

Drug Delivery by Carbon Nanotube-Chitosan Nanocomplexes

University of South Florida investigators have developed a carbon nanotube-chitosan complex for use in targeted drug delivery.

Research has already demonstrated that chitosan is a safe and efficient drug delivery compound with mucoadhesive properties that enable its delivery through the mucous membranes. These properties make chitosan-based drug delivery systems an attractive target for development.

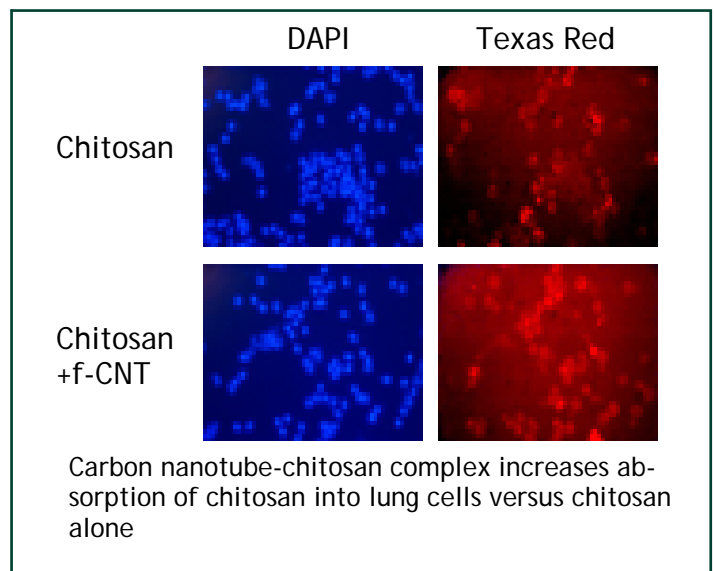
This invention enhances the drug delivery properties of carbon nanotubes (CNT) by improving the efficiency of drug delivery to target cells. The technology consists of hybridizing chitosan with functionalized carbon nanotubes (f-CNT), which have the ability to direct and target delivery of peptides or nucleic acids. In animal experiments, USF investigators have demonstrated that f-CNT-chitosan complexes increase absorption of drugs into lung cells versus CNT alone (see Figure).

This improved technology can be used to develop safe, highly effective transmucosal drug delivery systems for a broad spectrum of applications, from respiratory therapy to oncology.

Advantages:

- Provides enhanced drug delivery through mucous membranes
- Effectively directs peptides and nucleic acids to target cells
- Applicable to a broad range of fields, from respiratory therapy to oncology

Novel nanoparticle drug delivery system improves drug absorption into tissue



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contact

University of South Florida | Division of Patents and Licensing
3702 E. Spectrum Blvd., Suite 155, Tampa, Florida 33612-9445
813.974.0994 (office) | 813.974.8490 (fax)
patents@research.usf.edu | <http://www.research.usf.edu/pl/>
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