Tat-NTS peptide

Cat. No.:	HY-P10275
Molecular Formula:	$C_{125}H_{212}N_{54}O_{24}$
Molecular Weight:	2855.37
Sequence:	Tyr-Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Arg-Ser-Phe-Pro-His-Leu-Arg-Arg-Val-Phe-NH2
Sequence Shortening:	YGRKKRRQRRRRSFPHLRRVF-NH2
Target:	Others
Pathway:	Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description

Tat-NTS peptide is a cell-penetrating peptide with neuroprotective effects. Tat-NTS peptide can specifically inhibit the nuclear translocation of ANXA1 and reduce neuronal apoptosis in ischemic areas. Moreover, Tat-NTS peptide can reduce the volume of cerebral ischemic infarction and can be used in the research of ischemic stroke[1].

In Vitro

Tat-NTS peptide (20 μM) blocks ANXA1 nuclear migration in neuronal cells without affecting the nuclear translocation of other proteins[1].
Tat-NTS peptide (20 μM) inhibits the binding of ANXA1 to p53, alleviates neuronal apoptosis induced by oxygen glucose deprivation/reperfusion (OGD/R), and has neuronal cytoprotective effects[1].
Tat-NTS peptide (20 μM) can significantly improve the viability of neuronal cells after OGD/R[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	neuronal cells
Concentration:	20 μM
Incubation Time:	
Result:	Significantly decreased the level of ANXA1 protein in the nuclear fraction, and had no impact on the subcellular localization of p65 and β-catenin. Significantly decreased Bid protein levels. Significantly decreased OGD/R-triggered tBid expression and caspase-9, PARP, caspase-3 cleavage but had little effect on the activation of caspase-8.

RT-PCR[1]

Cell Line:	neuronal cells
Concentration:	20 μM
Incubation Time:	
Result:	Significantly decreased Bid mRNA levels.

In Vivo

Tat-NTS peptide (0.5-10 mg/kg; nilateral Intracerebroventricular (i.c.v.) Injection; single dose) reduces the interaction between ANXA1 and importin β in C57BL/6 mice with middle cerebral artery occlusion (MCAO) and prevents the nuclear translocation of ANXA1 in vivo. Tat-NTS peptide alleviates neuronal apoptosis after ischemic injury in mice, exhibiting neuroprotective effects against cerebral ischemia[1].

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Animal Model:	MCAO C57BL/6 mice model[1]
Dosage:	0.5 mg/kg, 1 mg/kg, 2 mg/kg, 5 mg/kg, 10 mg/kg.
Administration:	Unilateral Intracerebroventricular (i.c.v.) Injection: Single dose. After undergoing 1-hour middle cerebral artery occlusion (MCAO)
Result:	Significantly inhibited the protein level of tBid, cleaved caspase-9, cleaved PARP, and caspase-3, and had little effect on the activation of caspase-8. Reduced the infarct volume and improved neurological outcomes following focal ischemic injury.

REFERENCES

[1]. Li X, et al. A novel cell-penetrating peptide protects against neuron apoptosis after cerebral ischemia by inhibiting the nuclear translocation of annexin A1. Cell Death Differ. 2019 Jan;26(2):260-275.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA