Tuesday, 30 September 2025

Australasian Cell Death Society

Bench to Bytes: How to Maximise AI for Biological Research

The ACDS AI Workshop is here! Hear from an AI professional and academics using AI to supercharge their research - from grant proposals to experiment designs.

Happening on **Tuesday, 21 October, 3pm - 4.30pm AEST**. Join us on Zoom here!

ACDS Mentorship Program - Rapid Fire Workshop Series

We are thrilled to have **Prof. Kate Schroder** who will be presenting in the upcoming workshop on **22 October**.

- **Workshop 4: Interviews and Interviewing – Prof. Kate Schroder,**

Institute for Molecular Bioscience
Wednesday, 22 October
2:00–2:30 AM AEDT

Tips and tricks for interviewing for your dream job – what are interviewers often looking for. Conversely, when are you interviewing potential students, RAs etc, what are the green and red flags? Advice for key questions to ask? Background checks? Weight on referees – how to decipher a bad referee based on a personal clash rather than work qualities?
Prof. Kate Schroder shares all the tricks and benefits to secure your next dream job or hiring the perfect person

[This event is exclusive for members who have signed up for the Mentorship Programme]

Featured Scientist: Dr. Sabrina Burgener

This month we are featuring the Vice President of ACDS, Dr. Sabrina Burgener.

Getting to know Sabrina

It may come as a surprise to you that I left school at the age of 15 to do an apprenticeship as a Veterinary Technician. In the second or third month of my apprenticeship, we had to stain whole blood from a horse using a Wright-Giemsa staining – that was the first time I saw an immune cell under the microscope. These cells, with their 'lila bubbles' —as our teacher called the granules— had fascinated me ever since. Thereafter, I successfully completed my Swiss Federal Diploma as a Veterinary Technician, my university accreditation (similar to completing year 12), and my Bachelor's in Molecular Life Science at the Applied University of Northwestern Switzerland. After many unsuccessful job interviews to enter the pharma industry in Switzerland, I joined the Master's program in Molecular Biology and Cell Biology at the University of Bern, and chose Immunology as a subject. This proved to be a truly eye-opening event. I joined the laboratory of Prof. Charaf Benarafa at the University

of Bern as a Master's student to study how neutrophil serine proteases, especially cathepsin G, induce cell death in neutrophils and lung epithelial cells. Here is where my academic journey starts. My fascination in innate immune cells and cell death became an exponentially growing passion, and I stayed on in Charaf's lab to pursue my PhD and my first Postdoc, until 6.5 years ago, I relocated to Australia to join Kate's Inflammasome team at the University of Queensland to investigate how Caspase-1, the central protease in the inflammasome complex, drives chronic diseases. My research seamlessly integrates discovery research with clinically relevant viewpoints to provide novel mechanistic insight through a multiscale view of our immune response from a cell to a complex disease.

What are your 3 most significant publications?
These publications are significant due to the opportunity for connections that they have given me, rather than their impact factors or metrics.

The first one is the major publication from my PhD (Burgener et al., Cell Reports, 2019), where I identify the additive effect of the two endogenous serine protease inhibitors Serpinb1 and Serpinb6 in protecting neutrophils against Cathepsin-G induced cell death. In the middle of my PhD, the two outstanding Nature papers on the discovery of Gasdermin D were published, and I never felt so much inspiration from reading these two papers, as everything I had struggled to answer finally made sense – indeed, Cathepsin-G cleaves Gasdermin D! More importantly, this project connected me to many scientists around the globe, many of whom recommended me to join Kate's lab. I also started a collaboration with Prof. Guy Salvesen – one of the pioneers of caspase research. This project awarded me the Society for Leukocyte Biology Presidential Award and the Swiss National Science Foundation Postdoc Mobility Grant to join Kate's lab.

The second publication is my first shared last-author publication on inflammasome signalling in neurodegenerative diseases (Milner et al., Current Opinion in Immunology, 2021) – it is a review, but importantly, it represents my passion for mentoring. The first author, Mark Milner, has been the first PhD student I co-supervised at the Inflammasome Lab. Guiding him throughout his PhD and watching a PhD student's growth into an independent scientist is truly rewarding. This publication symbolises my joy of being a supervisor.

Lastly, it is my current paper uploaded on BioRxiv (Burgener et al., BioRxiv, 2025), where I showed how Caspase-1 switches off its activity to prevent chronic disease. Again, the importance of this paper is how it connected me with incredible scientists; some within the ACDS community and others overseas. It allowed me to step out of my research comfort zone. Thankfully, I

committee member) to run a lipidomics study on liver samples. These connections have been instrumental for my fellowship award from the Novartis Foundation for Medical-Biological Research and my ARC Discovery Project as CIA.

