
Product Data Sheet

Product Name: (Arg)9
Cat. No.: GC34976

Chemical Properties

Cas. No. 143413-47-2

SMILES [R][R][R][R][R][R][R][R]

Formula C₅₄H₁₁₀N₃₆O₁₀ M.Wt 1423.69

Solubility Soluble in DMSO Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

Protocol**Cell experiment:**

(Arg)9 is prepared as 100× stocks (500 μM) in normal saline and assessed in a concentration range from 0.1 to 15 μM. (Arg)9 is added to culture 96-well plate 15 min prior to glutamic acid or kainic acid exposure. Neuronal viability is quantitatively using the MTS assay[1].

Caution: Product has not been fully validated for medical applications. For research use only.

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Animal experiment:

Rats: (Arg)9 (D-isoform) is prepared in 100× stocks (500 μM in water and assessed in a concentration range from 0.1 to 20 μM. Rats are fasted overnight and subjected to filament permanent middle cerebral artery occlusion (MCAO). Thirty minutes post-MCAO rats are intravenously treated with (Arg)9 (1 μmol/kg in 600 μL over 5 minutes) or vehicle (normal saline for injection; 600 μL over 5 minutes). Treatments are randomized and all procedures are performed masked to treatment. Twenty-four hours post-MCAO infarct area assessment is performed[2].

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References:

[1]. Meloni BP, et al. The neuroprotective efficacy of cell-penetrating peptides TAT, penetratin, Arg-9, and Pep-1 in glutamic acid, kainic acid, and in vitro ischemia injury models using primary cortical neuronal cultures. *Cell Mol Neurobiol.* 2014 Mar;34(2):173-81.

[2]. Meloni BP, et al. Poly-arginine and arginine-rich peptides are neuroprotective in stroke models. *J Cereb Blood Flow Metab.* 2015 Jun;35(6):993-1004.

[3]. Milani D, et al. Poly-arginine peptides reduce infarct volume in a permanent middle cerebral artery rat stroke model. *BMC Neurosci.* 2016 May 3;17(1):19.

Background

(Arg)₉ is a cationic cell-penetrating peptide.^{1,2} It has been used to deliver various cargo to cells, including fluorescent proteins and plasmids. (Arg)₉ (5 and 10 μM) also protects primary rat cortical neurons from glutamate-induced excitotoxicity.³

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1.Chang, M., Chou, J.-C., and Lee, H.-J.Cellular internalization of fluorescent proteins via arginine-rich intracellular delivery peptide in plant cellsPlant Cell Physiol.46(3)482-488(2005) 2.Lee, C.-Y., Li, J.-F., Liou, J.-S., et al.A gene delivery system for human cells mediated by both a cell-penetrating peptide and a piggyBac transposaseBiomaterials32(26)6264-6276(2011) 3.Meloni, B.P., Brookes, L.M., Clark, V.W., et al.Poly-arginine and arginine-rich peptides are neuroprotective in stroke modelsJ. Cereb. Blood Flow Metab.35(6)993-1004(2015)

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