LAH4 TFA

Cat. No.: HY-P0311A

Molecular Formula: $C_{134}H_{229}F_3N_{38}O_{29}$

Molecular Weight: 2893.55

Sequence Shortening: KKALLALALHHLAHLALHLALALKKA

KKALLALALHHLAHLALHLALALKKA (TFA salt)

Target: Bacterial

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

H_2O : 100 mg/mL (34.56 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	0.3456 mL	1.7280 mL	3.4560 mL
	5 mM	0.0691 mL	0.3456 mL	0.6912 mL
	10 mM	0.0346 mL	0.1728 mL	0.3456 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 25 mg/mL (8.64 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

LAH4 TFA, an alpha-helix of the designed amphipathic peptide antibiotic, exhibits potent antimicrobial, nucleic acid transfection and cell penetration activities. LAH4 TFA possesses high plasmid DNA delivery capacities. LAH4 TFA has a strong affinity for anionic lipids found in the outer membrane of bacterial membranes[1][2][3].

In Vitro

LAH4 TFA is capable of complexing DNA, associating with the cell surfacemembrane and then, when enveloped within an endosome, disrupts the endosomal membrane as the pH drops[1].

LAH4 TFA possesses robust plasmid DNA transfection properties. Peptides of the LAH4 family are able to efficiently deliver siRNAs in vitro into a human cell line[2].

LAH4 TFA is found to mediate the intracellular delivery of both protein and nucleotide cargo and facilitate protein internalization using mechanisms involving endosomal acidification and processing through the proteasome pathway, leading to enhanced cross presentation of protein antigen by dendritic cells to CD8+ T cells. LAH4 TFA also improves the internalization of CpG, resulting in NF-kB activation, thus potentiating the adjuvant effect of CpG[3].

LAH4 TFA exhibits antibiotic activities against Escherichia coli and Bacillus subtilis. the peptide does not, however, lyse human red blood cells at bacteriocidal concentrations. The antibiotic activities of LAH4 TFA are 2 orders of magnitude more pronounced at pH 5 when compared with pH 7.5[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Mason AJ, et al. The antibiotic and DNA-transfecting peptide LAH4 selectively associates with, and disorders, anionic lipids in mixed membranes. FASEB J. 2006;20(2):320-322.

[2]. Langlet-Bertin B, et al. Design and evaluation of histidine-rich amphipathic peptides for siRNA delivery. Pharm Res. 2010;27(7):1426-1436.

[3]. Zhang TT, et al. LAH4 enhances CD8+ T cell immunity of protein/peptide-based vaccines. Vaccine. 2012;30(4):784-793.

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