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DEPARTMENT OF
SCIENCE & TECHNOLOGY
सत्यमेव जयते

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TECHNOLOGY
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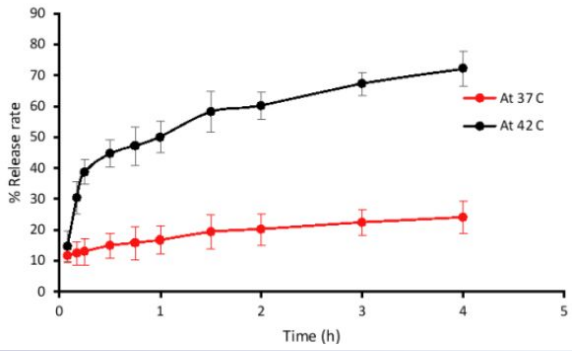
GRANTED

(IN538168)
Orally administrable thermosensitive liposome for encapsulating a molecule



NEED

Up to 90% of anti-cancer drugs suffer from poor oral bioavailability, leading to frequent high-dose injections, painful side effects, and low patient adherence. Current delivery methods fail to release drugs precisely at tumor sites, causing systemic toxicity and treatment delays. But what if drug activation only happened inside the tumor?

TECHNOLOGY OVERVIEW

A thermosensitive oral liposome system that encapsulates drugs like nintedanib and degrades only at 41°C–43°C, releasing the drug specifically at tumor sites. The system uses DPPC, DSPE-PEG2000, and cholesterol in precise ratios to enable safe, non-invasive, and effective cancer drug delivery.

TECHNOLOGY KEY FEATURES

Oral liposomes made of DPPC, DSPE-PEG2000, and cholesterol (60–80:10:10–30), degrade at tumor-specific temperatures. Enables site-targeted release, improves oral bioavailability, and reduces systemic toxicity.

Read more here

MARKET ANALYSIS

Global liposomal drug delivery market to reach $13.9B by 2033 at 9.5% CAGR (Precedence Research, 2023). India's nanomedicine sector growing due to rising cancer rates, targeted therapy demand. Drivers: oral therapeutics, reduced toxicity, site-specific delivery.

Target Industries

Oncology Therapeutics Providers and/or Pharmaceutical Formulation Developers and/or Drug Delivery System Innovators working on nanoparticle-based platforms for targeted therapy and improved drug bioavailability.

AT A GLANCE

- SDG 3 (Good Health and Well-being), SDG 9 (Industry, Innovation and Infrastructure)

Technology is available for licensing/ co-development.

Reach out to Prof. Deepak Chitkara, Coordinator, BITS Technology Enabling Centre,
BITS Pilani Contact Details: tec.bits@pilani.bits-pilani.ac.in, 91 1596-255913

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