

## Structural insight into mycobacterial protein secretion

*Tuesday, 7 March 2023 16:00 (30 minutes)*

Mycobacteria tuberculosis employs Type 7 Secretion System (T7SS) to secrete effector proteins to help escape from the host immune system. There are five gene clusters named ESX-1 to ESX-5 belonging to T7SS in *M. tuberculosis*. ESX-1 is the first identified ESX system and has been shown to be essential for phagosome rapture. Secreted proteins have to cross both membranes of the bacterium. ESX-1 is expected to carry out this process, however, only the inner-membrane core complex components have been identified thus far. ESX-1 inner core complex consists of five subunits: EccB1, EccCa1, EccCb1, EccD1 and EccE1. It has an estimated molecular mass of ~2 MDa. All five genes were constructed in multi-cassette vectors with different tags fused to one of the protein subunits. Presence of all five subunits could be detected after purification (by both Western Blot and Mass Spectrometry), however, purified complex from *E. coli* did not result in useable cryo-EM data thus far. In contrast, good success was obtained for purified ESX-1 components as well as substrates. In here, I will give a short overview about the TB research work done at Maastricht University.

**Presenter:** Dr GAO, Ye (M4I)

**Session Classification:** Session