

Enhanced Cell Delivery via Colonoscope-Directed Submucosal Administration for Intestinal Luminal Diseases

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ABSTRACT

Researchers at the University of California, Davis have developed a rheologically stabilized composition that enables improved viability and function of therapeutic cells delivered endoscopically for intestinal luminal diseases.

FULL DESCRIPTION

This technology provides compositions containing therapeutic cells suspended in a rheological stabilizing solution designed for colonoscope-directed submucosal injection to treat diseases such as Crohn's disease, ulcerative colitis, and gastrointestinal cancers. The composition includes an aqueous and lipophilic phase, surfactants, optional dyes, inverse thermosensitive polymers, and physiologically acceptable excipients to maintain cell viability and functional integrity through the mechanical stresses of endoscopic delivery.

APPLICATIONS

- ▶ Treatment of inflammatory bowel diseases including Crohn's disease and ulcerative colitis.
- ▶ Therapeutic cell delivery for gastrointestinal cancers.
- ▶ Endoscopic delivery platforms for regenerative medicine and cellular immunotherapies.
- ▶ Submucosal injection procedures within gastroenterology practice.

FEATURES/BENEFITS

- ▶ Protects therapeutic cells from mechanical injury during endoscopic injection.
- ▶ Maintains high viability and preserves immunomodulatory function after delivery.
- ▶ Reduces shear stress by providing shear-thinning flow through complex injection systems.
- ▶ Integrates with clinical endoscopic/colonoscopic injection devices and standard procedures.
- ▶ Supports diverse therapeutic cell types, including stem cells and immune cells.
- ▶ Improves procedural accuracy by enabling optional dye-based visualization.
- ▶ Prevents viability loss and functional degradation caused by endoscopic injection stress.
- ▶ Enables effective localized delivery of cell therapies for intestinal luminal diseases.
- ▶ Ensures compatibility with clinical colonoscopic injection hardware.
- ▶ Maintains suspension stability and injectability across practical viscosity ranges.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

autoimmune, Crohn's disease, endoscopy, inflammatory bowel disease, mesenchymal stem cells, rheology, submucosal injection, tissue regeneration, ulcerative colitis, viscosupplement

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Delivery Systems
 - ▶ Disease: Digestive System
 - ▶ Stem Cell
 - ▶ Therapeutics

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