



Modern Approaches to Processing Single Particle CryoEM Data: Micrographs to PDB

In this week-long hands-on workshop, attendees will be immersed in a High Performance Computing environment and will learn the current approaches to rapidly go from electron micrographs all the way to creating a high quality PDB molecular interpretation of the results.

The material covered will be:

- Linux HPC environment and GPU computing
- Setting up consistent cryoEM data structures
- Motion correction
- CTF estimation
- AI techniques for particle picking
- *ab initio* 3D model generation
- Particle homogenization (2D and 3D classification techniques)
- 3D variability analysis and how it can inform further 3D refinement strategies
- High resolution 3D refinement strategies
- Advanced 3D masking
- Molecular Dynamics Flexible Fitting (MDFF) for PDB model fitting
- Realspace refinement strategies for PDB finalization
- PDB validation

The softwares covered will include the most up to date versions of:

- RELION
- CRYOSPARC
- EMAN
- ChimeraX / iSOLDE
- Phenix
- Coot

All attendees will have priority access to a high-performance computing system during the course via their own laptop.

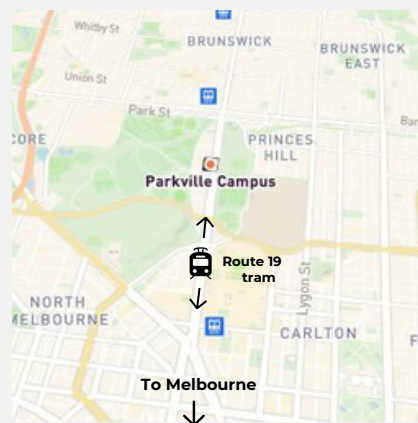
The entire course will be in the context of a single real-world dataset on a clinically relevant G protein-coupled receptor and will cover the essence of the theoretical components of image signal analysis as well as provide genuine hands-on experience for the attendees.

When

Monday July 7 - Friday July 11, 2025
9:00 AM - 5:00 PM

Where

Monash Institute of Pharmaceutical Sciences, Monash University
399 Royal Pde., PARKVILLE, Victoria, Australia



To secure a place

<https://shop.monash.edu/modern-approaches-to-processing-single-particle-cryoem-data-micrographs-to-pdb.html>

Cost

\$11,000 AUD (includes GST \$1,000)

Deadline

Please secure your place to the workshop by 5:00 PM, June 23rd, 2025

Other details

- **Places are limited: Maximum of 16 attendees**
- **Please bring your own laptop**
- Morning tea, lunch & afternoon tea will be provided each day
- Attendees are responsible for securing their own accommodation. If required, please contact us for places nearby

Contact Us

for more information:



ccemmp@monash.edu