Contribution ID : **106** Type : **Oral**

MyD88 TIR domain higher-order assembly interactions revealed by serial femtosecond crystallography

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Serial Synchrotron Crystallography (SSX) is rapidly emerging as a promising technique for collecting data for time-resolved structural studies or for performing room temperature micro-crystallography measurements using micro-focused beamlines. When performed using ultra-bright X-ray Free Electron Laser (XFEL) sources serial crystallography typically involves a process known as 'diffract-and-destroy' where each crystal is measured just once before it is destroyed by the intense XFEL pulse. It's the small and intense beam focus of XFELs that make it possible to determine structures from nanocrystals where conventional crystallography techniques fail. Only through thorough synchrotron investigation, can we achieve successful XFEL beamtime proposals. Here we investigate the important role of the MX2 beamline at the Australian Synchrotron played in the successful XFEL proposal which resulted in the structure of the Myeloid differentiation primary response gene 88 (MyD88) and MyD88 adaptor-like/TIRAP (MAL), Toll-like receptor (TLR) adaptor proteins which play an important role in inflammatory disease . The data generated at the Linac Coherent Light Source provided structural and mechanistic insight into TLR signal transduction[1].

1. Clabbers, M., Holmes, S. et.al. MyD88 TIR domain higher-order assembly interactions revealed by microcrystal electron diffraction and serial femtosecond crystallography. Nature Communications, Nature communications 12 (1), 1-14, 2021.

Level of Expertise

Experienced Researcher

Presenter Gender

Woman

Pronouns

Which facility did you use for your research

Australian Synchrotron

Students Only - Are you interested in AINSE student funding

Do you wish to take part in the Student Poster Slam

Condition of submission

Yes

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