Novochizol
First-in-class polysaccharide materials technology

NANOPARTICLES FOR UNIVERSAL INTRACELLULAR DRUG DELIVERY

TARGETED ADMINISTRATION AND INTRACELLULAR DELIVERY OF ALL CLASSES OF ANTI-CANCER DRUGS

Chitosan, a derivative of chitin, is the second most abundant polysaccharide on earth. Its tissue adhesiveness and permeation and biodegradability make it an attractive polymer as a drug carrier. However, chitosan presents major limitations: it is inherent fragile, heterogenous and insoluble at physiological pH.

Novochizol™ technology overcomes these limitations by quantitatively transforming single linear chitosan molecules into uniformly sized nanoparticles that can be used alone, as excipients, emulsifiers or carriers of countless active ingredients.

Novochizol™ retains chitosan's beneficial properties and displays new characteristics, offering first-in-class solutions for sustained, tissue-targeted drug delivery with intracellular targeting, and a unique added value in many indications.

Watch a short video presentation of Novochizol™

NOVOCHIZOL™ vs CHITOSAN

Chitosan

- Solubility only at acid pH
- High viscosity
- Rapid biodegradation
- Low physical and chemical stability
- Limited physical states
- Batch-to-bath heterogeneity
- Limited carrier possibilities

NOVOCHIZOL™

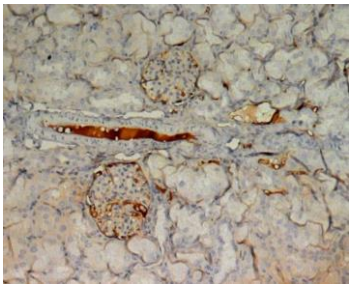
- Solubility/dispersibility under all conditions
- Low viscosity
- Slow biodegradation
- High physical and chemical stability
- Aqueous suspensions, aerosols, hydrogels, solid states
- Batch-to-batch standardization.
- Sustained release of virtually any API

Novochizol™ technology can deliver all classes of APIs – small molecules, peptides, nucleic acids, proteins – inside different cells in a targeted manner, simply by delivering the formulation to the tissue of interest by injection, spraying or topical application.

NOVOCHIZOL™ DELIVERS BOTULINUM TOXIN A (BoNT/A) INSIDE CELLS THAT LACK BoNT/A RECEPTORS

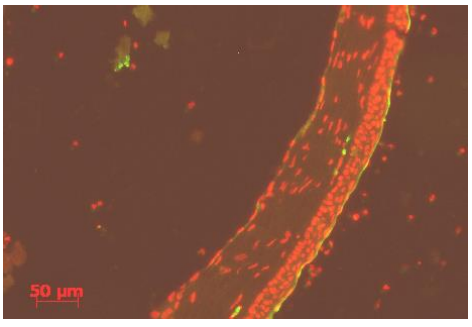
BoNT/A delivered by Novochizol™ to renal arteries enters renal cells where it inhibits renin release, leading to lower blood pressure, most likely via a general mechanism that inhibits vesicular secretion, opening countless possibilities. The delivery is localized, without systemic distribution and biological effects are sustained over long periods of time.

BoNT/A, **histochemically visualized** with an anti BoNT 4.1 antibody, confined to an arteriole in the renal capsule



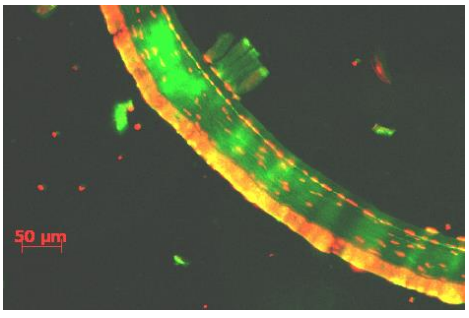
NOVOCHIZOL™ ENABLES TISSUE PENETRATION INDICATIVE OF ENDOCYTOSIS AND TRANSCYTOSIS

CORNEA: Fluorescein-labeled original chitosan or Novochizol™ suspensions were applied to the eyes of experimental animals (CBA mice). After 6 hours, the animals were euthanized, and the cornea examined by fluorescence microscopy.

