Peptide Modulators of Functional Activity of Ion Channels and Receptors

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DOI: 10.1134/S1990747809030234

Naturally occurring venoms often represent peculiar combinatorial libraries of peptides exhibiting specific activity in respect of membrane receptors and ion channels. A diversity of the venom components is generated owing to several structure folds that are maximally adapted to the cellular receptor construction. Nowadays, polypeptide toxins have been identified that interact with virtually all known types of ionotropic systems

of the cell membrane. Many of these toxins have become classical tools for neurobiological and pharmacological investigations. Under way is the search for peptide toxins interacting with voltage-dependent Na^+ and Ca^{2+} channels, vanilloid-type receptor TRPV1, purinergic receptors P2X, proton-sensitive receptors ASIC, etc. The results of the present work can be applied for the design of new highly specific analgesics.