abcam

Product datasheet

Human Insulin ELISA Kit ab278123

Recombinant SimpleStep ELISA

6 Images

Overview

Product name Human Insulin ELISA Kit

Detection method Colorimetric

Precision

Intra-assay

Sample	n	Mean	SD	CV%
serum	8			9.4%

Inter-assay

Sample	n	Mean	SD	CV%
serum	3			11.8%

Sample type Serum, Hep Plasma, EDTA Plasma

Assay type Sandwich (quantitative)

Sensitivity 7.13 pmol/L

Range 26.56 pmol/L - 425 pmol/L

Recovery

Sample specific recovery

Sample type	Average %	Range
Serum	96	94% - 98%
Hep Plasma	89	80% - 97%
EDTA Plasma	99	95% - 103%

Assay time 1h 30m

Assay duration One step assay

Species reactivity **Reacts with:** Human

Product overview Human Insulin ELISA kit (ab278123) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of Human Insulin protein in human serum, plasma heparin, and plasma

EDTA samples. It uses our proprietary SimpleStep ELISA® technology. Quantitate Human Insulin with 7.13 pmol/L sensitivity.

SimpleStep ELISA® technology employs capture antibodies conjugated to an affinity tag that is recognized by the monoclonal antibody used to coat our SimpleStep ELISA® plates. This approach to sandwich ELISA allows the formation of the antibody-analyte sandwich complex in a single step, significantly reducing assay time. See the SimpleStep ELISA® protocol summary in the image section for further details. Our SimpleStep ELISA® technology provides several benefits:

-Single-wash protocol reduces assay time to 90 minutes or less
-High sensitivity, specificity and reproducibility from superior antibodies
-Fully validated in biological samples
-96-wells plate breakable into 12 x 8 wells strips

A 384-well SimpleStep ELISA® microplate (**ab203359**) is available to use as an alternative to the 96-well microplate provided with SimpleStep ELISA® kits.

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.

Platform

Pre-coated microplate (12 x 8 well strips)

Properties

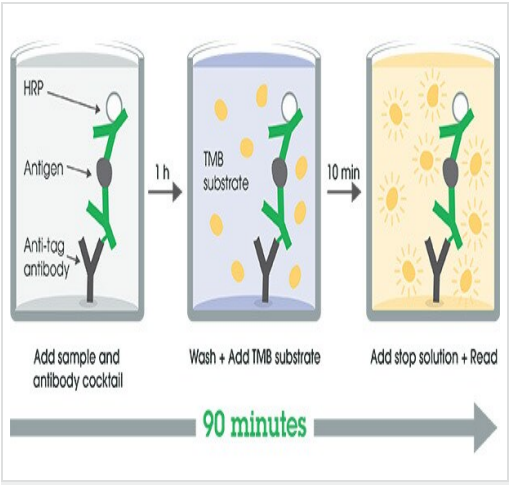
Storage instructions

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 CPI - HAMA Blocker (ab193969)	1 x 6ml
Human Insulin Lyophilized Recombinant Protein	2 vials
Plate Seals	1 unit
Sample Diluent NS (ab193972)	1 x 12ml
SimpleStep Pre-Coated 96-Well Microplate (ab206978)	1 unit
Stop Solution	1 x 12ml
TMB Development Solution	1 x 12ml

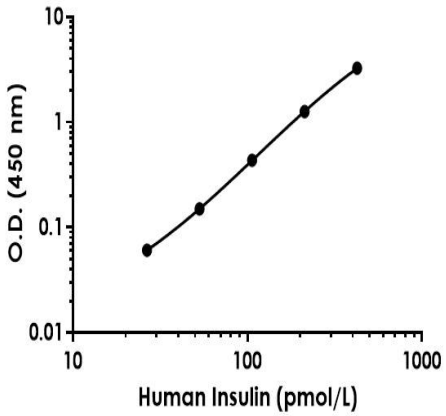
Function	Insulin decreases blood glucose concentration. It increases cell permeability to monosaccharides, amino acids and fatty acids. It accelerates glycolysis, the pentose phosphate cycle, and glycogen synthesis in liver.
Involvement in disease	Defects in INS are the cause of familial hyperproinsulinemia (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.

