



# ARC Industrial Transformation Training Centre for Cryo-electron Microscopy of Membrane Proteins

*Quarterly newsletter*

## INSIDE THIS ISSUE:

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- Centre Symposium
- ICHDR updates

*Image credit Lyn Deng*



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bio1  
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MOLECULAR  
HORIZONS



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA



WEHI  
brighter together

## From the Director

Prof. Patrick Sexton

I extend the warmest welcome back for 2026, and to what is our final formally funded year of the Centre. In the last quarter, the November (2025) CryoOz meeting in Wollongong saw many of our members, alongside other cryo-EM enthusiasts from around the country, share recent exciting research. We rounded off 2025 with our annual CCeMMP Research Symposium, a treasured event that saw many oral and poster presentations on exciting new developments in the field, as well as providing an opportunity to network and foster collaborations between

current and new members. This also included a strategic meeting where we discussed the current challenges and opportunities within the Centre and the vision going beyond 2026. This year we are excited about the return of our Centre Manager, Jackie How, from maternity leave who resumes her role while balancing life with 2 small children. We are very grateful to our interim Centre Manager, Tracie Pierce, for her expert leadership and support during this period.



CCeMMP Director,  
Prof. Patrick Sexton

Although we are now entering our final year, we don't intend to slow down and have many exciting things in the pipeline, including training opportunities (EduWeek), outreach activities, and another Centre symposium! We have kicked off January with a CCeMMP run 2-week SPA training workshop led by Drs. Sepideh Valimehr and Matt Belousoff. While it will be bittersweet to see most of our ICHDRs complete and graduate this year, we look forward to seeing where their academic journeys take them thereafter!

We hope to see our members and affiliates continue to engage with the Centre and contribute its legacy beyond 2026.

A handwritten signature in black ink that reads "Patrick Sexton".

Prof. Patrick Sexton  
Director



### Did you know?....

AlphaFold2 turned 5 last November...? Later release of the code led to scientists predicting hundreds of millions of predicted structures for almost any protein. Studies of AlphaFold's impacts suggest that structural biologists appear to be the most advantaged by AlphaFold2. Researchers submitted approximately 50% more structures to PDB than researchers using other 'frontier' methods (Protein Prediction, AI, Structural Biology). Since AlphaFold2 was trained on PDB structures, its creator, Nobel Laureate John Jumper, "...loves that it helps the people that gave us the data"

*Nature* 648, 258-259 (2025), <https://doi.org/10.1038/d41586-025-03886-9>

**On the cover:** From our UoM node and University of Canterbury affiliates: Cryo-EM structure of the isethionate TRAP transporter IseQM from *Oleidesulfobivrio alaskensis* with bound isethionate.

Structural basis of isethionate transport by a TRAP transporter from a sulfate-reducing bacterium. **Newton-Vesty MC, Scalise M, Jamieson SA, Currie MJ, Brown HG, Valimehr S, Tillet ZD, Hall KR, Quan S, Allison JR, Whitten AE, Panjekar S, Indiveri C, Hanssen E, Mace PD, North RA, Dobson RCJ, Davies JS.** (2026) *Structure*, 34: 133. DOI: <https://doi.org/10.1016/j.str.2025.10.011>

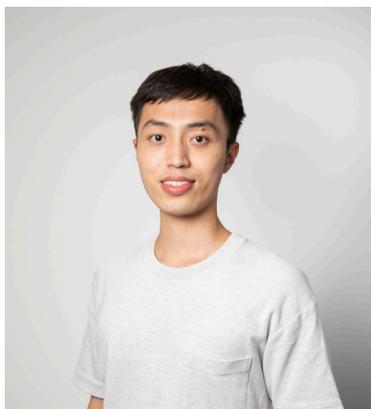
Image credit Lyn Deng (using "Under the water" by Toby Noby (free license)).

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## ICHDR Update

With the completion of their final presentations and thesis submissions, ICHDRs Qinghao Ou, Dongju Lee, Riya Joseph begin to embark on their next journeys. The Centre and Nodes congratulate them and wish them all the best for the future!

### Qinghao Ou reflection



“I was formally conferred on December 9, 2025. My next step is to apply for postdoctoral fellowships in Europe, while remaining open to opportunities in industry. I would like to express my sincere thanks to the CCeMMP, my supervisory team, the panel members, my industry partner Boehringer Ingelheim and the many colleagues at the Monash Node for their support over the past four years. Without their guidance and encouragement, I would not have been able to achieve what I have during this journey.”

### Dongju Lee reflection

“Completing my Ph.D. at Monash University is finally just around the corner! Looking back at my last four years as a CCeMMP student, I’ve really enjoyed growing as a researcher. It was a great opportunity for me to digest many diverse experiences, like my industry placement at Boehringer Ingelheim. I was excited to expand on my background in cryo-EM and pharmacology under the supervision of Patrick and Denise, as I’m aiming to apply these specialised skills to further practical work in either academia or industry.”



### Riya Joseph reflection



“Submitting my PhD thesis marks the end of a truly transformative four years as a centre student at the University of Melbourne Node in the Parker Lab at the Bio21 Institute. I started my PhD without any prior experience in structural biology, but through the generous support and mentorship of many kind colleagues, I learned so much and grew in ways I never expected. I am especially grateful for the Centre training, which helped me expand my skills beyond the lab and build meaningful professional networks. This PhD has been a wonderful experience that allowed my personal and professional growth, and I’m deeply grateful for the community and experiences that made it possible.”

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## ICHDR Exit Seminars

We have our next ICHDRs exit seminars coming up. We encourage all Centre members and affiliates to attend and support our students as they present their important findings from their PhD candidature. A zoom link will be released closer to the date for members, please look out for this in your inbox! If outside of the Centre, please contact [ccebmp@monash.edu](mailto:ccebmp@monash.edu) if you would like the link.



**Marialena Georgopoulou**

UoM ICHDR

12 March, 2026

12:00-1:00pm, AEDT

*In-person at The Bio21 and via  
Zoom.*



**Alok Pradhan**

Monash ICHDR

30 March, 2026

12:00-1:00pm, AEDT

*In-person at MIPS and via  
Zoom.*



**Minakshi Baruah**

Monash ICHDR

30 March, 2026

1:00-2:00pm, AEDT

*In-person at MIPS and via  
Zoom.*

## Industry Placements



**MariaKatarina Lambourne**

Our UoW ICHDR, MariaKatarina Lambourne, has commenced her remote placement on 27 January with our partner Thermo Fisher Scientific in the Electron Microscopy Market Development Team. As part of her placement, she will develop educational and training content for new cryo-EM users to address pain points hindering the adoption of the technology. She will also be creating short-form content to highlight recent advancements and applications of cryo-EM in academic research and industry, supported by Thermo Fisher's solutions in a rapidly advancing field. Through this role, she will gain exposure to scientific marketing and develop a wide range of skills in content strategy, digital marketing, and market development. MK has been enjoying working with the team thus far, and looks forward to gaining invaluable industry experience over the next 6 months!

Preparations continue for other students planning to do their placements this year at Thermo Fisher Scientific and Sanofi.

## Catching up with...

One of the core pillars of the Centre is build strong linkages with drug discovery and development industries to advance Australia's biotechnological capability. We are committed to training industry-ready graduates in cryo-EM of membrane proteins. As our ICHDRs are gradually finishing their projects and moving to their next big thing, the Outreach and Public Engagement Committee are looking to see where are they now?

This quarter we are proud to feature Dr. Isabelle Russell, our Monash ICHDR and first CCEMMP graduate who has started her career as a Senior Scientist at Astra Zeneca, Cambridge UK.



# Catching up with...

## Isabella Russell

**Senior Scientist (cryo-EM) at  
AstraZeneca**



### Who am I?

I was part of the first cohort of CCEMMP PhD students :) My PhD focussed on biochemical strategies for cryo-EM of class A and B GPCRs. I made the decision to aim for an industry position midway through my PhD, during my CCEMMP placement at AstraZeneca.

### Transition

I was motivated to transition to an industry role not only because I love the impact structural biology can have on our understanding of disease and drug development, but also because I enjoy working as part of large multidisciplinary teams. In my role, I've had to work on communicating my results to a variety of scientific disciplines. It's something I've really enjoyed working on and look forward to improving going forward.

