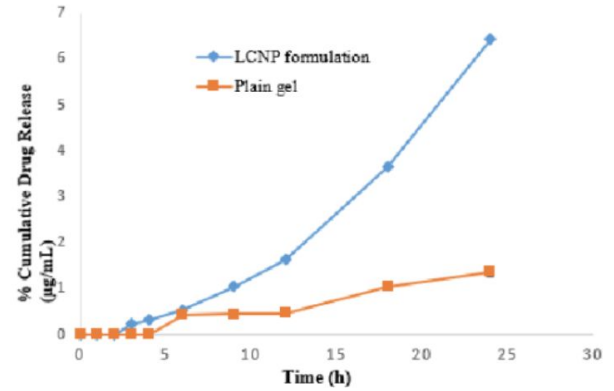




GRANTED

(IN396280)

Apremilast loaded liquid crystalline nanoparticles for topical delivery in the treatment of psoriasis



NEED

Around 40% of topical drug treatments fail due to poor skin penetration and unstable formulations. Current carriers often release drugs unevenly, leading to low therapeutic success and repeated applications, increasing side effects and patient non-compliance.

MARKET ANALYSIS

The global nanocarrier drug delivery market is projected to grow at a CAGR of 11.2%, reaching \$18.7 billion by 2033, driven by demand for efficient drug transport systems and personalized therapies. [Source: Precedence Research, 2024]

TECHNOLOGY OVERVIEW

This invention introduces a lipid-based nanocarrier system using liquid crystalline nanoparticles under 300 nm in size, achieving over 60% drug encapsulation efficiency. It improves skin absorption of BCS Class 2 drugs like apremilast, enabling more consistent drug delivery without formulation instability.

Target Industries

Dermatology Therapeutics, Cosmeceuticals, Chronic Inflammatory Disease Management, Dermatology drug formulation companies, topical delivery platform developers, R&D labs for nanotechnology-based pharmaceutical innovation.

TECHNOLOGY KEY FEATURES

Particle size <300 nm, >60% encapsulation efficiency, stable hydrogel formation, scalable preparation process (7000–12000 rpm mixing), enhanced topical bioavailability, compatible with fragrances and preservatives, broad lipid-to-surfactant ratio (1:5 to 5:1).

AT A GLANCE

- SDG 3 (Good Health and Well-being), SDG 9 (Industry, Innovation, and Infrastructure), SDG 12 (Responsible Consumption and Production)

[Read more here](#)

Technology is available for licensing/ co-development.

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