Product Data Sheet

Product Name: HA2 peptide
Cat. No.: GC79142

Chemical Properties

Cas. No.	117138-19-9		
Formula	$C_{116}H_{158}N_{26}O_{32}S$	M.Wt	2460.72
Solubility	DMSO: 10 mg/mL (4.06 mM; Need ultrasonic)	Storage	Sealed storage, away from moisture
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

Background

HA2 peptide is a potent pH-responsive fusion peptide derived from hemagglutinin (HA), corresponding to the N-terminal fusion peptide domain consisting of 23 amino acid residues of HIV-1

gp41 envelope glycoprotein. HA2 peptide adopts a random coil structure under physiological pH conditions; in acidic endosomes, protonation of carboxyl groups reduces negative charge, inducing a transition to an α-helical conformation that can fuse with and destabilize the endosomal membrane. After binding to membranes, the N-terminal and middle regions of HA2 peptide mainly adopt a β-strand conformation, while the C-terminal region remains unstructured. HA2 peptide induces lipid mixing and promotes aqueous content leakage from large unilamellar vesicles whose lipid composition matches that of HIV-1 viruses and target T cells. HA2 peptide is anionic and can bind to cationic peptides to achieve siRNA condensation. HA2 peptide can be used in studies related to cancer and human immunodeficiency virus (HIV) infection [1] [2].

In Vitro, HA2 peptide undergoes a pH-dependent conformational shift from a random coil at neutral pH to an α-helical structure at acidic pH, enabling endosomal membrane fusion and destabilization[1]. HA2 peptide, when conjugated to cationic peptides or cationic GFP, enables siRNA delivery to a broad range of cancer cells by facilitating endosomal escape via pH-dependent conformational change and membrane destabilization[1].

References:
[1]. Tai W, et al. Functional peptides for siRNA delivery. Advanced drug delivery reviews. 2017 Feb;110-111:157-168.
[2]. Yang J, et al. Solid-state nuclear magnetic resonance evidence for an extended beta strand conformation of the membrane-bound HIV-1 fusion peptide. Biochemistry. 2001 Jul 10;40(27):8126-37.

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