

# DRUG DELIVERY: Improving Insulin Absorption/Action

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Insulin drug delivery is a topic is constant focus in the biomedical and biochemical engineering field. The improvements in the rate of absorption of insulin serum into the blood and the rate at which it causes the decrease in blood glucose level are studied by quantitative studies of the pharmacological properties of insulin. The pharmacological properties of insulin include pharmacokinetic property and pharmacodynamic property.

The pharmacokinetic property deals with the measurements of the concentration of insulin and its metabolites in the body over the time it takes to absorb, distribute, biotransform and eliminate it. Pharmacodynamic properties involve the quantitative evaluation of the biological effects of the insulin, which involve the receptor interactions and the following biological processes. There are two methods by which the quantitative measurements of these pharmacological properties are carried out: direct and indirect methods. Direct methods measures the insulin action in the blood and the indirect method measures the signals of substances related to insulin. The biochemical and immunology technology device called ELISA, enzyme-linked immunosorbent assay, is used to measure the presence of insulin antibodies or antigens. It can determine insulin serum

concentrations of antibodies and is useful in the clinical research of insulin

transcapillary transport, or the measuring of the amount that passes through the endothelium of the capillaries and into the interstitial space. ELISA is used to test cell cultures in the starting clinical research of new insulin products.

BioDel is a company that produced ViaDel technologies that has improved the rate of insulin absorption, ViaJect, and has developed a new way to deliver insulin non-invasively and more conveniently. They hope to produce a market for the treatment of Type II diabetes that is the leading therapy following diet and exercise since their new product, ViaTab, will be more accepted by patients.

## REFERENCES:

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