

Toward a new oral delivery system for insulin using nanoshell shields

January 8 2007

Scientists in Taiwan are reporting development of a nanoparticle drug delivery system that shows promise as a potential way to administer insulin and perhaps other protein-based drugs by mouth rather than injection or nasal sprays.

Hsing-Wen Sung and colleagues at the National Tsing Hua University, the Chinese Naval Academy and the National Health Research Institute point out that stomach acid destroys protein-based drugs, making them ineffective.

That problem has led to broadly based efforts to find ways of encapsulating or otherwise protecting insulin from damage in the stomach so it could be given in a convenient oral form. Once the drug passes through the stomach, it can be absorbed in the small intestine.

In their new research, scheduled for the Jan. 8 issue of ACS' *Biomacromolecules*, a monthly journal, researchers describe loading insulin into nanospheres made from chitosan, a natural carbohydrate polymer material obtained commercially from shells of shrimp that is nontoxic and biocompatible. When given to diabetic laboratory rats, the insulin-loaded nanoparticles successfully reduced blood sugar levels in the animals.

Source: American Chemical Society

Citation: Toward a new oral delivery system for insulin using nanoshell shields (2007, January 8)
retrieved 24 April 2024 from

<https://phys.org/news/2007-01-oral-delivery-insulin-nanoshell-shields.html>

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