### Present and future

I am really enjoying using cryo-EM to focus on complex biological problems that are aiding structure-based drug design. I'm looking forward to working on different samples and learning new processing and imaging techniques. I'm also enjoying exploring the UK during my time off!

Questions or comments? Reach out to the CCEMMP Outreach and Public Engagement Committee ([sarah.piper@monash.edu](mailto:sarah.piper@monash.edu)).

## Node Updates

### Monash University Node

Prof. Denise Wootten, Node Leader, Monash University

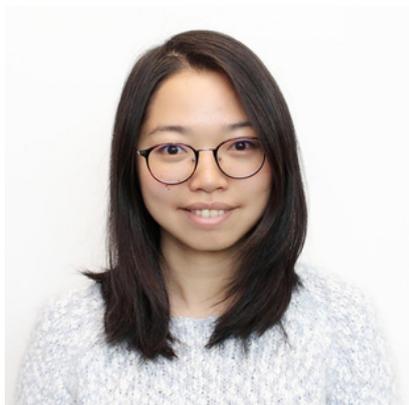


### Bhavika Rana awarded People's Choice Award for Poster

Monash Faculty of Pharmacy and Pharmaceutical Sciences (FPPS) held their 20th HDR Symposium organised by the Monash Pharmacy Postgraduate Society on the 6<sup>th</sup> of November 2025. Many CCeMMP students participated in the event. Our Monash ICHDR Bhavika Rana won the People's Choice Award as voted by her peers for her Poster Presentation on "Structural and pharmacological validation of allosteric sites at the M5 Muscarinic acetylcholine receptor – a target for CNS disorders". The lab has identified a new mAChR allosteric site that may be useful for the design of selective allosteric modulators. She was awarded \$150 sponsored by by Formulytica.

### Professors Arthur Christopoulos and Patrick Sexton on the 2025 Highly Cited Researchers

Prof. Arthur Christopoulos and Prof. Patrick Sexton have both been acknowledged on the 2025 list of Highly Cited Researchers in the field of Pharmacology and Toxicology, making this the 12<sup>th</sup> year in a row since 2014 for Prof. Christopoulos.



### Dr. Christy Ying awarded Early Career Researcher Travel Grant

Dr. Christy Ying was awarded a \$500 Early Career Researcher Travel Grant by the Monash School of Translational Medicine. This award supports early career researchers presenting at international and national conferences, visiting collaborators or undergo specialised training.

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## Monash Node members awarded ARC Discovery Projects

The Discovery Program aims to contribute to the growth of Australia's research and innovation capacity. It provides grant funding to support research projects undertaken by individual researchers or research teams.



Prof. Trevor Lithgow was awarded two Discovery Projects:

- Investigating the fine-tuning mechanisms that modulate control over which molecules are displayed on the outermost surface of bacterial cells - \$1,106,912.
- Investigating a peculiar class of what had long seemed rare microbes called telomere phages - \$901,450.

Dr. Benjamin Gully was awarded \$899,596 with collaborator Mr Hariprasad Venugopal for the project "T cells play central roles in vertebrate immunity yet we lack molecular insight into how the T cell receptor complex triggers development and cellular activation."



### Professor Patrick Sexton was elected Fellow of FASPET

Prof. Patrick Sexton was elected fellow of the American Society of Pharmacology and Experimental Therapeutics. Selection as a fellow of the FASPET is an honour bestowed to our most distinguished members. Fellows are recognized for their meritorious efforts to advance pharmacology through their scientific achievements, mentorship, and service to the Society.

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## The University of Melbourne(Bio21) Node

*A/Prof. Isabelle Rouiller, Node Leader and Deputy Director, University of Melbourne*

### Dr. Rhys Grinter was awarded an ARC Discovery Project



Dr. Rhys Grinter and collaborators were awarded \$1,020,069 with collaborators for the project “Respiratory chain coupling proteins are widespread in bacteria and archaea, constituting a fundamental but poorly understood mechanism of microbial metabolism.”

## Wollongong University Node

*Dr. Gökhan Tolun, Node Leader, Wollongong University*

### Dr. Lisanne Spenkelink and Dr. Jacob Lewis awarded NHMRC Synergy Grant



Dr. Lisanne Spenkelink and Dr. Jacob Lewis were awarded a NHMRC Synergy Grant led by Prof. Hilda Pickett for their collaborative project “A mechanistic approach to developing precision therapies for ALT-dependent cancers”. This \$5 million dollar grant will be aim for to develop first-in-world treatments of some of the most aggressive and difficult-to-treat cancers.

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## UoW Node members awarded ARC Discovery Projects

The Discovery Program aims to contribute to the growth of Australia's research and innovation capacity. It provides grant funding to support research projects undertaken by individual researchers or research teams.



A/Prof. Gökhan Tolun and collaborators were awarded \$1,195,877 with collaborators for the project "The repair of double-stranded DNA breaks is critical to the survival of all living organisms."

Dr. Aidan Grosas was awarded \$676,738 along with collaborators for the project "New Silk Proteins for Biotechnology by Computational Design." The project is led by Prof. Colin Jackson.



### Jhonnatan David Reales-Gonzalez wins Poster Award

Jhonnatan David Reales-Gonzalez won the CryOZ Poster Award for best poster presented by a PhD student at the CryOZ 2025 Conference on the 18th November, 2025, University of Wollongong, Wollongong.

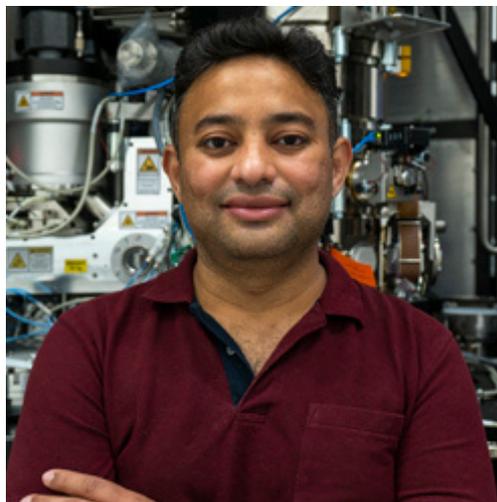
His poster was titled "Cryo-EM structures of Salmonella phage P22 annealase ERF reveals mechanistic details of SSA DNA recombination".

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## WEHI Node

*Prof. Isabelle Lucet, Node Leader, WEHI*

### Shabih Shakeel awarded KAT6 Foundation Grant



Dr. Shabih Shakeel was awarded \$226,500 USD for a KAT6 Foundation grant for the 3-year project “ When Proteins Go Wrong: Unravelling The Impact Of KAT6 Variants On Protein Structure And Function”. This project is focussed on characterising the effects of different KAT6A and KAT6B mutations on protein structure and important protein functions such as binding with protein partners and acetylation. They will do this first characterisation by isolating the proteins and studying them in test tubes. Dr. Shakeel’s team will then see how these changes in function lead to downstream changes to actual cells.

### Professor Wai-Hong Tham part of the recently awarded ARC Centre of Excellence

Prof. Wai-Hong Tham is part of the recently awarded ARC Centre of Excellence for Advanced Peptide and Protein Engineering led by Prof. Richard Payne out of The University of Sydney. The Centre will unite diverse research leaders for a legacy of impactful translation in agriculture, conservation and biotech, while engaging the Australian public in the peptide and protein revolution via extensive outreach and creative pedagogy.



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## External Members and Affiliates Update

### Dr. Emily Furlong awarded an NHMRC Ideas Grant



Dr. Emily Furlong has been awarded an NHMRC Ideas Grant (\$988,788 AUD) as CIB alongside collaborators from ANU for the project titled Development of a delivery system for the targeted release of nanobodies in the gut. This project will develop a novel platform for the delivery of therapeutics to the gut for the prevention of gastrointestinal-based diseases.

### Prof. Megan O'Mara awarded an ARC Linkage

Prof. Megan O'Mara and collaborators were awarded \$1,354,530 for an ARC Linkage titled "Development of next-generation chemicals and materials requires concurrent advances in molecular characterisation technologies." The grant is led by Dr. David Marshall.



## New members

The Centre continues to reach out to scientists, both within our existing Nodes and outside of the founding academic institutions, who are involved in cryo-EM and membrane protein research to provide opportunities for them to become members or affiliates of the Centre. If you are interested in becoming a member or affiliate, please reach out to us at [ccecmp@monash.edu](mailto:ccecmp@monash.edu).

