

Insulin

Human, Recombinant, *E. coli*

Cat. No.	Amount
PR-477	25 mg

Lyophilized.

Insulin is the most important hormone that inhibits gluconeogenesis. It acts predominantly by suppressing the expression of the genes for the key gluconeogenic enzymes pyruvate carboxykinase (PEPCK) and glucose-6-phosphatase (G-6-Pase).

Insulin is normally secreted by the beta cells (a type of islet cells) of the pancreas.

The development of insulin resistance is an important mechanism by which obesity leads to the development of metabolic and vascular diseases, such as type 2 diabetes, hypertension, dyslipidemia, and cardiovascular diseases, among other medical problems.

Recombinant human Insulin produced in *E. coli* is a two chain, non-glycosylated polypeptide chain containing

51 amino acids and having a molecular mass of 5.807 kDa.

Recombinant Insulin is purified by proprietary chromatographic techniques.

AVOID FREEZE/THAW CYCLES.

For in vitro use only!

It is recommended to reconstitute the lyophilized Insulin in bidest H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).

Activity: 28 units/mg.

Purity: ≥ 98% by SDS-PAGE, RP-HPLC, and FPLC.

Endotoxin: Less than 0.1 ng/µg (IEU/µg) of Insulin.

Store: -20°C

Selected References:

Caballero A.E. (2003) Endothelial dysfunction in obesity and insulin resistance: a road to diabetes and heart disease. *Obes. Res.* **11**:1278.

Al-Achi A. and Greenwood R. (1998) Erythrocytes as oral delivery systems for human insulin. *Drug. Dev. Ind. Pharm.* **24**:67.

Saukkonen *et al.* (2004) Dose-dependent effects of recombinant human insulin-like growth factor (IGF)-I/IGF binding protein-3 complex on overnight growth hormone secretion and insulin sensitivity in type 1 diabetes. *J. Clin. Endocrinol. Metab.* **89**:4634.

Adachi A. and Fukunaga A. (2004) A case of human insulin allergy induced by short-acting and intermediate-acting insulin but not by long-acting insulin. *Int. J. Dermatol.* **43**:597.

Hermansen *et al.* (2004) Insulin analogues (insulin detemir and insulin aspart) versus traditional human insulins (NPH insulin and regular human insulin) in basal-bolus therapy for patients with type 1 diabetes. *Diabetologia.* **47**:622.

Rave *et al.* (2004) Inhaled micronized crystalline human insulin using a dry powder inhaler: dose-response and time-action profiles. *Diabet. Med.* **21**:763.

Cingel-Ristic *et al.* (2004) Administration of human insulin-like growth factor-binding protein-1 increases circulating levels of growth hormone in mice. *Endocrinology.* **145**:4401.

Solubility: