Cellular Protein CDH4 Inhibiting Peptide

Tech ID: 33321 / UC Case 2023-585-0

ABSTRACT

Researchers at the University of California, Davis have developed a unique peptide that induces cell differentiation by inhibiting cellular protein CHD4, a promising approach to target dedifferentiated cancer cells and for cell therapy.

FULL DESCRIPTION

This technology introduces a peptide derived from the KSHV LANA (latency associate nuclear antigen), a herpesviral protein, that interacts with cellular protein CHD4. The herpesviral protein utilizes cellular CHD4 to silence host gene transcription. The CHD4 is an essential protein for preventing undergoing cell differentiation in physiological cellular conditions. The viral peptides bind to and induce CHD4 degradation, therefore inducing cell differentiation. This peptide provides a potentially novel approach to regulating cellular protein functions, which can help control cell apoptosis, cell cycle progression, and cell identities. This peptide is the first of its kind, as there is currently no CHD4 inhibitor in the market. The technology would also address the current inefficiency and heterogeneity in reprogramming cells for treatment. The application of peptides and then inducing cell differentiation stimuli substantially enhances terminally differentiated cells in vitro. In addition, with xenograft studies, the peptide treatment significantly slows cancer cell growth.

APPLICATIONS

- Cancer therapeutics, particularly for lymphoma and leukemia.
- Cell therapy for various diseases to enhance terminally differentiated cells.
- Combination with chemotherapy. The peptide is expected to sensitize the cancer cell to conventional chemotherapy drugs via induction of cell differentiation.

FEATURES/BENEFITS

- Initiates cell differentiation which could be harnessed for cell therapy
- Targets dedifferentiated cancer cells, providing a novel cancer therapeutic
- Small size, high hydrophilicity, and strong binding affinity making it a potential antibody-drug conjugates cytotoxic payload to extend treatment options

PATENT STATUS

Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Transcription Active Complex Targeting Cancer Drug From Viral Protein Sequence

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OTHER INFORMATION

KEYWORDS

cell differentiation, CHD4, small peptide, cell therapy, cancer therapeutics

CATEGORIZED AS

- **Materials & Chemicals**
  - Biological
- **Medical**
  - Disease: Cancer
  - Therapeutics

RELATED CASES

2023-585-0

- CHD4 Targeting Peptide Isolated From Viral Protein For Cancer Therapeutics
- Use Of Viral Il-6 To Modulate Monocyte Differentiation To Boost Anti-Tumor Immunity

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