

E0057

High Resolution Crystal Structures of the C-Fragment of Tetanus Toxin Heavy Chain. M. Shen¹, K.A. Kantardjieff¹, B. Segelke², M. Knapp³, B. Rupp², S. Parkin, ¹Keck Center for Molecular Structure, CSU Fullerton, ²UCLawrence Livermore National Laboratory, ³Chiron Corp., Emeryville, CA.

Tetanus neurotoxin (TeNT), the causative agent of the neuromuscular syndromes of tetanus, is produced by the anaerobic bacteria *Clostridium tetani*. The 50-kDa carboxyl-terminal fragment of the heavy chain of tetanus toxin crystallizes as a monomer in orthorhombic space group $P2_12_12_1$, with cell parameters $a=71.180$, $b=79.380$, $c=93.810$ Å. A 1.57 Å structure has been determined by MIRAS/MAD using a gold derivative and refined to a final R factor of 0.182 ($R_{\text{free}} = 0.221$). A 1.77 Å native structure has been determined by MR and refined after iterative model building and phase bias removal. The TeNT structures differ from previously reported ligand bound structures and polymorphs mainly in loop regions. Comparison with other structures suggests that loop rearrangements result largely from crystal contacts. Solvent-accessible gold sites show rearrangement of a few side chains, but no significant changes in backbone conformation. Conserved structural features are identified near loop residues implicated in ganglioside binding.



This work is supported by NIH-NIGMS P50-GM62410. LLNL is operated by University of California for the US DOE under contract W-7405-ENG-48. CMoLS is a core facility of CSUPERB.