**We welcome members and affiliates :** Rasoul Rashidi (UoM), Alemu Gebrie Chekol (UoM) Maryam Kaffash (UoM), Jiahao Chen (VCCRI), Jieyu Song (UQ), Laura Garzon (UQ), Alvin (Chen-Yang) Lai (UQ) and Dr. Jia Jia Lim (Monash)

## Recent Centre Activities and Achievements

### CCeMMP Resaerch Symposium, 2025

CCeMMP held their 2025 Research Symposium at the Bio21 Institute of Molecular Science and Biotechnology, on November 13 and 14, 2025. Our 111 registrants enjoyed 2 keynote presentations, 12 oral presentations and 22 posters. The Symposium was organised entirely by Centre PostDocs and PhD students. This year the committee consisted of Dr. Ashleigh Kropp, Dr. Brooke Hayes, Dr. Naveen Vankadari, Dr. Aidan Grosas, Thomas Ficker, Somavally Dalvi and Jhonnatan Reales-Gonzalez, supported by Dr. Tracie Pierce. We thank the committee for their dedication and hard work in planning, coordinating and executing another brilliant symposium.



*Organising Committee 2025*



*Keynote speakers 2025: A/Prof Alastair Stewart and Prof. Wai-Hong Tham*

We had two keynote speakers, A/Prof. Alastair Stewart (VCCRI) opened the meeting with the powerful presentation “Snapshots of membrane transport: Sodium-dependent and proton-powered proteins.” This was followed by exciting talks from 6 PhD/completed PhD students, 5 PostDocs and 1 Lab Head: Ania Beyger (Monash), Mahmuda Yeasmin (Monash), Dr. Carus Lau (VCCRI), Dr. Rhys Grinter (UoM), Dr Luca Troman (UoM), Javid Jabbar (UoM), Dr. Joshua Hardy (WEHI), Daniel Fox (UoM), Kenta Ishii (Monash), Michaela Kaoullas (Monash), Dr. Sakshi Khosa (Heinrich Heine University, Germany), Dr. Fabian Munder (UoM).

Prof. Wai-Hong Tham (ANU/WEHI) closed out the meeting with an impactful talk on “Blocking malaria parasite transmission: Insights from cryo-EM of an endogenous fertilization complex.” The winner of the most popular oral presentation, as voted by the audience, was Dr. Luca Troman (UoM) for their talk on “The Pam Pilus - a novel pilus system within candidate phyla radiation bacteria”. A big thank you to our session Chairs for the smooth running of all the sessions over the two days: Dr. Ashleigh Kropp, Dr. Sepideh Valimehr, Dr. Brooke Hayes, Somavally Dalvi, Thomas Ficker, Jhonnatan Reales-Gonzalez and Dr. Naveen Vankadari.



*Most Popular Oral Presentation: Dr. Luca Troman with Ashleigh Kropp and Brooke Hayes*

There were 22 posters presented at morning and afternoon session breaks and lunch, with the judges awarding the winner and runner up poster prizes to Somavally Dalvi (Crossing the barrier: Understanding the life cycle of membrane-containing phages at molecular resolution) and Dr. Matthew Johnson (Cryo-Lamella preparation to visualise host pathogen interactions by CryoET), respectively, both from the UoM/Bio21 Node (and both from the Ghosal lab); with Somavally and Matthew taking out the poster prizes, this has the Ghosal lab taking out the prize trifecta at the Symposium!



*Best Poster: Somavally Dalvi with Drs Ashleigh Kropp and Brooke Hayes*



*Runner Up Poster: Dr. Matthew Johnstone with Drs Ashleigh Kropp and Brooke Hayes*

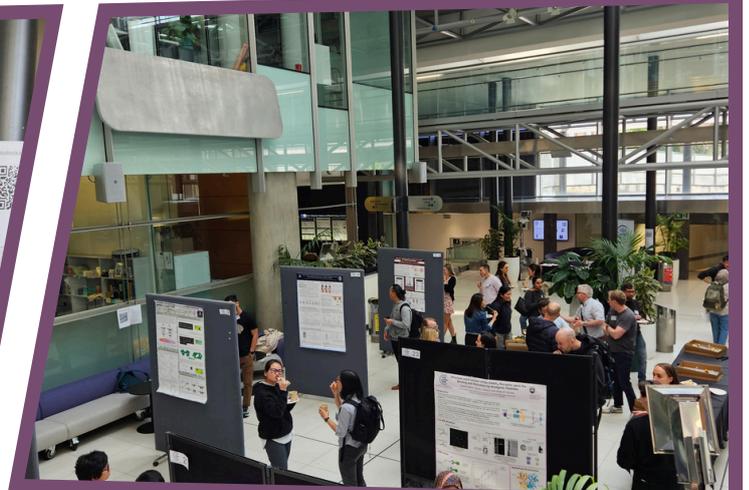
After the symposium presentations we ended with a networking session over some drinks and nibbles.

A big thank you to our judging panel: Dr. Chandan Kishor (UoW), Dr. Cara Press (Monash), A/Prof. Alastair Stewart (VCCRI), Dr. Yan Li (Monash), Dr. Wessel Burger (WEHI), Dr. Alice Shin (Monash), A/Prof. Gökhan Tolun (UoW), Dr. Elva Zhao (Monash), Dr. Rebecca Bamert (Monash), Dr. Jesse Mobbs (Monash), Dr. Fabian Munder (UoM), Dr. Naveen Vankadari (UoM).

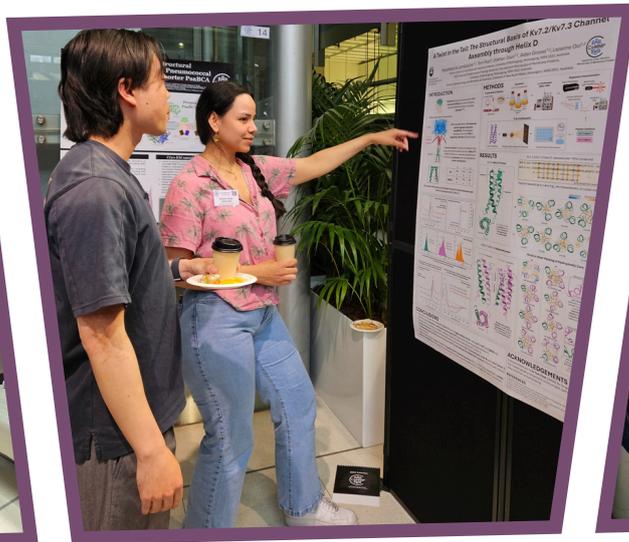
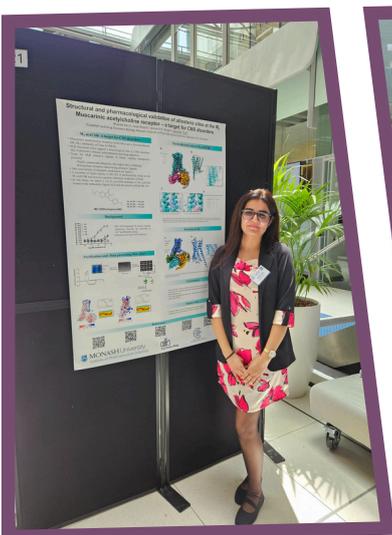
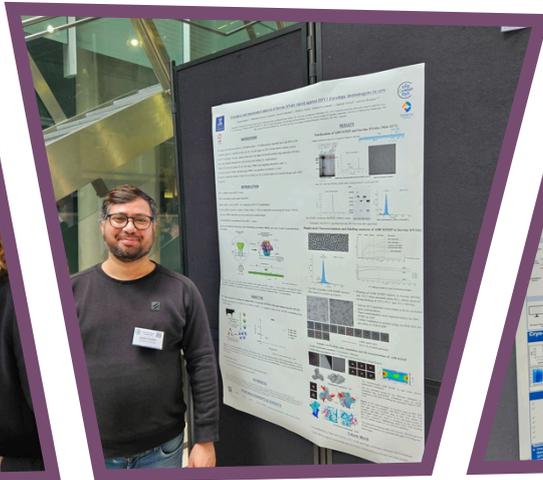
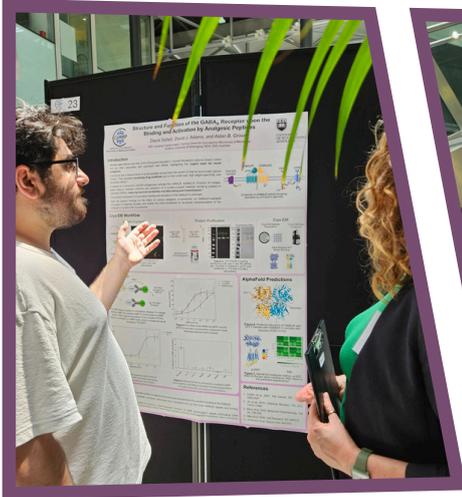
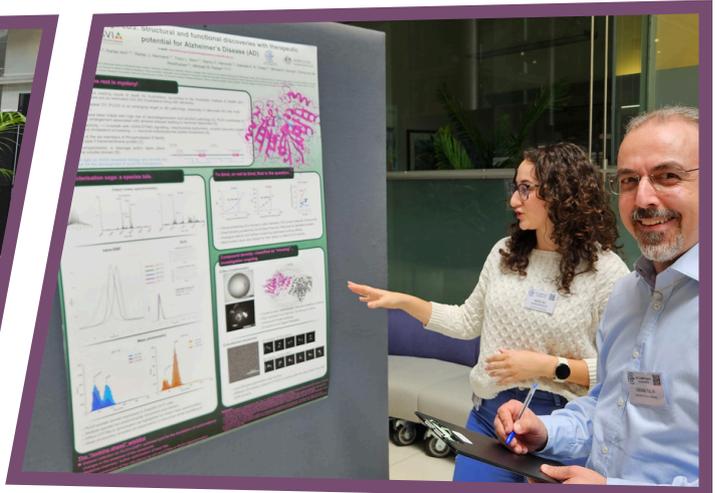
While some members stayed on for the Business Meeting, our keynote speakers very kindly ran a mentoring session with PhD students and recently appointed PostDocs. The mentoring sessions were moderated by Dr. Ashleigh Kropp and Dr. Brooke Hayes.



