



## Product Data Sheet

### Mouse/Rat Insulin

□ **Cat#** INSLM21-N-20

Recombinant Mouse Insulin (mature form)

**Size:** 20 ug

Insulin is the principal hormone responsible for glucose metabolism. It is synthesized in the cells of the islets of Langerhans as the precursor, proinsulin, which is processed to form C-peptide and insulin and both are secreted in equimolar amounts into the portal circulation. The mature insulin molecule comprises two polypeptide chains, the A chain (21 amino acids) and the B chain (30 amino acids), which are linked by two inter-chain disulphide bridges. There is, in addition, a single intra-chain disulphide bridge in the A chain. The sequence of insulin is highly conserved in mammalian species, and is homologous with the insulin-like growth factors IGF-I and IGF-II. Secretion of insulin is mainly controlled by plasma glucose concentration and the hormones have a number of important metabolic actions. Its principal function is to control the uptake and utilization of glucose in peripheral tissues via the glucose transporter. This and other hypoglycemic activities, such as the inhibition of hepatic gluconeogenesis and glycogenolysis are counteracted by the hyperglycemic hormones including glucagons, epinephrine (adrenaline), growth hormone and cortisol. Insulin concentrations are severely reduced in insulin-dependent diabetes (IDDM) and some other conditions such as hypopituitarism. Insulin concentrations may be raised in non-insulin-dependant diabetes (NIDDM), obesity, insulinoma and some endocrine dysfunctions such as Cushing's Syndrome and Acromegaly<sup>1, 2</sup> The main clinical utility measurement is in the investigation of hypoglycemia. Insulin assay have been used in the following applications:

**A Chain:**

Gly-Ile-Val-Asp-Gln-Cys-Cys-Thr-Ser-Ile-Cys-Ser-Leu-Tyr-Gln-Leu-Glu-Asn-Tyr-Cys-Asn

**B Chain:**

Phe-Val-Lys-Gln-His-Leu-Cys-Gly-Pro-His-Leu-Val-Glu-Ala-Leu-Tyr-Leu-Val-Cys-Gly-Glu-Arg-Gly-Phe-Phe-Tyr-Thr-Pro-Lys-Ser

**Disulfide bridges:** CysA6-CysA11, CysA7-CysB7 & CysA20-CysB19

**Observed molecular weight:** ~6 kDa

### Source of Recombinant Mouse Insulin

**Expression Host:** Mouse Insulin was expressed as a mature form (A+B chain, no propeptide or C-peptide) in E. coli. The recombinant protein contains no tags.

**Buffer:** Provided in a buffer containing 50 mM Tris-HCL-5 mM B-Mercaptoethanol, and 0.25M NaCl

**Concentration:** Mouse Insulin provided in liquid format at a concentration between 0.2-0.5 mg/ml

**Storage:** Store at -20°C in suitable size aliquots

**Suggested uses:** The protein is suitable for use as a standard, control, immunogen, or other appropriately qualified uses.

\*Human insulin is often included as a medium supplement for cell culture. The concentration range is 1-10 ug/ml depending on the cell type. **Bioactivity of Mouse Insulin has not been tested.**

*For in vitro research use only*

### Related materials available from ADI

Human, Mouse, Rat, and Bovine Insulin and C-peptide ELISA kits

Recombinant purified Human and Bovine Insulin

Human, Mouse, and Rat anti-Insulin IgG (autoantibodies) and IgM ELISA

Human, Mouse, and Rat Insulin antibodies

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