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Molecular Tools for the Life Science Community
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Certificate of Analysis

PRODUCT # RTS-370
LOT # ST-100

rScyllatoxin (Leiurotoxin I, LeTx I)

(*Leiurus quinquestriatus hebraeus*)

M.W.: 3424 daltons.
Sequence: AFCNLRMCQL SCRSLGLLGK CIGDKCECVK H
Accession #: P16341
Purity: > 98%, by HPLC.
Solubility: Any aqueous buffer.

Preparation:
rScyllatoxin is a recombinant peptide expressed in and extracted from *E. coli* and purified to homogeneity.

Reconstitution:

The peptide concentration and identification were determined by amino acid analysis. Each vial contains 5 μg, 10 μg or 0.1 mg of unbuffered protein. Dissolving of 10 μg in 2.92ml of any conventional buffer gives a stock solution of 1μM. Before dissolving the toxin, the tube should first be centrifuged, to concentrate the lyophilized toxin in the bottom of the tube. After centrifuging, the toxin must be dissolved into a stock solution using distilled water, or an appropriate buffer, to a concentration of 10^{-5}-10^{-6}M.

Storage and Stability:

Lyophilized form:	2-3 weeks at room temperature.
	One year at -20° C.
Liquid form:	Up to two weeks at 4° C.
	Three months at -20° C.

Known action:

Scyllatoxin is a 31 amino acid long toxin, originally isolated from the venom of the scorpion *Leiurus quinquestriatus hebraeus*, and is classified as α-KTx 5.1 scorpion toxin family, having three disulfide bridges.[1,2]

Scyllatoxin was shown to compete with ^{125}I -apamin binding in the brain.[3] Furthermore, Scyllatoxin appears to be selective for apamin-sensitive SK channels. Scyllatoxin inhibits apamin-sensitive SK channel activity in guinea-pig and rabbit hepatocytes,[4] SK currents in human lymphoblastoma cells,[5,6] and epinephrine-induced relaxation of visceral smooth muscle.[7] Scyllatoxin also inhibits the apamin-sensitive afterhyperpolarization that follow action potentials in skeletal muscle[7] and neurons.[8] The SK channel-mediated Afterhyperpolarising current (I_{AHP}) of dorsal vagal neurons, presuming K_{ca}2.3 (SK3), were blocked by Scyllatoxin (20—30nM).[9] HEK 293 cell currents stably expressing hK_{ca}2.1 (hSK1) and K_{ca}2.2 (hSK2) were blocked by scyllatoxin with IC_{50} of 80 nM and 287 pM, respectively.[10]

Scyllatoxin seems to be a very potent blocker of either K_{Ca} channels with highest affinity towards K_{ca}2.2, having the following affinities: $K_{ca}2.2 < < K_{ca}2.3 < K_{ca}2.1$.

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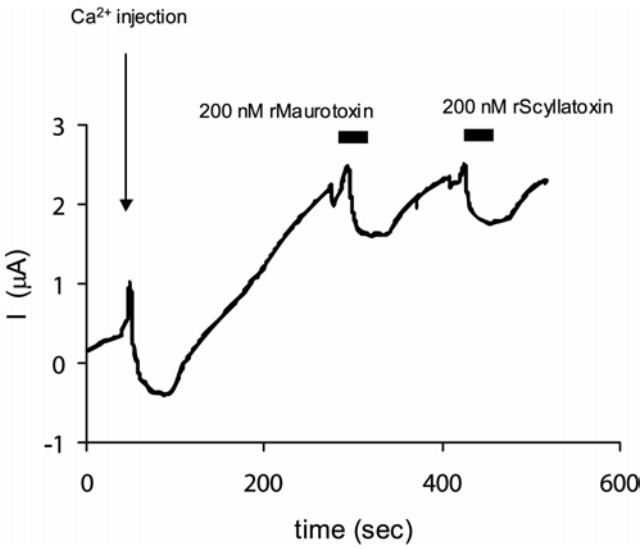
Bioassay: Inhibition of $K_{Ca}2.2$ channels expressed in *Xenopus* oocytes by rScyllatoxin and by rMaurotoxin.



Legend:
Inhibition of $K_{Ca}2.2$ channels expressed in *Xenopus* oocytes by rScyllatoxin and by rMaurotoxin. Continuous current recording at holding potential +5 mV with low Cl^- content in the bath solution. An outward current (upward deflection) carried out by K^+ ions flowing via $K_{Ca}2.2$ channels develops following an intra-oocyte Ca^{2+} injection (arrow). Both recombinant toxins partially and reversibly depressed the K+ current at 200 nM. Periods of toxin perfusion are marked by the horizontal bars.

References:

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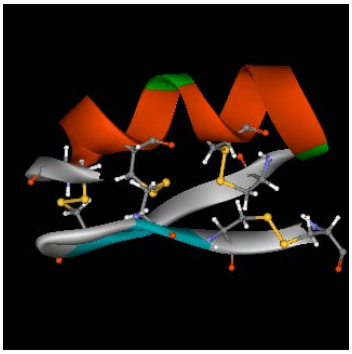

NMR structure of scyllatoxin (1SCY).[11] Scyllatoxin belongs to the α-KTX-5.2 scorpion toxin family.[2]

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