Finally, we thank our sponsor, Solve Scientific (<https://solvescientific.com.au/>) for their support of the Symposium. We hope that those attending the meeting were able to speak with Sean and Vicki at their display table.



CCeMMP Research Symposium, 2025



CCeMMP Research Symposium, 2025

## CryoOZ 2025

The CryoZ Conference, sponsored by CCEMMP, was successfully held on 17th and 18th of November at University of Wollongong, co-hosted by the University of Sydney and the University of New South Wales. The event brought together an exceptional community of cryo-electron microscopy scientists, researchers, and technology experts. The program featured an impressive lineup of international keynote speakers who shared cutting-edge advances in cryo-EM and structural biology applications. The conference provided a highly engaging environment for scientific exchange, collaboration, and networking among participants.



Members of the CCEMMP actively participated in the conference and played an important role in representing our community. Centre members contributed to the scientific program through both oral and poster presentations, showcasing ongoing projects and recent achievements. CCEMMP was a sponsor of the meeting.

The conference was followed by several workshops including: Advanced Electron Microscopy Grid Preparation Techniques, Electron Tomography and Subtomogram Averaging Integrated Pipelines, Imaging with High-Speed Bio-Atomic Force Microscopy, Automation and AI-Enhanced Plasma Technologies for Cryo-EM Sample Preparation and Imaging, Low Voltage Electron Microscopy as a Screening Tool for Cryo-EM.



## MicroED workshop at IHIC

The MicroED Workshop was successfully organized by Dr Sepideh Valimehr at Ian Holmes Imaging Centre, the University of Melbourne on 25<sup>th</sup> to 27<sup>th</sup> of November, with expert instruction provided by Dr. Hongyi Xu and Dr. Sulin Li from the Australian National University (ANU), and Dr. Yufeng Zhao from the University of Wollongong, sponsored by Thermo Fisher Scientific. The workshop provided a valuable training experience for researchers interested in microcrystal electron diffraction (MicroED). It aimed to support capability development in advanced structural biology techniques and increase local expertise within the Australian cryo-EM community. The participants were from multiple institutions, including: The University of Melbourne, Monash University and the WEHI.



## Upcoming Events

**CeMMP**

Australian Government  
Australian Research Council

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bio21 institute

MOLECULAR HORIZONS

UNIVERSITY OF WOLLONGONG AUSTRALIA

**SEMINAR SERIES 2026**

WEHI  
brighter together

Our seminar series continues on the second Tuesday of the month, 10:00 AM - 11:00 AM (AEST/AEDT). This coming quarter we start our 2026 seminar series with:

- Associate Prof. Seychelle Vos (MIT, Cambridge, MA, USA) February 17 (note the third Tuesday),
- Dr. Rosemary Cater (The University of Queensland), March 10.
- Assistant Prof. Yi-Wei Chang (University of Pennsylvania, USA), 14 April.

Miss a seminar? Most are recorded so you can access them from our website (<https://ccemmp.org/events/ccemmp-seminar-series/>) or our youtube channel.

## Upcoming training

IHIC is hosting a series of engaging and informative workshops designed to help you learn, grow, and connect with others. Whether you're looking to build new skills or explore new ideas, there's something for everyone!

- Hands-on cryoEM sample preparation and data acquisition (hands-on) led by Dr. Sepideh Valimehr, 29-30 April, 2026 at IHIC
- Single\_particle cryoEM data processing workshop led by Dr. Hamish Brown, 2-3 June, 2026 at IHIC
- Tomography workshop (Hands-on microscope and processing) led by Dr. Hamish Brown, 19-20 August, 2026 at IHIC



**THE UNIVERSITY OF MELBOURNE**

**bio21 institute**

# Ian Holmes Imaging Centre workshops

**REGISTRATION**



<https://microscopy.unimelb.edu.au>

## Outreach

### In the Media

- **Sarah Piper** and team - Online article on Kudos - <https://www.growkudos.com/publications/10.1073%25252Fpnas.2521157122/reader>
- **Kenta Ishii** - Khawaja, H. (2025), Research highlights: Hidden gems. FEBS J, 292: 4797-4799. <https://doi.org/10.1111/febs.70225>
- **Shabih Shakeel** – Research Spotlight - [https://www.linkedin.com/posts/kat6-foundation\\_kat6a-kat6b-kat6-activity-7417611584341962752-LC7m?utm\\_source=social\\_share\\_send&utm\\_medium=member\\_desktop\\_web&rcm=ACoAAAQZjU4BptHiJLwucPryHRXbO1sM5Ga2arc](https://www.linkedin.com/posts/kat6-foundation_kat6a-kat6b-kat6-activity-7417611584341962752-LC7m?utm_source=social_share_send&utm_medium=member_desktop_web&rcm=ACoAAAQZjU4BptHiJLwucPryHRXbO1sM5Ga2arc)

### Social Media

The Outreach and Public Engagement Committee post regular updates on channels: Bluesky, Instagram and X. If you are on these platforms, remember to follow us!



Bluesky – @ccemmp-outreach.bsky.social



Instagram - ccemmp\_outreach



ARC Centre for Cryo-electron Microscopy of Membrane Proteins



### Other training

- A 2 week SPA workshop was delivered onsite at MIPS by **Dr. Sepideh Valimehr** and **Dr. Matt Belousoff**. This session had 17 attendees, including some Centre students, members and affiliates: Jiayin Zhang, Chandan Kishor (ICPD), Ania Beyger (ICHDR), Mai Vu, Jia Jia Lim, Rasoul Rashidi, Hally (Jiahao) Chen, Bronte Carroll, Maryam Kaffash, Abhishek Roy and Mario Delgado Guevara. 26 Jan - 5 Feb, 2025.
- **A/Prof. Karen Gregory** - 2025 Graduate Research Leadership Program (ACGR, 23-24 Oct);
- **A/Prof. Karen Gregory** - MEA peer reviewer training;
- **A/Prof. Karen Gregory** - PharmAlliance Communication Tools - Visualizing Your Research
- **Prof. Eric Hanssen** - Ran a 3 day CryoSParc workshop at the University of Canterbury, NZ
- **Dr. Sepideh Valimehr** - Ran a MicroED Workshop at IHIC, 25-27 Nov, 2025.

