PRODUCT INFORMATION

Tat-βsyn-degron (trifluoroacetate salt)

Item No. 37442

Formal Name: L-tyrosylglycyl-L-arginyl-L-lysyl-L-lysyl-L-arginyl-L-arginyl-L-glutaminyl-L-arginyl-L-arginyl-L-arginyl-L-arginyl-L-threonyl-L-lysyl-L-serylglycyl-L-valyl-L-tyrosyl-L-leucyl-L-valylglycyl-L-arginyl-L-arginyl-L-arginyl-glycine

Peptide Sequence: H-YGRKKRRQRRRRTKSGVYLVGRRRG-OH

MF: $C_{132}H_{237}N_{59}O_{31} \bullet XCF_3COOH$

FW: 3,146.7

Purity: ≥95%

Supplied as: A solid

Storage: -20°C

Stability: ≥4 years

H—Tyr—Gly—Arg—Lys—Lys—Arg—Arg—Gln—Arg—Arg—
Arg—Arg—Thr—Lys—Ser—Gly—Val—Tyr—Leu—Val—
Gly—Arg—Arg—Arg—Gly—OH
• XCF_3COOH

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

Laboratory Procedures

Tat-βsyn-degron (trifluoroacetate salt) is supplied as a solid. A stock solution may be made by dissolving the Tat-βsyn-degron (trifluoroacetate salt) in the solvent of choice, which should be purged with an inert gas. Tat-βsyn-degron (trifluoroacetate salt) is soluble in the organic solvent dimethyl formamide at a concentration of approximately 50 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of Tat-βsyn-degron (trifluoroacetate salt) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of Tat-βsyn-degron (trifluoroacetate salt) in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Tat-βsyn-degron is an α-synuclein knockdown peptide.[1] It is composed of the HIV-1 Tat plasma membrane transduction domain, the α-synuclein binding domain βsyn which corresponds to amino acids 36-45 of β-synuclein, and the proteasomal targeting domain degron. Tat-βsyn-degron binds to recombinant α-synuclein in a peptide-protein binding assay and reduces α-synuclein levels in primary rat cortical neuron cultures, an effect that can be prevented by the proteasomal inhibitor MG132. *In vivo*, Tat-βsyn-degron (40 mg/kg) reduces brain α-synuclein levels in M38 transgenic mice that overexpress human A53T mutant α-synuclein. It also reduces phosphorylated α-synuclein levels in the substantia nigra and the pons, as well as neuroinflammation in a mouse model of spreading synucleinopathy induced by α-synuclein preformed fibrils. Tat-βsyn-degron (6 µmol/kg, i.p.) protects against dopaminergic neuron loss and rescues motor deficits in a mouse model of MPTP-induced Parkinson's disease.

Reference

1. Jin, J.W., Fan, X., Del Cid-Pellitero, E., *et al.* Development of an α-synuclein knockdown peptide and evaluation of its efficacy in Parkinson's disease models. *Commun. Biol.* **4(1)**, 232 (2021).

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