Synthetic Analogues of α -Conotoxins in Research of Binding Sites of Nicotinic Receptors

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α -Conotoxins, short neurotoxic peptides from the poisonous marine mollusks of the *Conus* genera are at present the excellent molecular probes for discrimination of various subtypes of nicotinic acetylcholine receptors (nAChRs). The purpose of this work was synthesis of α -conotoxins analogues using the different procedures of disulfide bond formation and evaluation of their efficiency. Syntheses of α -conotoxin Vc1.1 and [Y⁰]MII-analogue were carried out with orthogonal Cys protection. The first and the third Cys residues had stable Cys(S-tBu) protection, whereas the second and the fourth Cys residues had acid-labile Cys(S-Trityl) protection. The syntheses of α -conotoxin PnIA variants with additional single or multiple amino acid substitu-

tions we performed with simultaneous disulfide bonds formation. α -Conotoxin ImII[W10Y] has been synthesized by both the methods. To remove the tBu-groups we used a solution of trifluoroacetate thallium (III) in trifluoroacetic acid. For destruction of the complex formed in the course of this reaction, EDTA solution was used. Biological activity of the synthesized peptides was evaluated in competition with radioactive α -bungarotoxin for binding to the nAChRs and acetylcholine-binding proteins.

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