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Diabetic conditions and drug vehicles alter drug metabolism

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Type II diabetes mellitus is a chronic disease, characterized by hyperglycemia and impaired metabolism. In diabetes, several metabolic pathways are altered, thus the biotransformation and pharmacokinetic of drugs can be influenced due to changes in enzymes and drug transporters. Streptozotocin (STZ) is a widely used glucosamine-nitrosourea compound to induce type II diabetes in murine models. Studies show that in STZ induced chronic uncontrolled diabetes different biotransformation enzymes are altered. Carotenoids are a class of natural antioxidants and according to epidemiological evidences, might have a protective role in chronic diseases. They are able to protect the body from long term consequences of diabetes, like neuronal and eye abnormalities or infectious diseases. Carotenoids have low solubility in water, therefore cyclic oligosaccharides, cyclodextrins can be used to improve the aqueous solubility of carotenoids. In pharmaceutical applications, cyclodextrins are able to enhance drug permeability through gastrointestinal tissues, accordingly these cyclic compounds can be also used for increase the bioavailability of carotenoids.

Biography

Kvell K, MD PhD has primary expertise in Immunology and Biotechnology. Currently he is working at the Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, at the University of Pecs, Hungary. He is currently involved in interdisciplinary research utilizing nanoparticles. This field encouraged the collaborative research team to develop novel drug delivery strategies.

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