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## Conference Presentations

### International Meetings

**Dr. Alisa Glukhova** - Keynote Speaker - Using cryo-electron microscopy to understand the biology and drug binding of the Wnt signalling pathway, Pacifichem 2025, Hawaii, USA, 2025

**Prof. Peter Czabotar** - Designing Death: Engineering BAX and BAK Binders to Command Apoptosis, October 2025, European Cell Death Organisation Conference, Berlin, Germany.

**Prof. Peter Czabotar** - MNT, an Achilles' heel for MYC-driven lymphoma?, January 2026, Death in the Alps. Obergurgl. Austria.

**Dr. David Thal** - When are allosteric binding sites 'specific binding' sites and when are they 'non-specific binding' sites, 12-15 December 2025, interactive discussion at GPCR Workshop 2025.

**Dr. Fabian Bumbak** - Invited talk - Insights into the conformational flexibility of neurotensin when bound to the neurotensin receptor 1, Pacifichem 2025, Honolulu, USA.

**Dr. Rosemary Cater** - Structural and Molecular Basis of Choline Uptake into the Brain by FLVCR2, 12 January 2026, Asia Biophysics Association Symposium, Hong Kong.

**Dr. Alisa Glukhova** - Using cryo-electron microscopy to understand the biology and drug binding of the Wnt signalling, 12-15 December 2025, interactive discussion at GPCR Workshop 2025.

### National Meetings

**Dr. Shabih Shakeel** - Keynote Speaker - Mechanistic Insights into Chromatin Remodelling by the MORC Protein Family, October 2025, ASBMB, Brisbane, Australia.

### Local Meetings

**Dr. Winnie Tan** - Multiscale biological methods uncover human MORC2 as an ATP-dependent DNA compaction machine. CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

**Dr Hongyi Xu** - Combining Real-time MicroED and Continuous SerialED for Structure-Based Drug Discovery, CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

**Dr. Fabian Munder** - A potent protein antibiotic kills *Pseudomonas aeruginosa* by inhibiting the BAM complex, CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

**Dr. Hamish Brown** - Montage cryo-tomography with square and rectangular beams, CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

**Dr. Matthew Johnson** - CryoET of An Asgard archaeon from a modern analog of ancient microbial mats, CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

**A/Prof. Michael Landsberg** - Activation mechanism of an ABC toxin revealed by Cryo-EM, CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

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**Lucy Fitschen** - Cryo-EM Structures of the Herpes Simplex Virus 1 Annealase Protein ICP8 Reveal DNA Binding and Annealing Mechanisms, CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

**Riya Joseph** - A structural perspective on pore formation and regulation of *Bacteroides fragilis* toxins, CryOZ 2025 Conference, 17 November 2025, University of Wollongong, Wollongong.

**Dr. Benjamin Gully** - The molecular triggers of  $\gamma\delta$  T cell activation, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Dr. Jacob Lewis** - Decoding genome instability through visual biochemistry, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Mihin Perera** - PartiNet is a dynamic adaptive neural network for high-performance particle picking in cryo-electron microscopy, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Muhammad Zahir** - Cryo-EM Structure of Human Pregnancy Zone Protein (PZP) Reveals Dimerization Details, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Irene Antony** - A Hyper-stable Glutamate-Binding Protein from a TAXI Transporter, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Dr. Emily Furlong** - Structural basis of bacterial nickel import by Type I ABC transporters, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Dr. Aidan Grosas** - Folds to Fibrils: Protein Structure in Health and Disease, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Dr Christy Ying** - An Optimised Sample Preparation Workflow for Cryo-ET of Mammalian Cells, CryOZ 2025 Conference, 18 November 2025, University of Wollongong, Wollongong.

**Prof. Wai-Hong Tham:** Keynote speaker - Blocking malaria parasite transmission: Insights from cryo-EM of an endogenous fertilization complex, CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Prof. Alastair Stewart:** Keynote speaker. Snapshots of membrane transport: Sodium-dependent and proton-powered proteins, CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Ania Beyger:** Selected oral presentation. Structural and pharmacological characterisation of CXCR3 isoforms and their modulation by therapeutic antagonists, CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Daniel Fox:** Selected oral presentation. AI-designed protein inhibitors can block hemoglobin binding and inhibit growth of pathogenic *E. coli*. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

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**Dr. Rhys Grinter** - Quinone-transporting filaments extend the respiratory chain of Gram-positive bacteria. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Dr. Joshua Hardy** - ProteinDJ: a high-performance and modular protein design pipeline. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Kenta Ishii** - Integrating structural and dynamic perspectives to understand a next-gen obesity drug. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Javaid Jabbar** - Lysine acetylation: A switch for OPA1-mediated membrane remodeling. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Michaela Kaoullas** - Structural perspectives on activating the M4 muscarinic acetylcholine receptor. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Dr. Carus Lau** - Probing early inactivation events in hERG using the scorpion toxin CnErg1. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Dr. Fabian Munder** - A potent protein antibiotic kills *Pseudomonas aeruginosa* by inhibiting the BAM complex. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Dr Luca Troman** - The Pam Pilus – a novel pilus system within candidate phyla radiation bacteria. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Mahmuda Yeasmin** - Structural basis of positive allosteric modulator selectivity at the muscarinic acetylcholine receptor. CCEMMP Research Symposium, 13-14 November 2025, Bio21, Parkville.

**Dr Felix Bennetts** - Structure-Function Guided Development of P2X1 Receptor Small Molecule Antagonists for Use as a Non-Hormonal Male Contraceptive, MIPS Research Symposium, 2 December 2025, Monash, Parkville.

**Dr Laura Humphreys** - Editing native proteins and investigating the signalosome of Class B1 G protein coupled receptors (GPCRs), MIPS Research Symposium, 2 December 2025, Monash, Parkville.

**Dr Natalie Diepenhorst** - Lead discovery for the orphan GPCR, GPR88, MIPS Research Symposium, 2 December 2025, Monash, Parkville.

**Dr Tracy Josephs** - Genetic Contributions to Mitochondrial Dysfunction in ALS: Targeting Import Chaperones of TDP-43, MIPS Research Symposium, 2 December 2025, Monash, Parkville.

**Dr. Sheng Yu Ang** - Targeting GPR17 to Promote Remyelination in Multiple Sclerosis, MIPS Research Symposium, 2 December 2025, Monash, Parkville.

**Elaine Ye Jiang** - Understanding Activation and Structures of Glucagon Receptor, DDB Symposium, 6 November 2025, Monash, Parkville.

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**Bhavika Rana** - Structural and pharmacological validation of allosteric sites at the M5 Muscarinic acetylcholine receptor – a target for CNS disorders, DDB Symposium, 6 November 2025, Monash, Parkville.

**Kenta Ishii** - Structural and Dynamic Insights into How Retatrutide Achieves Triple Agonism, DDB Symposium, 6 November 2025, Monash, Parkville.

**Daniel Fox** - Melbourne-Japan Workshop: Junctions of Mitochondrial and Bacterial Sciences, 17 December 2025, The Bio21, Parkville.

## Academic Presentations

### National Seminars

**Jacob Lewis** - Decoding DNA replication using visual biochemistry, University of Queensland, 12 November 2025

**Debnath Ghosal** - Understanding the molecular logic of human oral microbiome, UNSW, 20 November 2025.

**Riya Joseph**, ICHDR Exit Seminar - A structural perspective on mechanism and regulation of Bacteroides fragilis pore forming proteins, UoM School of Biomedical Sciences, Bio21 Auditorium, 4 December 2025.

## Industry Engagement

Members and student members continue to have their regular meetings with their respective industry partners (Servier, Dimerix and Pfizer). ICHDRs continue to meet with their industry mentors.

- **Dr. David Thal** - Meeting with Boehringer Ingelheim, January 2026
- **Prof. Patrick Sexton** - Astex visit and roundtable - Molecular insights into glucagon-like peptide-1 (GLP-1) receptor function, 21 January 2026
- **Prof. Denise Wootten** - Talk at Septerna Founders Symposium in San Francisco (USA) - Targeting the GLP-1R from receptor structure to animal models of disease, 24-25 February 2026
- **Prof. Patrick Sexton** - Talk at Septerna Founders Symposium in San Francisco (USA) - Understanding the structural basis for selective and non-selective amylin and calcitonin receptor agonists, 24-25 February 2026
- **Prof. Arthur Christopoulos** - Talk at Septerna Founders Symposium in San Francisco (USA) , 24-25 February 2026
- **Prof. Patrick Sexton** - Understanding the structural basis for selective and non-selective amylin and calcitonin receptor agonists. Novo Nordisk, Boston USA, 27 February, 2026
- **Profs. Wootten, Sexton and Christopoulos**. Roundtable discussions. Septerna Inc., San Francisco, CA, USA, 24-25 February, 2025.
- **Profs. Wootten and Sexton**. Roundtable discussions. Novo Nordisk, Boston USA, February 27th, 2025.

