HIV-1 TAT (48-60)

Cat. No.: HY-P1491

CAS No.: 220408-24-2

Molecular Formula: $C_{70}H_{131}N_{35}O_{16}$

Molecular Weight: 1719.01

Sequence: Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Pro-Pro-Gln

Sequence Shortening: GRKKRRQRRRPPQ

Target: HIV

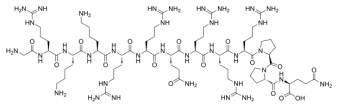
Pathway: Anti-infection

Storage: Sealed storage, away from moisture

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (58.17 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	0.5817 mL	2.9087 mL	5.8173 mL
	5 mM	0.1163 mL	0.5817 mL	1.1635 mL
	10 mM	0.0582 mL	0.2909 mL	0.5817 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (1.45 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (1.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (1.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

HIV-1 TAT (48-60) is a cell-penetrating peptide derived from the human immunodeficient virus (HIV)-1 Tat protein residue 48-60. It has been used to deliver exogenous macromolecules into cells in a non-disruptive way.

IC_{50} & Target

HIV-1

In Vitro	Studies show that exogenous Tat protein is able to translocate through the plasma membrane and to reach the nucleus to transactivate the viral genome. The HIV-1 TAT (48-60) peptide, which contains the basic domain of the full length peptide only, retains the full translocation activity and even appears more efficient in terms of nuclear localization when compared with the other active peptides at the standard dose of 1 mM[1]. Cell-penetrating peptides are regarded as promising vectors for intracellular delivery of large, hydrophilic molecules. An apparently endocytotic uptake of HIV-1 TAT (48-60) is observed by confocal laser scanning microscopy[2]. HIV-1 TAT (48-60) induces the formation of rodlike, presumably inverted micelles in DMPC, which may represent intermediates during the translocation across eukaryotic membranes[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	HeLa cells are incubated for 24 h with increasing concentrations (0-100 μM) of HIV-1 TAT (48-60). Cell viability is measured following a standard MTT assay procedure and is expressed as the ratio of A570 of cells treated with peptide over control sample[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Vivès E, et al. A truncated HIV-1 Tat protein basic domain rapidly translocates through the plasma membrane and accumulates in the cell nucleus. J Biol Chem. 1997 Jun 20;272(25):16010-7.

[2]. Thorén PE, et al. Uptake of analogs of penetratin, Tat(48-60) and oligoarginine in live cells. Biochem Biophys Res Commun. 2003 Jul 18;307(1):100-7.

[3]. Afonin S, et al. The cell-penetrating peptide TAT(48-60) induces a non-lamellar phase in DMPC membranes. Chemphyschem. 2006 Oct 13;7(10):2134-42.

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