## ORAL NANOCARRIER FOR INSULIN COLON DELIVERY

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## Diabetes mellitus is an [endocrine disease](https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/endocrine-disease) in which the pancreas does not produce sufficient insulin. The current insulin therapy via [subcutaneous injection](https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/subcutaneous-injection), which often fails to mimic the glucose homeostasis that occurs in normal individuals. Currently, for type-1 diabetes mellitus (T1DM), multiple daily insulin (MDI) injections is the most spopular treatment throughout the world. Researchers are trying to develop different insulin delivery systems, especially through oral and pulmonary route using nanocarrier based delivery system. In this review paper, we have depicted various next generation nanocarrier based insulin delivery systems such as chitosan-insulin nanoparticles, PLGA-insulin nanoparticles, dextran-insulin nanoparticles, polyalkylcyano acrylated -insulin nanoparticles and solid lipid-insulin nanoparticles.

## Nanoparticles (NPs) composed of chitosan (CS) and poly(γ-glutamic acid) (γ-PGA) were prepared by a simple ionic-gelation method for oral insulin delivery. Fourier transform infrared (FT-IR) spectra indicated that CS and γ-PGA were ionized at pH 2.5−6.6, while X-ray diffractograms demonstrated that the crystal structure of CS was disrupted after it was combined with γ-PGA.