PRODUCT INFORMATION

Tat-CBD3 (trifluoroacetate salt)

Item No. 37448

Peptide Sequence: YGRKKRRQRRRARSRLAELRGVPRGL-OH
MF: $C_{134}H_{243}N_{59}O_{32} \bullet XCF_3COOH$
FW: 3,192.7
Purity: ≥95%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years

H—Tyr—Gly—Arg—Lys—Lys—Arg—Arg—Gln—Arg—Arg—Arg—Ala—Arg—Ser—Arg—Leu—Ala—Glu—Leu—Arg—Gly—Val—Pro—Arg—Gly—Leu—OH • XCF_3COOH

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Tat-CBD3 (trifluoroacetate salt) is supplied as a solid. A stock solution may be made by dissolving the Tat-CBD3 (trifluoroacetate salt) in water. We do not recommend storing the aqueous solution for more than one day.

Description

Tat-CBD3 is an inhibitor of the protein-protein interaction between the N-type voltage-gated calcium channel $Ca_V2.2$ and collapsin response mediator protein 2 (CRMP2).[1,2] It also inhibits the protein-protein interaction between CRMP2 and the NMDA receptor NR2B subunit.[3] Tat-CBD3 (10 µM) inhibits the $Ca_V2.2$-CRMP2 interaction by 43% in a cell-free assay and the NMDA receptor NR2B subunit-CRMP2 interaction in an immunoprecipitation assay.[2,3] It reduces voltage-induced calcium currents by approximately 60% in primary rat dorsal root ganglion (DRG) neurons and glutamate-induced increases in cytosolic calcium levels in primary rat hippocampal neurons.[1,3] Tat-CBD3 (20 mg/kg) decreases infarct volume in a rat model of cerebral ischemia induced by middle cerebral artery occlusion (MCAO).[4] Intrathecal administration of Tat-CBD3 (20 µg/5 µl) prevents carrageenan-induced thermal hypersensitivity in rats.[2]

References

1. Brittain, J.M., Duarte, D.B., Wilson, S.M., *et al.* Suppression of inflammatory and neuropathic pain by uncoupling CRMP-2 from the presynaptic Ca^{2+} channel complex. *Nat. Med.* **17(7)**, 822-829 (2011).
2. François-Moutal, L., Wang, Y., Moutal, A., *et al.* A membrane-delimited N-myristoylated CRMP2 peptide aptamer inhibits CaV2.2 trafficking and reverses inflammatory and postoperative pain behaviors. *Pain* **156(7)**, 1247-1264 (2015).
3. Brustovetsky, T., Pellman, J.J., Yang, X.F., *et al.* Collapsin response mediator protein 2 (CRMP2) interacts with N-methyl-D-aspartate (NMDA) receptor and Na^+/Ca^{2+} exchanger and regulates their functional activity. *J. Biol. Chem.* **289(11)**, 7470-7482 (2014).
4. Brittain, J.M., Pan, R., You, H., *et al.* Disruption of NMDAR-CRMP-2 signaling protects against focal cerebral ischemic damage in the rat middle cerebral artery occlusion model. *Channels (Austin)* **6(1)**, 52-59 (2012).

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