What decisions made the biggest impact or have proved to be the most beneficial for your career, and what advice would you give to up-and-coming cell death researchers?

There are two; joining Kate's Inflammasome lab is clearly a highlight in my career, but honestly, the decision to join Charaf Benarafa's lab as a Master student at the University of Bern has had the biggest impact on my academic career. I would not be where I am now without the six years in his lab. Finding a supervisor and mentor who truly represents the same values as you do, who fosters your strengths and acknowledges your weaknesses without judgment or criticism is the most powerful scientific relationship you can have. We equally learned from each other and simply did amazing and impactful science. So my advice; do not join any lab if you feel that you need to compromise on your values – science is demanding, and days can be long and frustrating, but at the same time, if you work with people that represent the same core values as you do, it doesn't matter how bad the day has been, you still walk out with a smile and gratitude.

What motivates you to get into the lab

The people that I work with! We are a diverse and still coherent bunch of people who are passionate about inflammasome signalling, love to share a good laugh, and have lunch together. We genuinely care about each other, and coming from overseas, your lab will be your second family – so yes, it is the people that I work with that motivate me to go to the lab every day. And from time to time, a good Western blot is a great motivation!

What is your favourite cell death-related molecule and why?

This is a tough one, as in each of my career step there is a different one. Currently it is Caspase-1, probably Caspase-4 makes a good second, and Cathepsin G will always have a special place in my heart. All three of them are proteases that act as sharp scissors that cut protein substrates, catalysing highly specific reactions, modulating protein-protein interactions, creating new bioactive molecules and generating, transducing and amplifying molecular signals – how cool and diverse this is! Never underestimate the power of a protease!

What do you enjoy doing for fun or in your spare time?

national sport of swimming. Growing up in the Swiss Mountains surrounded by cows (sounds cliché, but it is true), swimming is not the first sport you'd learn, so I joined a swimming class for adults and learned freestyle swimming. Now you will find me at least twice a week in a pool doing my laps, and I regret that I haven't learned it earlier. I also love cooking and baking; sharing a meal with friends and family is the most restorative and enjoyable moment for me.

Upcoming Symposia and Conferences

Australian Inflammation Centres (AIC) Symposium 2025

Date: 10th - 11th November 2025
Location: Adelaide Health and Medical Sciences building, The University of Adelaide

The AIC brings together inflammation researchers from nine major sites nationally:

Australian National University, Centenary Institute, Curtin University, Hudson Institute-Centre for Innate Immunity and Infectious Diseases, Monash University-Centre for Inflammatory Diseases, SAiGENCI-The University of Adelaide, QIMR Berghofer, The University of Queensland-Institute for Molecular Bioscience, and WEHI.

We have a stellar line-up of speakers at the Cell Death Session on Monday, including Prof. David Huang as Keynote Speaker, followed by four fantastic talks by members of our ACDS community.

Best of all, it's free!

Click here to find out more!

The Australian Lorne Ubiquitin Summit

Date: 20th - 23rd November 2025
Location: Mantra Lorne, Victoria

The Australian Ubiquitin Summit will be held on the beautiful surf coast at Lorne, Victoria. We have a fantastic line up of speakers highlighting the latest developments at the crossover of ubiquitin signalling, targeting, biology and disease. Abstract talks are still available. This promises to be a fantastic meeting to showcase your work to an engaged, international community.

We're excited to offer :

- registration, accommodation, and travel bursaries to support your attendance
- carer grants to ensure the meeting is accessible for all
- poster and presenter prizes

There will also be an autophagy meeting that is happening just prior to the summit.

ACDS Member Publications

Published a cell death paper recently? Let us know and we'll list it here

Brinkmann K, **McArthur K**, Malelang S, Gibson L, Tee A, Elahee Doomun SN, Rowe CL, Arandjelovic P, **Marchingo JM,** D'Silva D, **Bachem A**, Monard S, Whelan LG, **Dewson G**, Putoczki TL, Bouillet P, Fu NY, Brown KK, Kueh AJ, Wimmer VC, **Herold MJ**, Thomas T, Voss AK, **Strasser A**. Relative importance of the anti-apoptotic versus apoptosis-unrelated functions of MCL-1 in vivo. Science. 2025 Sep 4;389(6764):1003-1011. doi: 10.1126/science.adw1836. Epub 2025 Jul 3. PMID: 40608895.

