

Your Name: Linxiang Yin

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Project Name: Large clostridial toxins structures and translocation

Describe specimen, biological relevance, and brief background:

Large clostridial toxins (LCTs) are a family of six homologous toxin proteins with large size (>200 kDa) and conserved multidomain architectures. Members of the LCTs include *Clostridioides difficile* toxins TcdA and TcdB, *Paenibacillus sordellii* toxins TcsL and TcsH, *Clostridium novyi* toxin TcnA, and *Clostridium perfringens* toxin TpeL. From previous preliminary Talos data sets, we get a structure with a 3.18Å resolution from TcnA sample and structures with 3.85~5Å resolution from TcdB translocation intermediate (inactivated) sample. We will improve the resolution of the TcdB sample. We will also try to get TcnA translocation intermediate structures and possibly the structures of other LCTs in the following data collections.

Specimen molecular weight: >200 kDa **Specimen dimensions:** ~25nm

Preliminary Data:

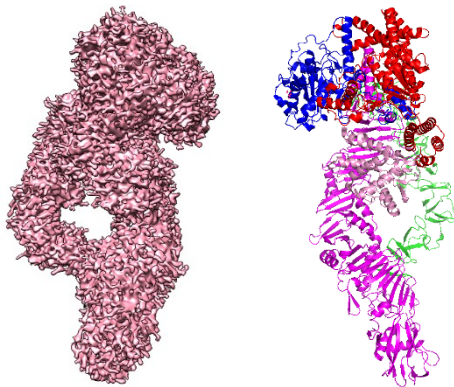


Figure 1. Preliminary structure of TcnA from previous Talos data sets.

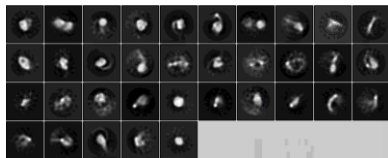


Figure 2. Preliminary 2D averages of TcdB translocation intermediates from previous Talos data sets.

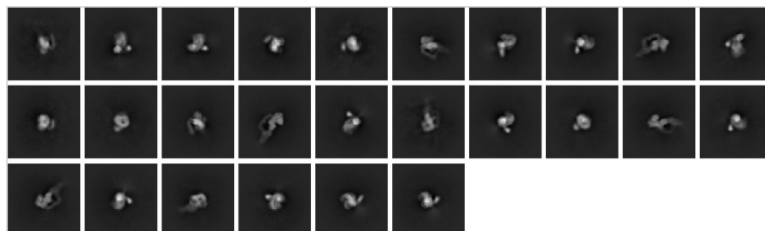


Figure 3. Preliminary 2D averages of TcnA from previous Talos data sets.

Requested microscope: Titan Krios

Phase plate (yes or no): no

Requested number of sessions: 2