Nat Chem Biol. **doi:10.1038/s41589-023-01388-1**



The small protein ubiquitin is particularly famous for marking proteins for degradation but it has also been shown to regulate virtually all cellular processes. In parallel to the ubiquitin system various other ubiquitin-like modifiers have evolved, of which Fubi is particularly poorly studied despite its immunomodulatory activity. Scientists around Malte Gersch, research group leader at the Chemical Genomics Centre at the Max Planck Institute of Molecular Physiology, have now gained first molecular insights into the machinery facilitating the Fubi-controlled maturation of a key protein of the ribosome, the cell's protein factory. With the help of a newly developed chemical tool kit, the researchers characterized how two deubiquitinating enzymes provide specific Fubi hydrolase activity and thereby moonlight as Fubi proteases in a two-tier manner. Fubi is produced by cells as a fusion protein with the ribosomal protein S30, and must be separated from S30 by proteases for functioning ribosomes. In immune cells, this by-product of ribosome production is utilized as a secreted signalling molecule, for example to locally reduce the activity of the maternal immune system in the uterus and to thus enable embryos to implant. How Fubi is specifically recognized by proteases and how they distinguish it from ubiquitin was previously unknown.



Recent Protease Papers

Almaliti, J., Fajtová, P., Calla, J., LaMonte, G. M., Feng, M., Rocamora, F., Ottilie, S., Glukhov, E., Boura, E., Suhandynata, R. T., Momper, J. D., Gilson, M. K., Winzeler, E. A., Gerwick, W. H., & O'Donoghue, A. J. (2023). **Development of Potent and Highly Selective Epoxyketone-Based Plasmodium Proteasome Inhibitors. Chemistry**, 29(20), e202203958. **doi:10.1002/chem.202203958**

Bigot, P., Chesseron, S., Saidi, A., Sizaret, D., Parent, C., Petit-Courty, A., Courty, Y., Lecaille, F., & Lalmanach, G. (2022). **Cleavage of Occludin by Cigarette Smoke-Elicited Cathepsin S Increases Permeability of Lung Epithelial Cells.** Antioxidants (Basel), 12(1). **doi:10.3390/antiox12010005**

Bird, L.E., Edgington-Mitchell, L.E., Newton, H.J. (2023) **Eat, prey, love: Pathogen-mediated subversion of lysosomal biology**. Curr Opin Immunol. 83:102344. **doi:10.1016/j.coi.2023.102344**

Bonadio, A., Wenig, B. L., Hockla, A., Radisky, E. S., & Shifman, J. M. (2023). **Designed Loop Extension Followed by Combinatorial Screening Confers High Specificity to a Broad Matrix MetalloproteinaseInhibitor**. J Mol Biol, 435(13), 168095. **doi:10.1016/j.jmb.2023.168095**

Bülck, C., Nyström, E. E. L., Koudelka, T., Mannbar-Frahm, M., Andresen, G., Radhouani, M., Tran, F., Scharfenberg, F., Schrell, F., Armbrust, F., Dahlke, E., Zhao, B., Vervaeke, A., Theilig, F., Rosenstiel, P., Starkl, P., Rosshart, S. P., Fickenscher, H., Tholey, A., Hansson, G. C., & Becker-Pauly, C. (2023). **Proteolytic processing of galectin-3 by meprin metalloproteases is crucial for host-microbiome homeostasis**. Sci Adv, 9(13), eadf4055. **doi:10.1126/sciadv.adf4055**

Caiazza, F., Conroy, P. C., Ivry, S. L., York, T., Lin, J., Hernandez, S., Hoffmann, T. J., Francis, S. S., Park, W. G., Yip-Schneider, M. T., Schmidt, C. M., Brand, R., Craik, C. S., & Kirkwood, K. (2023). **Accurate Identification of Mucinous Pancreatic Cystic Lesions Using Small-Volume Analytes**. J Surg Res, 284, 322-331. **doi:10.1016/j.jss.2022.08.014**

Chen, S. A., Arutyunova, E., Lu, J., Khan, M. B., Rut, W., Zmudzinski, M., Shahbaz, S., Iyyathurai, J., Moussa, E. W., Turner, Z., Bai, B., Lamer, T., Nieman, J. A., Vederas, J. C., Julien, O., Drag, M., Elahi, S., Young, H. S., & Lemieux, M. J. (2023). **SARS-CoV-2 M(pro) Protease Variants of Concern Display Altered Viral Substrate and Cell Host Target Galectin-8 Processing but Retain Sensitivity toward Antivirals.** ACS Cent Sci, 9(4), 696-708. **doi:10.1021/acscentsci.3c00054**

David, A., Chazeirat, T., Saidi, A., Lalmanach, G., & Lecaille, F. (2023). **The Interplay of Glycosaminoglycans and Cysteine Cathepsins in Mucopolysaccharidosis**. Biomedicines, 11(3). **doi:10.3390/biomedicines11030810**

Doğru, A. G., Rehders, M., & Brix, K. (2023). **Investigations on Primary Cilia of Nthy-ori 3-1 Cells upon Cysteine Cathepsin Inhibition or Thyrotropin Stimulation.** Int J Mol Sci, 24(11). **doi:10.3390/ijms24119292**

Donzelli, L., Bolgi, O., & Geiss-Friedlander, R. (2023). **The amino-dipeptidyl peptidases DPP8 and DPP9: Purification and enzymatic assays.** Methods Enzymol, 684, 289-323. **doi:10.1016/bs.mie.2023.02.013**