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## Publications

### New Publications

Acharya S, **Hanssen E**, **Bouwer JC**, Schjenken JE, Pringle KG, Smith R, Fisher JJ (2026). Exploring placental ultrastructure: A review of electron microscopy techniques and emerging methods for resolving 3D organelle architecture. *Placenta*, online 16 January 2026 (In Press, corrected proof)

**Baral J**, Ang CS, McMillan PJ, Shobhana K, Saini A, Hinde E, Das AK, **Rouiller I** (2026). Bringing the ends together: cryo-EM structures of mycobacterial Ku in complex with DNA define its role in NHEJ synapsis. *Nucleic Acids Res*, 54(1): gkaf1418. doi: 10.1093/nar/gkaf1418. PDB-8VF5, EMDB-43184; 8VF2, EMDB-43186; 8V53, EMDB-42978; 8VF4, EMDB-43185.

**Black KA**, **Mobbs JI**, Venugopal H, Dite TA, Leis A, Wong LL, Dagley LF, **Thal DM**, **Glukhova A** (2025). Structural basis for Porcupine inhibition.. *Commun Chem*. 8(1):348. <https://doi.org/10.1038/s42004-025-01726-5>. [PDB:9OO6, EMD-70660; PDB: 9OO7, EMDB-70661; PDB:9OO8, EMDB-70662]

Bower JB, van der Velden WJC, Gomez KP, Pan M, **Bumbak F**, Vaidehi N, Ziarek JJ (2026). Stabilization versus flexibility: Detergent-dependent trade-offs in neurotensin receptor 1 GPCR ensembles. *Protein Sci.*, 35(2):e70475. doi: 10.1002/pro.70475.

Dangerfield J, DeBono A, Keller AN, **Josephs TM**, Shackelford DM, **Gregory KJ**, **Leach K**, Capuano B (2025). A novel chemoreactive calcilytic for the potential treatment of autosomal dominant hypocalcemia. *Acta Pharmaceutica Sinica B*, 15(10): 5387-5399 <https://doi.org/10.1016/j.apsb.2025.07.044>

**Davies JS**, **Zeng YC**, Briot C, **Brown SHJ**, **Ryan RM**, **Stewart AG** (2025). Structural basis of sodium ion-dependent carnitine transport by OCTN2. *Nat Commun* 17: 181-181. <https://doi.org/10.1038/s41467-025-66867-6> [PDB: 9PMD,EMD-71735; PDB: 9PDQ, EMD-71540; PDB: 9PFB, EMD-71597]

Low YS, **Roche SG**, **Aleksandrova NA**, Foley G, Low JK, Box JK, Croll TI, Chassagnon IR, Lott JS, **Deplazes E**, Boden M, Hurst MR, **Piper SJ**, **Landsberg MJ** (2025). Complete structures of the YenTc holotoxin prepore and pore reveal the evolutionary basis for chitinase incorporation into ABC toxins. *Nat Commun*, 16: 11121 - 11121. doi:10.1038/s41467-025-66050-x PDB:9C4K, EMDB-45190; EMDB-45405; EMDB-45409; EMDB-45422; PDB-9CBC, EMDB-45423.

**Lu JJ**, Deganutti G, Li M, **Humphrys LJ**, Li Y, **Nettleton TJ**, Venugopal H, Julita V, Christopoulos G, Reynolds CA, **Sexton PM**, **Wootten D**, **Zhao P**, **Piper SJ** (2025). Structural basis of modified ligand selectivity from N-terminal PAC1R alternative splicing, *Proc. Natl. Acad. Sci. U.S.A.*, 122 (47): e2521157122. <https://doi.org/10.1073/pnas.2521157122>. PDB: 9P92, EMD-71396; PDB: 9P93, EMD-71397; PDB: 9P94, EMD-71398.

**Newton-Vesty MC**, Scalise M, Jamieson SA, Currie MJ, **Brown SHG**, **Valimehr S**, Tillett ZD, **Hall KR**, Quan S, Allison JR, Whitten AE, Panjekar S, Indiveri C, **Hanssen E**, Mace PD, **North RA**, **Dobson RCJ**, **Davies JS** (2026). Structural basis of isethionate transport by a TRAP transporter from a sulfate-reducing bacterium. *Structure*, 34: 133. <https://doi.org/10.1016/j.str.2025.10.011> PDB: 9PYM, EMDB-72036

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Sobti M, Gunn AP, **Brown SHJ**, Zavan L, Fraunfelter VM, Wolfe AL, McDevitt CA, Steed PR, **Stewart AG** (2026). Distinct structural features of *Pseudomonas aeruginosa* ATP synthase revealed by cryo-electron microscopy. *Nat Commun*, 17: 406. <https://doi.org/10.1038/s41467-025-67100-0>  
PDB: 9O19, EMDB-49999; PDB: 9O1A, EMDB-70000; PDB: 9O1B, EMDB-70001; PDB: 9O1C, EMDB-70002; PDB: 9O1D, EMDB-70003; PDB: 9O1E, EMDB-70004; PDB: 9O1F, EMDB-70005; PDB: 9O1G, EMDB-70006; PDB: 9O1H, EMDB-70007; PDB: 9O1J, EMDB-70009; PDB: 9O1K, EMDB-70010.

**Valimehr S**, Cho E, **Brown HG**, McMillan PJ, **Hanssen E** (2025). CryoEM screening with a blotting instrument: quantifying parameters affecting ice thickness using semi-automated image analysis. *Methods in Microscopy*, Dec 16, 2025 <https://doi.org/10.1515/mim-2025-0028>

## Released Structures

- **8VF2, EMDB-43184**: Ku homodimer super-complex with linear DNA
- **8VF4, EMDB-43185**: Ku homodimer super-complex with hairpin DNA
- **8VF5, EMDB-43186**: Ku homodimer in complex with linear DNA
- **8V53, EMDB-42978**: Ku homodimer in complex with hairpin DNA
  - Joydeep Baral, Isabelle Rouiller
  - To be published
  
- **9NVL, EMDB-49839**: ATPase Hybrid F1 with the ancestral core domains Binding Dwell
- **9NVM, EMDB-49840**: ATPase Hybrid F1 with the ancestral core domains Catalytic Dwell
- **EMDB-49841**: ATPase hybrid F1 with the ancestral core domains Hexamer without stalk Binding dwell
- **EMDB-49842**: ATPase hybrid F1 with the ancestral core domains Tetramer with stalk Binding Dwell
- **EMDB-49843**: ATPase hybrid F1 with the ancestral core domains Tetramer no stalk Binding Dwell
  - Alastair Stewart, Simon Brown
  - *Protein Sci* 34: e70345-e70345, 2025. <https://doi.org/10.1002/pro.70345>
  
- **9YDP, EMDB-72825**: DADLE-DOR-miniGi
- **9YDQ, EMDB-72826**: DADLE-MIPS3614-DOR-miniGi
- **9YDR, EMDB-72827**: DADLE-MIPS3983-DOR-miniGi
- **EMDB-72828**: DADLE-DOR-miniGi
- **EMDB-72829**: DADLE-MIPS3614-DOR-miniGi
- **EMDB-72830**: DADLE-MIPS3983-DOR-miniGi
- **EMDB-72831**: DADLE-BMS-DOR-miniGi
- **EMDB-72832**: DADLE-BMS-DOR-miniGi
  - Jesse Mobbs and David Thal
  - *BioRx DOI*: <https://doi.org/10.1101/2025.10.16.682975>
  
- **9PMD, EMD-71735**: Human OCTN2 in an inward-facing conformation
- **9PDQ, EMD-71540**: Human OCTN2 bound to carnitine in the occluded conformation
- **9PFB, EMD-71597**: Human OCTN2 bound to ipratropium in an inward-facing conformation
  - James Davies, Yi Zeng, Alastair Stewart
  - <https://doi.org/10.1038/s41467-025-66867-6>