Images



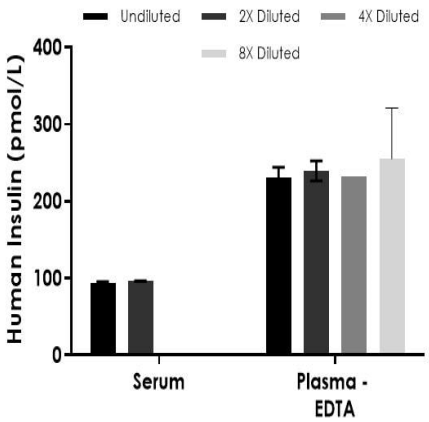
SimpleStep ELISA Protocol Diagram

SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



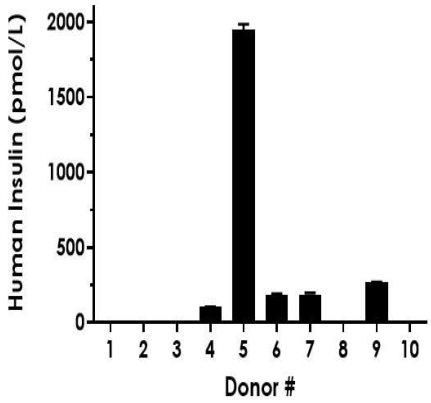
Example of human Insulin standard curve in Sample Diluent NS.

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



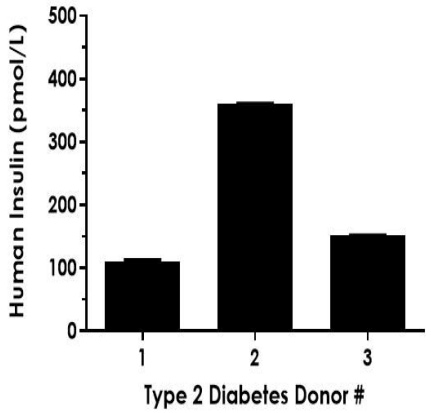
Interpolated concentrations of native Insulin in human serum and plasma (EDTA) samples.

The concentrations of Insulin were measured in duplicates, interpolated from the Insulin standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 95% and plasma (EDTA) 95%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Insulin concentration was determined to be 95.15 pmol/L in serum and 240.40 pmol/L in plasma (EDTA).



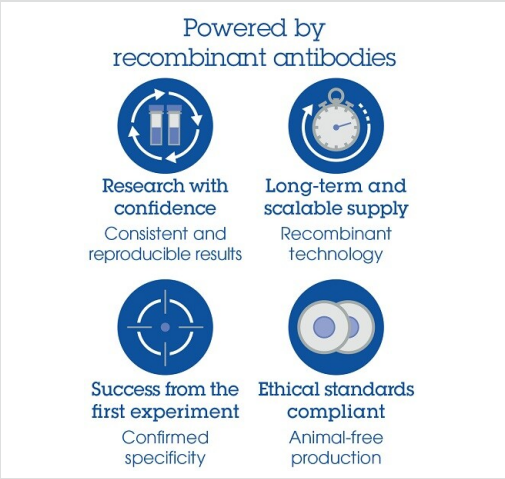
Serum from ten individual healthy human male donors was measured in duplicate. Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). Donors 1, 2, 3, 8, and 10 interpolated below the standard curve, thus are not determined (ND). The mean Insulin concentration was determined to be 269.30 pmol/L with a range of ND – 1,949.53 pmol/L. Health history and dietary status of donors were unknown.



Serum from three individual human male donors with type 2 diabetes mellitus was measured in duplicate.

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Insulin concentration was determined to be 206.71 pmol/L with a range of 109.17 – 359.67 pmol/L.



Recombinant Antibody Benefits

To learn more about the advantages of recombinant antibodies see **here**.

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