Fink, E. A., Bardine, C., Gahbauer, S., Singh, I., Detomasi, T. C., White, K., Gu, S., Wan, X., Chen, J., Ary, B., Glenn, I., O'Connell, J., O'Donnell, H., Fajtová, P., Lyu, J., Vigneron, S., Young, N. J., Kondratov, I. S., Alisoltani, A., Simons, L. M., Lorenzo-Redondo, R., Ozer, E. A., Hultquist, J. F., O'Donoghue, A. J., Moroz, Y. S., Taunton, J., Renslo, A. R., Irwin, J. J., García-Sastre, A., Shoichet, B. K., & Craik, C. S. (2023). **Large library docking for novel SARS-CoV-2 main protease non-covalent and covalent inhibitors.** Protein Sci, 32(8), e4712. **doi:10.1002/pro.4712**

Recent Protease Papers

Florin-Christensen, M., Sojka, D, Ganzinelli, S., Šnebergerová, P., Suarez, C.E., Schnittger, L. **Degrade to survive: the intricate world of piroplasmid proteases.** Trends Parasitol. 2023 Jul;39(7):532-546. **doi: 10.1016/j.pt.2023.04.010.**

Iriki, T., Iio, H., Yasuda, S., Masuta, S., Kato, M., Kosako, H., Hirayama, S., Endo, A., Ohtake, F., Kamiya, M., Urano, Y., Saeki, Y., Hamazaki, J., & Murata, S. (2023). **Senescent cells form nuclear foci that contain the 26S proteasome.** Cell Rep, 112880. **doi:10.1016/j.celrep.2023.112880**

Koistinen, H., Kovanen, R. M., Hollenberg, M. D., Dufour, A., Radisky, E. S., Stenman, U. H., Batra, J., Clements, J., Hooper, J. D., Diamandis, E., Schilling, O., Rannikko, A., & Mirtti, T. (2023). **The roles of proteases in prostate cancer.** IUBMB Life, 75(6), 493-513. **doi:10.1002/iub.2700**

Lee, I.Y., Tantisirivat, P., Edgington-Mitchell, L.E. (2023) **Chemical tools to image the activity of PAR-cleaving proteases.** ACS Bio Med Chem Au. 3(4):295-304. **doi: 10.1021/acsbiomedchemau.3c00019**

Lehto, T. K., Kovanen, R. M., Lintula, S., Malén, A., Stürenberg, C., Erickson, A., Pulkka, O. P., Stenman, U. H., Diamandis, E. P., Rannikko, A., Mirtti, T., & Koistinen, H. (2023). **Prognostic impact of kallikrein-related peptidase transcript levels in prostate cancer.** Int J Cancer, 153(4), 867-881. **doi:10.1002/ijc.34551**

Marchand-Adam, S., Pronost, M., Saidi, A., Lecaille, F., & Lalmanach, G. (2023). **Cathepsin K: both a likely biomarker and a new therapeutic target in lymphangioleiomyomatosis?.** Rare Dis. Orphan Drugs, 2(1), 3. **doi:10.20517/rdodj.2022.24**

Ouyang, X., D'Agostino, P. M., Wahlsten, M., Delbaje, E., Jokela, J., Permi, P., Gaiani, G., Poso, A., Bartos, P., Gulder, T. A. M., Koistinen, H., & Fewer, D. P. (2023). **Direct pathway cloning and expression of the radiosumin biosynthetic gene cluster.** Org Biomol Chem, 21(23), 4893-4908. **doi:10.1039/d3ob00385j**

Ozhelvaci, F., & Steczkiewicz, K. (2023). **Identification and classification of papain-like cysteine proteinases.** J Biol Chem, 299(6), 104801. **doi:10.1016/j.jbc.2023.104801**

Peach, C.J., Edgington-Mitchell, L.E., Schmidt, B.L., Bunnett, N.W. (2023) **Protease-activated receptors in health and disease. Physiological Reviews.** 103(1):717-785. **doi:10.1152/physrev.00044.2021**

Røyseth, V., Hurysz, B. M., Kaczorowska, A. K., Dorawa, S., Fedøy, A. E., Arsın, H., Serafim, M. S. M., Myers, S. A., Werbowy, O., Kaczorowski, T., Stokke, R., O'Donoghue, A. J., & Steen, I. H. (2023). **Activation mechanism and activity of globupain, a thermostable C11 protease from the Arctic Mid-Ocean Ridge hydrothermal system.** Front Microbiol, 14, 1199085. **doi:10.3389/fmicb.2023.1199085**

Venugopalan, V., Rehders, M., Weber, J., Rodermund, L., Al-Hashimi, A., Bargmann, T., Golchert, J., Reinecke, V., Homuth, G., Völker, U., Verrey, F., Kirstein, J., Heuer, H., Schweizer, U., Braun, D., Wirth, E. K., & Brix, K. (2023). **Lack of L-type amino acid transporter 2 in murine thyroid tissue induces autophagy.** J Mol Endocrinol, 70(1). **doi:10.1530/jme-22-0060**

Yoon, M. C., Phan, V., Podvin, S., Mosier, C., O'Donoghue, A. J., & Hook, V. (2023). **Distinct Cleavage Properties of Cathepsin B Compared to Cysteine Cathepsins Enable the Design and Validation of a Specific Substrate for Cathepsin B over a Broad pH Range.** Biochemistry, 62(15), 2289-2300. **doi:10.1021/acs.biochem.3c00139**

IPS 2023 Sponsors

Singapore TOURISM BOARD

SG Passion Made Possible

Genentech
A Member of the Roche Group

Follow IPS on Twitter @IntProtSoc
Contact **Antoine Dufour** (antoine.dufour@ucalgary.ca) for rapid dissemination of your protease news!

For **QuickCuts** submissions, contact
Laura Edgington-Mitchell
(laura.edgingtonmitchell@unimelb.edu.au)

New IPS Website - coming soon!!