abcam

Product datasheet

Human Insulin ELISA Kit ab200011

SimpleStep ELISA®

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Overview

Product name Human Insulin ELISA Kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
Overall	5			8.6%

Inter-assay

Sample	n	Mean	SD	CV%
Overall	3			4.9%

Sample type Serum, Heparin Plasma

Assay type Sandwich (quantitative)

Sensitivity 1.1 pmol/L

Range 2.1 pmol/L - 133.6 pmol/L

Recovery

Sample specific recovery

Sample type	Average %	Range
Serum	106	103% - 111%
Heparin Plasma	112	108% - 120%

Assay time 1h 30m

Assay duration One step assay

Species reactivity **Reacts with:** Human
Does not react with: Sheep, Goat, Guinea pig, Dog

Product overview Abcam's Insulin *in vitro* SimpleStep ELISA™ (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of Insulin protein in Human serum and plasma

(heparin).

The SimpleStep ELISA™ employs an affinity tag labeled capture antibody and a reporter conjugated detector antibody which immunocapture the sample analyte in solution. This entire complex (capture antibody/analyte/detector antibody) is in turn immobilized via immunoaffinity of an anti-tag antibody coating the well. To perform the assay, samples or standards are added to the wells, followed by the antibody mix. After incubation, the wells are washed to remove unbound material. TMB substrate is added and during incubation is catalyzed by HRP, generating blue coloration. This reaction is then stopped by addition of Stop Solution completing any color change from blue to yellow. Signal is generated proportionally to the amount of bound analyte and the intensity is measured at 450 nm. Optionally, instead of the endpoint reading, development of TMB can be recorded kinetically at 600 nm.

Notes

Insulin is a highly conserved, secreted hormone essential for glucose metabolism. Produced by pancreatic beta cells, proinsulin is proteolyzed into an A and a B chain, which form a 6 kDa mature protein. Basal levels of insulin are continuously delivered into the bloodstream, and additional levels are secreted proportional to food ingestion. Insulin secretion is highly regulated, and dysregulation of insulin production or sensitivity results in Type 1 diabetes mellitus or Type 2 diabetes mellitus, respectively.

Tested applications

Suitable for: Sandwich ELISA

Platform

Microplate (12 x 8 well strips)

Properties

Storage instructions

Store at +4°C. Please refer to protocols.

Components	1 x 96 tests
10X Human Insulin Capture Antibody	1 x 600µl
10X Human Insulin Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
Antibody Diluent 5BI	1 x 6ml
Human Insulin Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS	1 x 50ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Substrate	1 x 12ml

Function

Insulin decreases blood glucose concentration. It increases cell permeability to monosaccharides, amino acids and fatty acids. It accelerates glycolysis, the pentose phosphate cycle, and glycogen synthesis in liver.

Involvement in disease

Defects in INS are the cause of familial hyperproinsulinemia (FHPRI) [MIM:176730].

	Defects in INS are a cause of diabetes mellitus insulin-dependent type 2 (IDDM2) [MIM:125852]. IDDM2 is a multifactorial disorder of glucose homeostasis that is characterized by susceptibility to ketoacidosis in the absence of insulin therapy. Clinical fetaures are polydipsia, polyphagia and polyuria which result from hyperglycemia-induced osmotic diuresis and secondary thirst. These derangements result in long-term complications that affect the eyes, kidneys, nerves, and blood vessels. Defects in INS are a cause of diabetes mellitus permanent neonatal (PNDM) [MIM:606176]. PNDM is a rare form of diabetes distinct from childhood-onset autoimmune diabetes mellitus type 1. It is characterized by insulin-requiring hyperglycemia that is diagnosed within the first months of life. Permanent neonatal diabetes requires lifelong therapy. Defects in INS are a cause of maturity-onset diabetes of the young type 10 (MODY10) [MIM:613370]. MODY10 is a form of diabetes that is characterized by an autosomal dominant mode of inheritance, onset in childhood or early adulthood (usually before 25 years of age), a primary defect in insulin secretion and frequent insulin-independence at the beginning of the disease.
Sequence similarities	Belongs to the insulin family.
Cellular localization	Secreted.

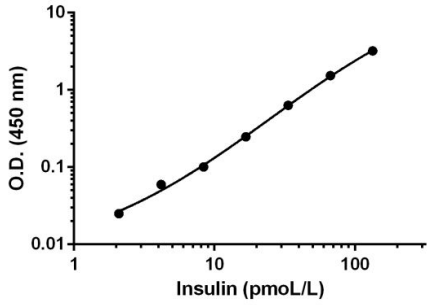
Applications

Our Abpromise guarantee covers the use of **ab200011** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

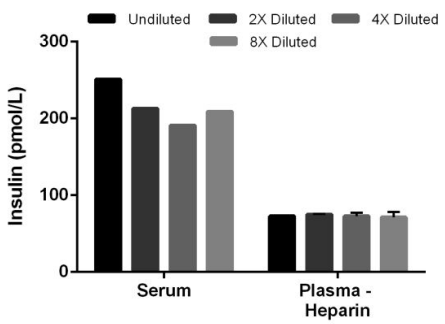
Application	Abreviews	Notes
Sandwich ELISA		Use at an assay dependent concentration.

Images



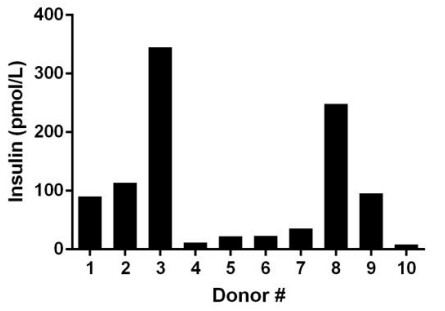
Example of Insulin standard curve.

Background-subtracted data values (mean +/- SD) are graphed.



Titration of Human serum and Human plasma within the working range of the assay.

Data shown for serum is from an individual donor with high endogenous insulin levels. Data shown for plasma is from a pooled (n=50) sample. Background-subtracted data values (mean +/- SD, n = 3) are graphed.



Insulin levels in individual healthy donors.

Ten individual healthy donors were evaluated for the presence of Insulin in serum using this assay. The range was from 11.8 – 345.1 pmol/L, with an average of 99.4 pmol/L. Health history and dietary status of donors were unknown.

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