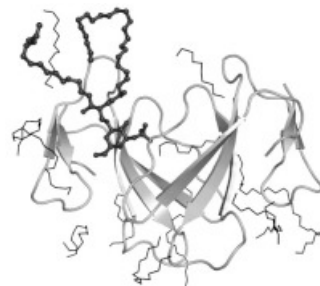


W0063

**Glycosphingolipid-Facilitated Membrane Insertion and Internalization of Cobra Cardiotoxin: Crystal Structure of The Cardiotoxin/Sulfatide Complex.** Jyung-Hurng Liu<sup>1,3</sup>, Chia-Hui Wang<sup>2,3</sup>, Shao-Chen Lee<sup>2</sup>, Wenguey Wu<sup>2</sup> and Chwan-Deng Hsiao<sup>1</sup>, <sup>1</sup>Inst. of Molecular Biology, Academia Sinica, Taipei, Taiwan 115, <sup>2</sup>Dept. of Life Sciences and Inst. of Bioinformatics and Structural Biology, National Tsinghua Univ., Hsinchu, Taiwan 300, Republic of China. <sup>3</sup>These authors contributed equally to this work.

Cobra cardiotoxins, a family of basic polypeptides having lipid- and heparin-binding capacities, induce severe tissue necrosis and systolic heart arrest in snakebite victims. Recent studies showed that CTX A3, the major cardiotoxin from Taiwan cobra venom, binds sulfatide in the outer leaflet of the plasma membrane, and consequently sulfatide mediates CTX A3-induced membrane leakage and CTX A3 internalization into mitochondria. Sulfatide is a glycosphingolipid with 3'-sulfated galactose headgroup. Here we describe the crystal structure of a CTX A3/sulfatide complex in a membrane-like environment at 2.3 Å resolution. CTX A3 recognizes both the headgroup and the ceramide interfacial region of sulfatide and induces a lipid conformational change that may play a key role in CTX A3 oligomerization and cellular internalization.



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