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DEPARTMENT OF
SCIENCE & TECHNOLOGY
सत्यमेव जयते

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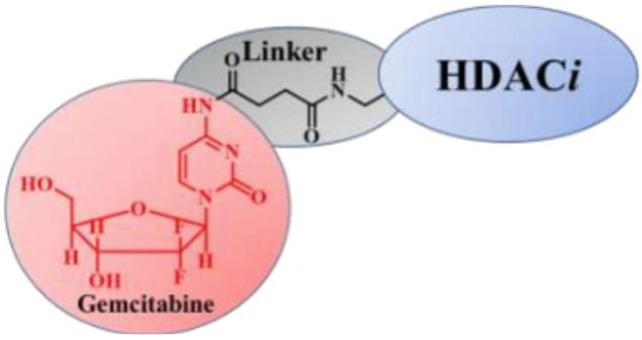
PENDING

(IN202311055618) Bifunctional conjugate molecules for cancer treatment and process of making the same



NEED

Current cancer therapies often fail due to 95% drug resistance in late-stage tumors. Conventional drugs like Gemcitabine lack targeted immune-modulation, causing toxic side effects. But what if dual-action molecules could treat cancer while reactivating immune response without harming healthy cells?

TECHNOLOGY OVERVIEW

A bifunctional molecule combines Gemcitabine with an HDAC inhibitor via a stable linker. It targets cancer cells while also reactivating immune-suppressed environments. This design bridges chemotherapy and epigenetic therapy in one molecule—offering selective tumor toxicity with reduced off-target effects.

TECHNOLOGY KEY FEATURES

Gemcitabine-linked HDAC inhibitor enhances anti-tumor immunity, improves cellular uptake, resists metabolic degradation, offers broad-spectrum applicability (solid and liquid tumors), and supports combination regimens—all in a single, conjugated molecule.

Read more here

MARKET ANALYSIS

Global cancer therapy market CAGR 8.3%, projected to reach $393B by 2033 (Precedence Research). Indian oncology drug market growing at 11.2% CAGR till 2030. Demand driven by multi-target drugs, combination therapy, and precision oncology. Sources: Precedence Research, IMARC, BIS Research.

Target Industries

• Target: Biopharma API developers and oncology formulation units → License molecule for scale-up or regulatory advancement • Target: Epigenetic drug innovators → Use in HDAC research pipelines • Target: Oncology-focused R&D incubators → Explore resistance-specific therapies and immune-oncology leads

AT A GLANCE

SDG 3 (Good Health), SDG 9 (Industry Innovation), SDG 12 (Responsible Consumption), SDG 17 (Partnerships for Goals)

Technology is available for licensing/ co-development.

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