

## Mucoadhesive Devices for Oral Delivery of Various Active Agents

Tech ID: 29019 / UC Case 2011-835-0

### BRIEF DESCRIPTION

Effective and easily accepted system of oral delivery of therapeutic drugs.

### BACKGROUND

Oral dosing of active agents is attractive for many reasons, including ease of administration and high patient compliance. However, for some active agents, such as poorly absorbed, sensitive, and/or high molecular weight active agents, oral dosing is ineffective for achieving sufficient blood concentration of the active agent as compared to alternative dosing strategies. Furthermore, macromolecules such as proteins and polypeptides have become an important component of therapeutic drugs. However, these macromolecules must be administered through an injection limiting their acceptance by patients. While oral delivery is the preferred method of patients, its use is limited by proteolytic degradation in the stomach and intestine as well as by low permeability of the epithelial barrier.

Researchers have attempted a number of strategies to circumvent the hostile environment of the GI tract, but they lack the ability to fully protect the active agent. Therefore they suffer from low efficacy.

### DESCRIPTION

Researchers at the University of California, Santa Barbara have developed systems for transmucosal delivery of active agents. These systems include mucoadhesive devices inspired by the design of transdermal patches. Such systems advance the transmission of active agents by improving absorption and directionality of such agents. The directional delivery of active agents to a tissue dramatically increases the local concentration of an active agent, improving absorption. This prevents unwanted absorption of other materials and allows for a direct target and release. Transmucosal delivery, as an alternative dosing strategy to injections, allows for an effective and easily accepted oral delivery system that will lead to an increase of treatment successes.

### ADVANTAGES

- ▶ Directional delivery of active agents
- ▶ Improved absorption by GI tract
- ▶ Controlled release rate

### APPLICATIONS

- ▶ Drug delivery for medications, insulin, etc.

### CONTACT

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### INVENTORS

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### OTHER INFORMATION

#### KEYWORDS

Oral, Therapeutics, Active agent, Drug delivery, Vaccines, Macromolecule

#### CATEGORIZED AS

- ▶ **Biotechnology**
  - ▶ Health
- ▶ **Medical**
  - ▶ Delivery Systems
  - ▶ Disease: Cancer
  - ▶ Therapeutics
  - ▶ Vaccines
- ▶ **Veterinary**
  - ▶ Other
  - ▶ Therapeutics

#### RELATED CASES

2011-835-0

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20160101056	04/14/2016	2011-835

Additional Patents Pending

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Synthetic Platelets (SynPlats) to Treat Internal & External Bleeding
- ▶ Polymer-Drug Conjugates for the Co-delivery of Synergistic Chemotherapy Drugs
- ▶ Multiple Nanoemulsions and Complex Nanoparticles for Encapsulation and Release
- ▶ Soft Tissue Augmentation by Needle-Free Injection
- ▶ Systems, Methods and Devices for Rapid Tissue-Based Diagnosis

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