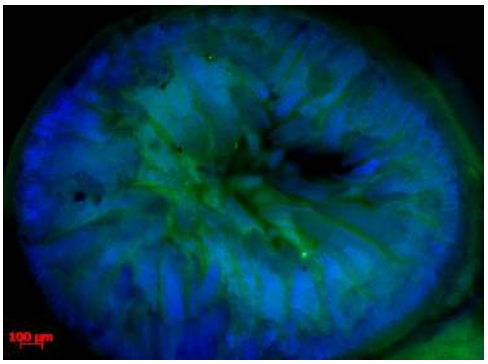


← Chitosan

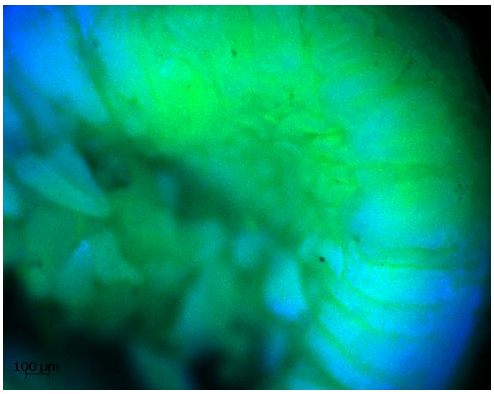
Novochizol™ →



SMALL INTESTINES: Fluorescein-labeled Novochizol™ suspensions were administered per os to mice. After 8 hours, cross-sections of small intestines were stained with Hoechst 33258 and examined by fluorescence microscopy.



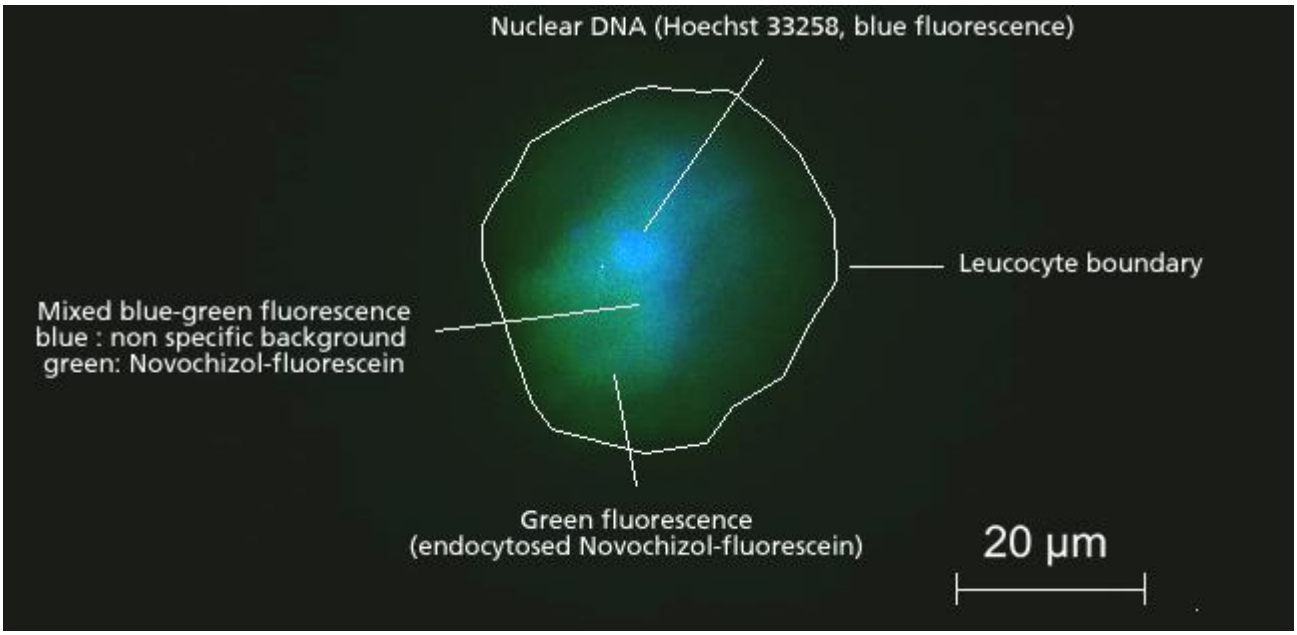
Chitosan remained in the lumen, forming a film on the surface of the mucin layer and aggregates (bright dots). No penetration between the intestinal villi was observed.



Novochizol™ distribution was uniform, including penetration in-between intestinal villi.

NOVOCHIZOL™ IS ENDOCYTOSED BY LEUKOCYTES

Fluorescence microscopy of a single leucocyte exposed to a suspension of Fluorescein-labeled Novochizol™ and died with Hoechst 33258 DNA -specific stain.



FURTHER INFORMATION: www.novochizol.ch info@novochizol.ch Tel +41 76 370 73 25