abcam

Product datasheet

Human Insulin ELISA Kit, fluorescent ab278125

Recombinant SimpleStep ELISA®

3 Images

Overview

Product name Human Insulin ELISA Kit, fluorescent

Detection method Fluorescent

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 8.04 pmol/L

Range 13.28 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 *in vitro* CatchPoint® SimpleStep ELISA® (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of Insulin protein in human serum, plasma

heparin, and plasma EDTA samples.

This CatchPoint SimpleStep ELISA kit has been **optimized for Molecular Devices Microplate Readers**. Click here for a list of recommended Microplate Readers.
If using a Molecular Devices' plate reader supported by SoftMax® Pro software, a preconfigured protocol for these CatchPoint SimpleStep ELISA Kits is available with all the protocol and analysis settings at www.softmaxpro.org

The CatchPoint 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. CatchPoint HRP Development Solution containing the Stoplight Red Substrate is added. During incubation, the substrate is catalyzed by HRP generating a fluorescent product. Signal is generated proportionally to the amount of bound analyte and the intensity is measured in a fluorescence plater reader at 530/570/590 nm Excitation/Cutoff/Emission.

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

Microplate (12 x 8 well strips)

Properties

Storage instructions

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

Components	1 x 96 tests
100X Stoplight Red Substrate	1 x 120µl
10X Human Insulin Capture Antibody	1 x 600µl
10X Human Insulin Detector Antibody	1 x 600µl
10X Wash Buffer PT (ab206977)	1 x 20ml
500X Hydrogen Peroxide (H_2O_2, 3%)	1 x 50µl
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

Components	1 x 96 tests
SimpleStep Pre-Coated Black 96-Well Microplate	1 unit
Stoplight Red Substrate Buffer	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.

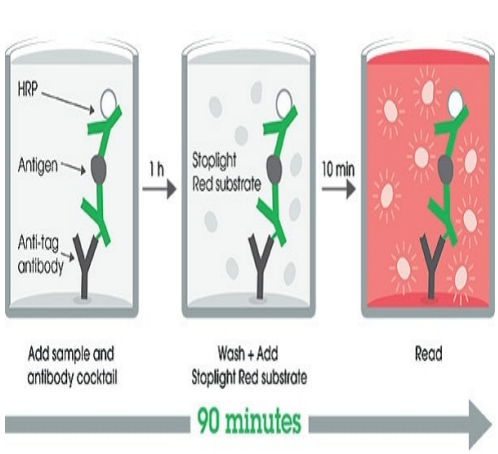
Sequence similarities

Belongs to the insulin family.

Cellular localization

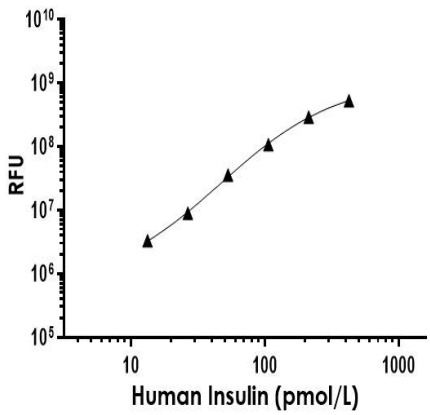
Secreted.

Images



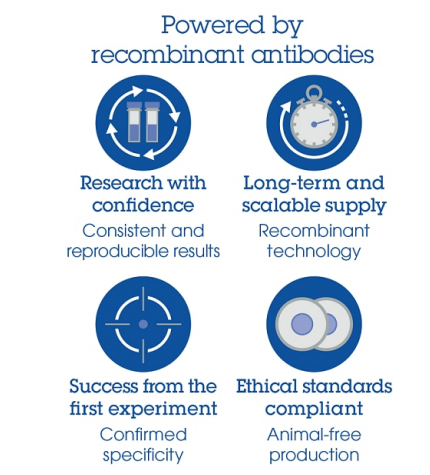
Catchpoint ELISA Protocol Diagram

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.

The Insulin standard curve was prepared as described in Section 10. Raw data generated on SpectraMax M4 Multi-Mode Microplate Reader is shown in the table. Background-subtracted data values (mean +/- SD) are graphed.



Recombinant Antibody Benefits

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

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