

SPACE peptide

Chemical Properties

CAS No.:	TP1406
Formula:	C ₄₀ H ₆₃ N ₁₅ O ₁₇ S ₂
Molecular Weight:	1090.17
Appearance:	N/A
Storage:	0-4°C for short term (days to weeks), or -20°C for long term (months).

Biological Description

Description	SPACE peptide is a skin penetrating peptide that facilitates the transfer of molecules through the skin.
In vitro	SPACE peptide, when conjugates to cargoes such as small molecules and proteins, is able to facilitate their penetration across the stratum corneum into epidermis and dermis. The peptide also exhibits increased penetration into various cells including keratinocytes, fibroblasts, and endothelial cells, likely through a macropinocytosis pathway[1]. SPACE enhances cyclosporine A, penetration into the skin significantly. It does not alter the skin lipid barrier. It interacts with skin proteins and induces changes in skin protein secondary structures (α -helices, β -sheet, random coils and turns). SPACE enhances cyclosporine A skin penetration, via a transcellular pathway, enhancing its partitioning into keratin-rich corneocytes through concurrent binding of SPACE with keratin and cyclosporine A. Interaction between SPACE and keratin best correlates with measured cyclosporine A skin transport[2]. SPACE-peptide in combination with a DOTAP-based ethosomal carrier system can enhance skin delivery of siR[3]. The SPACE-ethosomal system enhances hyaluronic acid penetration into porcine skin in vitro by 7.8+/-1.1-fold compared to PBS[4].
In vivo	The efficacy of DOTAP-SES in delivering GAPDH-siR into skin is confirmed in BALB/C mice. Topical application of DOTAP-SES on mice skin results in 63.2%±7.7% of GAPDH knockdown, which is significantly higher than that from GAPDH-siR PBS (p<0.05) [3].

Solubility Information

Solubility	H ₂ O: 50 mg/mL (45.86 mM) DMSO: 100 mg/mL (91.73 mM) (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.917 mL	4.586 mL	9.173 mL
5 mM	0.183 mL	0.917 mL	1.835 mL
10 mM	0.092 mL	0.459 mL	0.917 mL
50 mM	0.018 mL	0.092 mL	0.183 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 °C for 6 months; - 20 °C for 1 month. Please use it as soon as possible.

Reference

1. Hsu T, et al. Delivery of siRNA and other macromolecules into skin and cells using a peptide enhancer. Proc Natl Acad Sci U S A. 2011 Sep 20;108(38):15816-21.

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