Micellosomes and modified hexosomes, novel nanosized liquid mesostructures for solubilization of enzymes and improved peptides bioavailability (Yissum)

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Solubilizes, protects and enhances the delivery of sensitive bioactive materials

Categories	Drug delivery, Nano materials and Nanostructures, Nanoprocesses
Development Stage	Final stages of proof of concept
Patent Status	International application filed
Market	The oral delivery drug market, the largest segment of the drug delivery market, is a $35 billion industry and expected to grow as much as ten percent per year.

Highlights

- Novel and advanced liquid drug delivery vehicles for transdermal, subcutaneous, and oral applications
- The new drug carriers enable friendlier transdermal and oral administration of numerous drugs (both water –soluble and water-insoluble, small molecules and large peptides and proteins, DNA , etc) in place of intravenous administration.
- These new carriers provide enhanced drug solubilization and protect peptide-based drugs from enzymatic degradation and secondary structural transitions.
- Demonstrated the entrapment (encapsulation) of selected lipophilic and hydrophilic drugs into the carriers. Also showed that both sustained release and increased dermal penetration can be achieved using these vehicles.
- In vivo tests demonstrated oral delivery as efficient as intravenous administration of drugs such as calcitonin.

Our Innovation

Novel system to enable solublization, protection and delivery of drugs for oral and transdermal administration.

Key Features

- Enables solubilization of relatively insoluble drugs
- Provides protection of sensitive active materials from enzymatic degradation and secondary structural transformations
- Improved peptide bioavailability
- More patient-friendly oral and transdermal administration for improved compliance
- Simple preparation method; pharma-grade components
- Allows sustained release of bioactive molecules

Development Milestones

Seeking investment and industrial cooperation to adapt the carriers to specific promising drugs

The Opportunity

The carriers can be used in research and have applications in drug delivery, food systems and the synthesis of template-ordered materials.

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