Cooney JP, Hirons A, Jansz N, Allison CC, Hickey P, **Teh CE**, Tan T, Dagley LF, Yousef J, Yurick D, Khoury G, **Preston SP**, Arandjelovic P, Davidson KC, Williams LJ, **Bader SM**, **Wang L**, **Bhandari R**, Mackiewicz L, Dayton M, Clow W, Faulkner GJ, **Gray DH**, Einsiedel L, Purcell DFJ, **Doerflinger M**, Pellegrini M. Combination antiretroviral therapy and MCL-1 inhibition mitigate HTLV-1 infection in vivo. Cell. 2025 Sep 4;188(18):4896-4912.e19. doi: 10.1016/j.cell.2025.06.023. Epub 2025 Jul 10. PMID: 40645177.

Arama E, Cosentino K, **Czabotar PE**, Gan B, **Hartland E**, Jiang X, Kagan JC, **Nagata S**, **Schroder K**, Sun L, Xu D, Yuan J. Towards a molecular and structural definition of cell death. Nat Struct Mol Biol. 2025 Sep 18. doi: 10.1038/s41594-025-01646-x. Epub ahead of print. PMID: 40968156.

Choi JS, Pervin M, **Vince JE**, Sharma A, de Haan JB. Targeting the NLRP3 Inflammasome-Gasdermin D Axis to Combat Cardiovascular Diseases. J Mol Cell Cardiol. 2025 Sep 23:S0022-2828(25)00175-0. doi: 10.1016/j.yjmcc.2025.09.006. Epub ahead of print. PMID: 40997991.

Majoul A, **Garcia-Saez AJ**. Dynamic regulation of cell death signaling. Curr Opin Cell Biol. 2025 Sep 26;97:102583. doi: 10.1016/j.ceb.2025.102583. Epub ahead of print. PMID: 41014922.

Lee MKS, Cooney OD, Zhu Y, Zhang Y, Lin X, Onda DA, Galic S, Kemp BE, **Murphy AJ**, Loh K. Metformin suppresses atherosclerosis by dampening extramedullary myelopoiesis. Am J Physiol Endocrinol Metab. 2025 Sep 1;329(3):E420-E432. doi: 10.1152/ajpendo.00056.2025. Epub 2025 Aug 4. PMID: 40758579.

Machado-Neto JA, Vicari HP, Lipreri da Silva JC, Lima K, **Murphy J**. New molecular targets in

Berger S, **Lee EF**, Harris TJ, Tran S, Bera AK, Arguinchona L, Kang A, Sankaran B, Kasapgil S, **Miller MS**, Smyth S, Lutfi M, **Uren RT**, **Kluck RM**, **Colman PM**, Fairlie WD, **Czabotar PE**, Baker D, **Birkinshaw RW**. Computational design of potent and selective binders of BAK and BAX. Sci Adv. 2025 Sep 5;11(36):eadt4170. doi: 10.1126/sciadv.adt4170. Epub 2025 Sep 5. PMID: 40911686; PMCID: PMC12412652.

King LE, Faber L, **García-Sáez AJ**. Activator of apoptosis harakiri (HRK) localisation at mitochondria alters mitochondrial morphology independently of other BCL-2 proteins. FEBS J. 2025 Sep 12. doi: 10.1111/febs.70255. Epub ahead of print. PMID: 40938785.

Szmyd R, Gee HE, Cesare AJ. DNA-repair-driven cell death compels us to rethink cancer therapies. Nat Rev Mol Cell Biol. 2025 Sep;26(9):643-644. doi: 10.1038/s41580-025-00879-4. PMID: 40751092.

Mukhamedova N, Fleetwood AJ, Huynh K, Xu Y, Van Buuren-Milne T, Faulkner A, Fu Y, Parhami F, Meikle PJ, Levental I, Bukrinsky M, **Murphy AJ**, Sviridov D. Targeting the ARF6-dependent recycling pathway to alter lipid rafts and reduce inflammation. J Lipid Res. 2025 Sep 16:100900. doi: 10.1016/j.jlr.2025.100900. Epub ahead of print. PMID: 40967385.

Schachter J, Guijarro A, Schwarzbaum PJ, **Pelegrín P**. Protocol for quantifying extracellular and intracellular ATP from macrophages upon inflammasome activation using a luciferin-luciferase technique. STAR Protoc. 2025 Sep 19;6(4):104102. doi: 10.1016/j.xpro.2025.104102. Epub ahead of print. PMID: 40974577.

Cerra C, **Tancock MRC**, Thio N, Koo A, Wong A, J Cowley K, Varshney S, Willis MO, Simpson KJ; Australian Ovarian Cancer Study Group; Bowtell DDL, Sanij E, Christie EL, Pearson RB, Kang J, Chan KT. Exploiting dysregulated iron homeostasis to eradicate persistent high-grade serous ovarian cancer. Cell Death Discov. 2025 Sep 25;11(1):423. doi: 10.1038/s41420-025-02716-1. PMID: 40998801; PMCID: PMC12462457.

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