

02.1-01 STRUCTURE AND FUNCTION OF PRESYNAPTIC NEUROTOXINS: NOTEXIN AND NOTECHIS II-5. By K.K. Kannan*, Hilda Gid**, M. Ramanadham*, S. Singh* and S. Ramakumar†, *Neutron Physics Division, Bhabha Atomic Research Centre, Trombay, Bombay 400 085, India, **Wallenberg Laboratory, Uppsala University, Uppsala, Sweden, †Indian Institute of Science, Bangalore, India.

Venom from snake, spider and other insects usually contains neurotoxins which affect the nerve transmission around the neuromuscular region of different organisms. They are normally classified as postsynaptic toxins which block cholinergic receptor site and presynaptic toxins which obstruct the release of acetyl choline across the neuromuscular junction.

We have crystallized two presynaptic toxins purified from Australian tiger snake (*notechis scutatus scutatus*) venom, kindly supplied to us by Dr. D. Eaker, Uppsala University, Sweden. They are notexin and Notechis II-5. These toxins are highly homologous among themselves and also exhibit a high degree of homology to porcine, bovine and other insect and snake venom phospholipases. Notexin and Notechis II-5 also show moderate phospholipase activity. They have a molecular weight of about 13,500 and consist of about 120 amino-acid residues.

Notexin has been crystallized from 1.5M ammonium sulphate, Tris HCl at pH 8.5. The crystals belong to the trigonal space group $P\bar{3}_121$ or $P\bar{3}_221$ (Toxicon (1977) 15, P435). The unit cell dimensions are; $a = b = 75.03$, $c = 49.04\text{\AA}$ and $\gamma = 120^\circ$.

Notechis II-5 has been crystallized from buffer solution containing Tris HCl, at pH 8.5 and ammonium acetate (J. Biosciences (1981), in press). The crystals are orthorhombic $P2_12_12_1$, with unit cell dimensions; $a = 146.1$, $b = 43.5$, $c = 39.0\text{\AA}$.

One heavy-atom derivative has been prepared by iodinating Notexin crystals and another one by soaking Notexin crystals with $\text{Sr}(\text{NO}_3)_2$. The structure investigation by the molecular replacement method using the porcine phospholipase coordinates kindly supplied by Dr. Drenth and coworkers, Groningen, Holland and the isomorphous replacement method, is in progress with data collected to 2\text{\AA} resolution. The results will be presented.