

## **Solution Structure of $\alpha$ -Conotoxin OmI, a Neuromuscular toxin Specific for the $\alpha_4/\beta_2$ Subunit Interface of Neuronal Nicotinic Acetylcholine Receptor**

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$\alpha$ -Conotoxin OmI, a 17-residue polypeptide isolated from the venom of the cone snail *Conus magus*, is a potent toxin which specifically blocks the mammalian neuronal nicotinic acetylcholine receptors composed of  $\alpha_4/\beta_2$  subunits. The three-dimensional solution structure of  $\alpha$ -conotoxin OmI has been determined by two-dimensional  $^1\text{H}$  NMR spectroscopy. The  $\alpha$ -Conotoxin OmI adopts a well-defined compact structure with a global fold common to a  $\alpha_{4/7}$ -subfamily of  $\alpha$ -conotoxins. The backbone folding is stabilized by two disulfide bonds which connect the N-terminus to both the middle and C-terminus of the structure. The unique binding preference of  $\alpha$ -conotoxin OmI to the  $\alpha_4/\beta_2$  subunit interface of neuronal nicotinic acetylcholine receptor has been studied through structural comparison with various  $\alpha$ -conotoxins possessing distinct receptor subtype specificities.

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