Title: Marine-Sourced Synthetic Peptide for cargo carrier

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KEYWORDS: Marine, CPP, mammalian cells

DOMAIN: Healthcare (Drug delivery)

SUMMARY:

The invention is related to a synthetically composed peptide derived from a marine source having unique amino acid residues and stereochemistry. The peptide is capable of transporting cargo molecules across mammalian cells. It forms a stable complex with the cargo molecule, allowing the safe translocation of the cargo molecule across the cell membrane and delivering the cargo molecule at the target site. Successful transport of cargo molecules in a biologically active state and cellular uptake ability in the desired target while avoiding side effects such as cell toxicity is recorded with peptide concentration in the range of 5-100 μM. The peptide shows enhanced cell-penetration activity with improved SVM score of the peptides compared to the existing peptide.

ADVANTAGES:

1. Aid in the delivery of proteins and large nucleotide molecules across mammalian cells.
2. Delivery of larger proteins while inflicting minimum toxicity to the host cells.
3. High stability and greater tolerance towards varying salts and pH.
4. The synthetic peptide is safe and efficacious for mammalian cells.
5. Demonstrates effective antimicrobial properties against bacteria such as Methicillin-resistant Staphylococcus aureus.

APPLICATION: Cargo Molecules delivery in mammalian cells and subsequent management of diseases.

SCALE OF DEVELOPMENT: Peptide uptake study performed on HeLa (Henrietta Lack's) cell at lab-scale.

TECHNOLOGY READINESS LEVEL: TRL 3

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