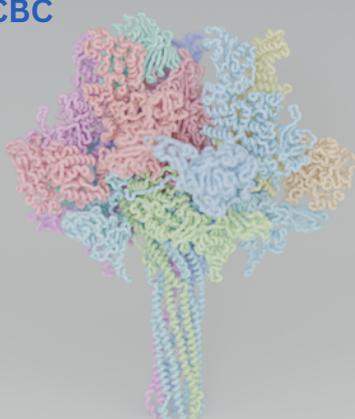
- **PDB:9O19, EMDB- 49999:** Pseudomonas aeruginosa ATPase State1
- **PDB:9O1A, EMDB-70000:** Pseudomonas aeruginosa ATPase State1 F1Fo focused
- **PDB:9O1B, EMDB-70001:** Pseudomonas aeruginosa ATPase State1 Fo focused
- **PDB:9O1C, EMDB-70002:** Pseudomonas aeruginosa ATPase State2
- **PDB:9O1D, EMDB-70003:** Pseudomonas aeruginosa ATPase State2a F1Fo focused
- **PDB:9O1E, EMDB-70004:** Pseudomonas aeruginosa ATPase State2a Fo focused
- **PDB:9O1F, EMDB-70005:** Pseudomonas aeruginosa ATPase State2b F1Fo focused
- **PDB:9O1G, EMDB-70006:** Pseudomonas aeruginosa ATPase State2b Fo focused
- **PDB:9O1H, EMDB-70007:** Pseudomonas aeruginosa ATPase State3
- **PDB:9O1J, EMDB- 70009:** Pseudomonas aeruginosa ATPase State3 F1Fo focused
- **PDB:9O1K, EMDB-70010:** Pseudomonas aeruginosa ATPase State3 Fo focused
  - Alastair Stewart
  - DOI: <https://doi.org/10.1038/s41467-025-67100-0>
  
- **PDB:9PYM, EMDB-72036:** Isethionate TRAP transporter IseQM from Oleidesulfovibrio alaskensis with bound isethionate
  - Newton-Vesty MC, Davies JS, Dobson RCJ.
  - DOI: <https://doi.org/10.1016/j.str.2025.10.011>
  
- **PDB:9P92, EMDB-71396:** PAC1nR-VIP-Gs
- **PDB:9P93, EMDB-71397:** PAC1sR-VIP-Gs complex
- **PDB:9P94, EMDB-71398:** PAC1sR-PACAP27-Gs complex
  - Sarah Piper, Jessica Lu, Patrick Sexton , Denise Wootten .
  - <https://doi.org/10.1073/pnas.2521157122>
  
- **PDB:9OO6, EMDB-70660:** Human PORCN bound to inhibitor C59
- **PDB:9OO7, EMDB-70661:** Human PORCN bound to inhibitor ETC159
- **PDB:9OO8, EMDB-70662:** Apo Human PORCN
  - Katrina Black, Alsia Glukhova.
  - <https://doi.org/10.1038/s42004-025-01726-5>
  
- **PDB:9C4K, EMDB-45190:**Yersinia entomophaga holotoxin complex in prepore conformation
- **PDB:9CBC, EMDB-45423:** YenTc pore
- **EMDB-45405:** YenTcA prepore
- **EMDB-45409:** YenTcBC prepore
- **EMDB-45422:**YenTc holotoxin pore
  - Michael Landsberg
  - <https://doi.org/10.1038/s41467-025-66050-x>
  
- **PDB:9MM5, EMDB-48385:**CGRP Receptor in complex with dC2\_049
  - Jason Cao, Brian Cary, Matthew Belousoff, Denise Wootten.
  - To be published
  
- **PDB:9N09, EMDB-48779:**M4 muscarinic acetylcholine receptor Gi1 complex (mini-Gsi chimera) bound to the bitopic agonist C110
- **EMDB-48778:** M4 muscarinic acetylcholine receptor Gi1 complex (mini-Gsi chimera) bound to the bitopic agonist C110 (focused refinement map)
  - Michaela Kaoullas, Jesse Mobbs, David Thal.
  - To be published

## CCeMMP Cryo-EM Structure Image Gallery

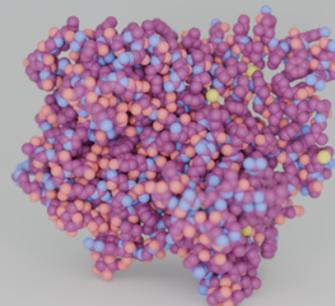
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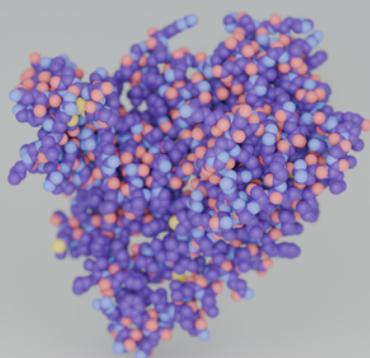
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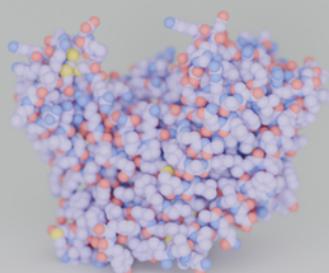
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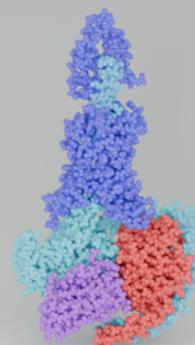
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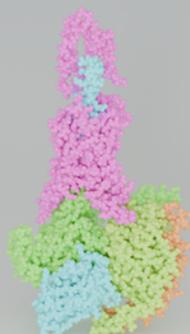
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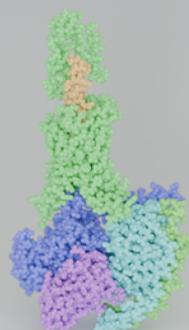
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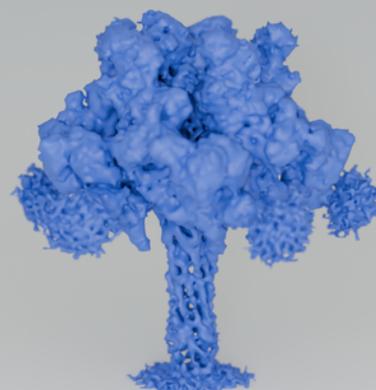
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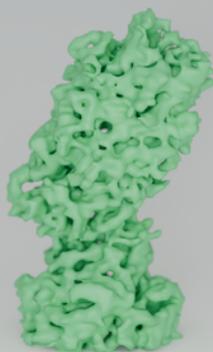


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## CCeMMP Cryo-EM Structure Image Gallery

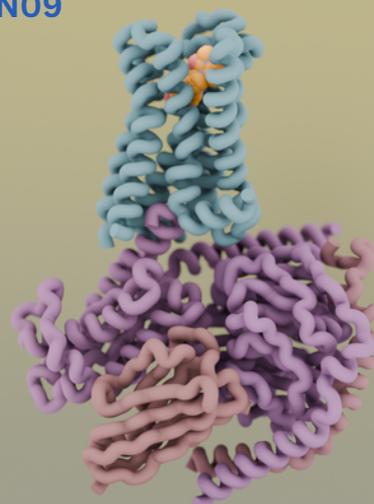
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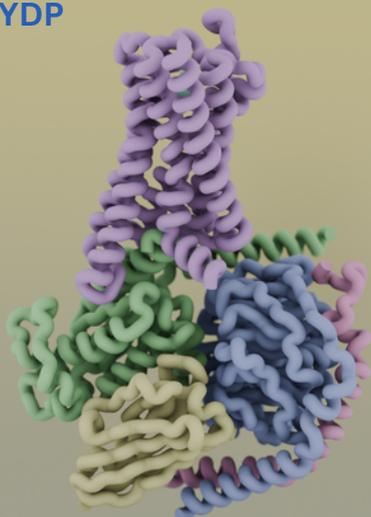
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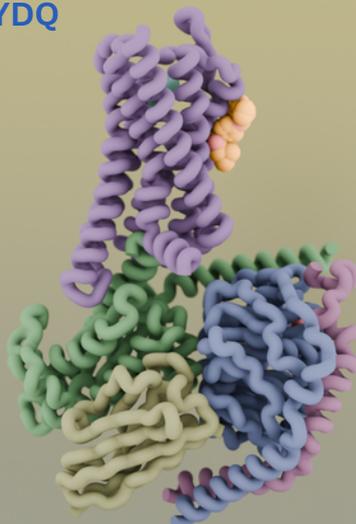
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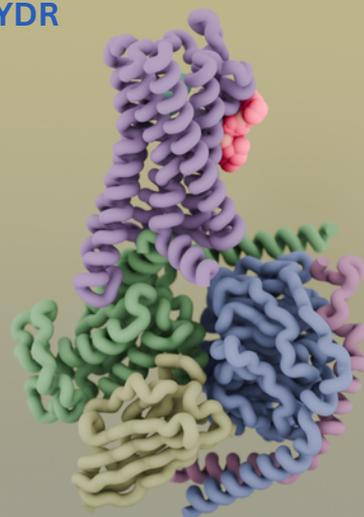
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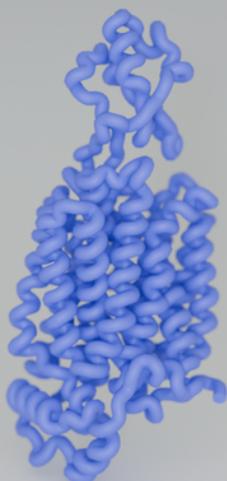
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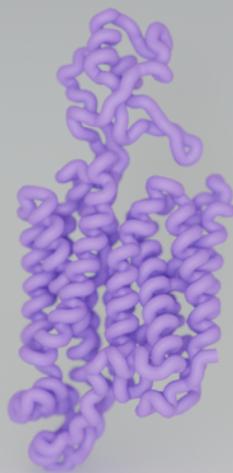
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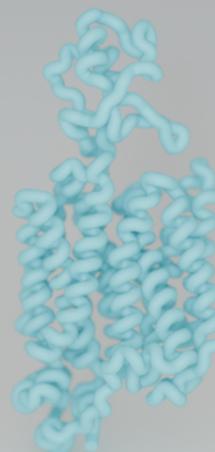
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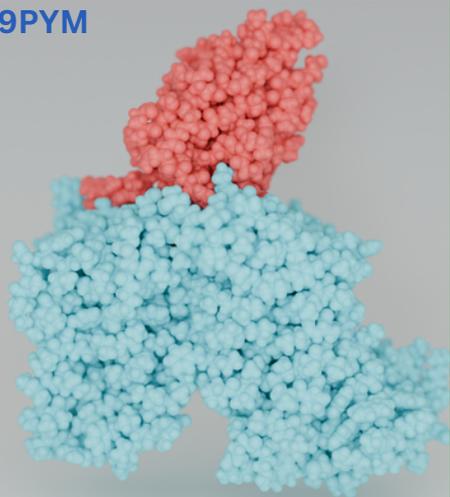


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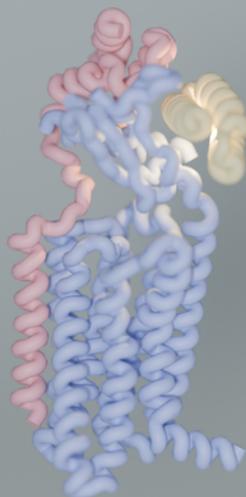


## CCeMMP Cryo-EM Structure Image Gallery

9PYM



9MM5



EMDB-49843



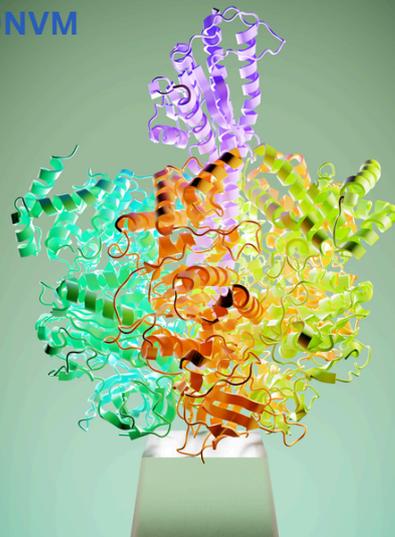
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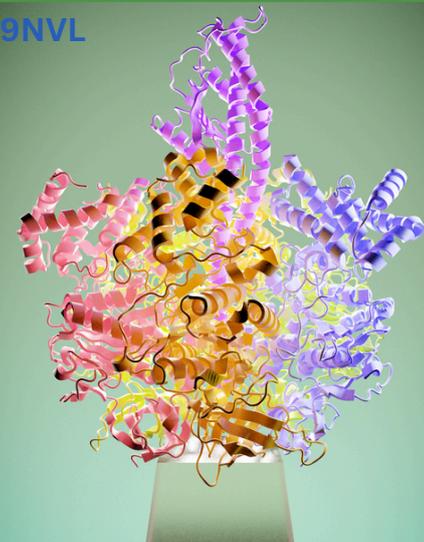
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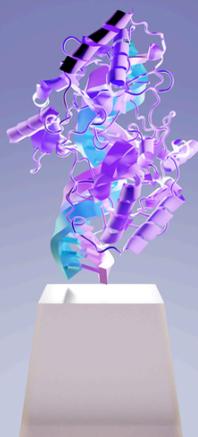
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9NVL



8VF5



8VF2

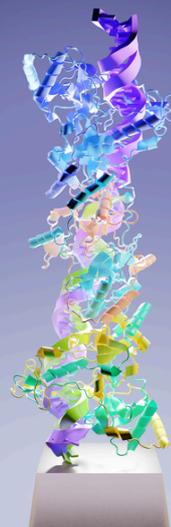
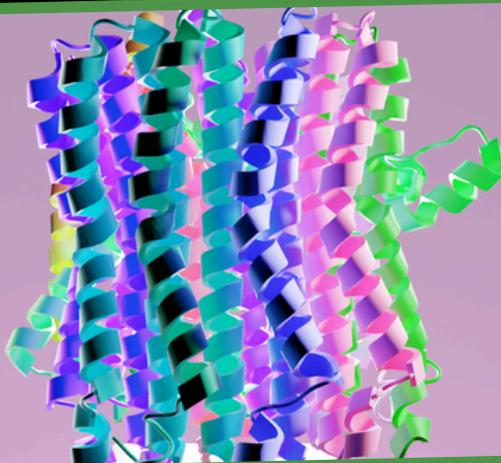


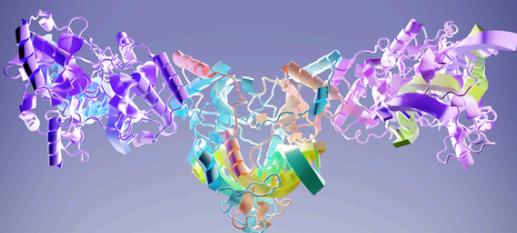
Image Credits: Dr Laura Humphrys, Dr. Brian Cary, Lyn Deng

# CCeMMP Cryo-EM Structure Image Gallery

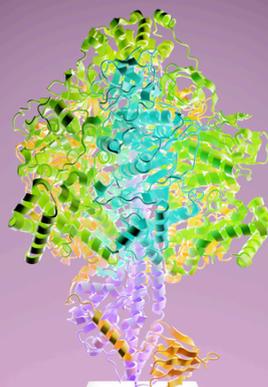
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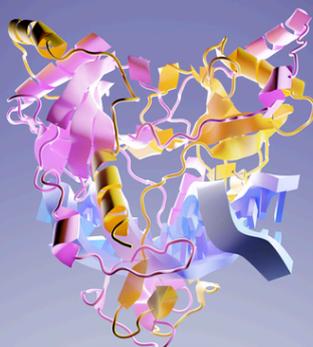
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8V53



901A

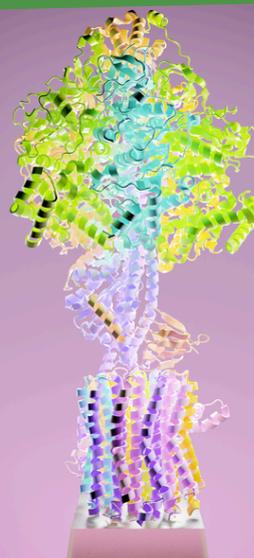


Image Credits: Lyn Deng