abcam

## Product datasheet

# Human C-Peptide ELISA Kit ab260064

Recombinant SimpleStep ELISA®

6 Images

### Overview

**Product name** Human C-Peptide ELISA Kit

**Detection method** Colorimetric

**Precision**

Intra-assay

| Sample | n | Mean | SD | CV% |
|---|---|---|---|---|
| Serum | 8 | | | 2.6% |

Inter-assay

| Sample | n | Mean | SD | CV% |
|---|---|---|---|---|
| Serum | 3 | | | 3.7% |

**Sample type** Urine, Serum, Cell culture media, Hep Plasma

**Assay type** Sandwich (quantitative)

**Sensitivity** 1.45 pg/ml

**Range** 3.13 pg/ml - 200 pg/ml

**Recovery**

Sample specific recovery

| Sample type | Average % | Range |
|---|---|---|
| Urine | 103 | 101% - 107% |
| Serum | 105 | 100% - 110% |
| Cell culture media | 90 | 88% - 92% |
| Hep Plasma | 92 | 85% - 102% |

**Assay time** 1h 30m

**Assay duration** One step assay

**Species reactivity** **Reacts with:** Human

**Does not react with:** Cow

**Product overview**

Human C-Peptide ELISA Kit (ab260064) is a single-wash 90 min sandwich ELISA designed for the quantitative measurement of C-Peptide protein in hep plasma, serum, urine, and cell culture media. It uses our proprietary SimpleStep ELISA® technology. Quantitate Human C-Peptide with 1.45 pg/ml 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**

C-peptide of insulin is a cleavage product produced during processing of the insulin pro-hormone to the mature insulin molecule. Proinsulin is cleaved when it is released from the pancreas into the blood - one C-peptide for each insulin molecule. C-Peptide has been shown to bind to a variety of cell types, and *in vivo* animal diabetes models have shown positive effects on kidney and nerve function.

**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 C-Peptide Capture Antibody | 1 x 600µl |
| 10X Human C-Peptide Detector Antibody | 1 x 600µl |
| 10X Wash Buffer PT (ab206977) | 1 x 20ml |
| Antibody Diluent 4BI | 1 x 6ml |
| Human C-Peptide 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 |

| Components | 1 x 96 tests |
|---|---|
| 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.

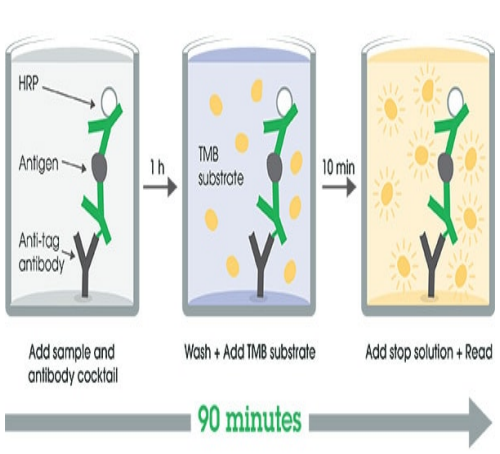
**Sequence similarities**

Belongs to the insulin family.

**Cellular localization**

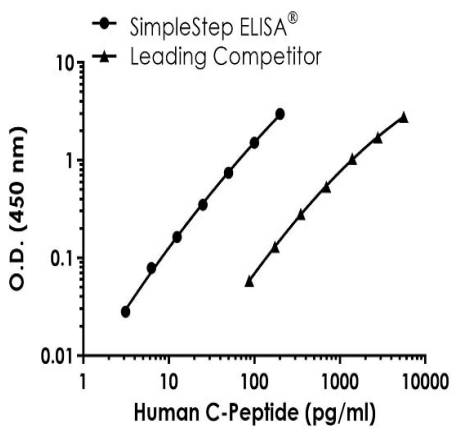
Secreted.

## Images



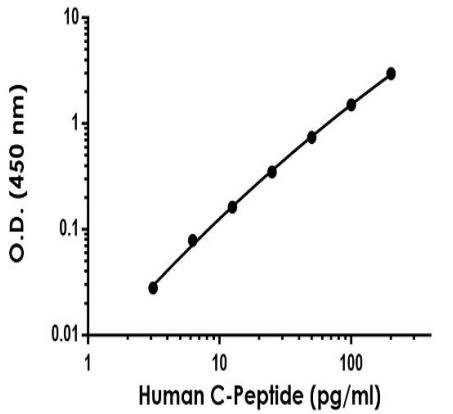

SimpleStep ELISA Protocol Diagram

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.



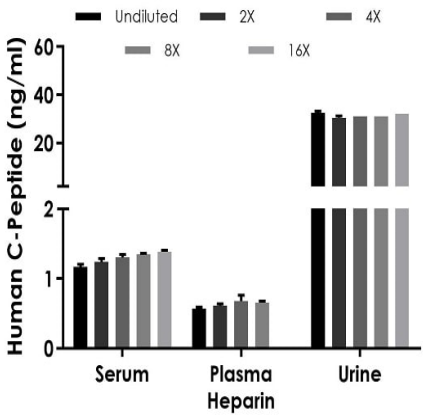

Human C-peptide standard curve comparison

Standard Curve comparison between human C-Peptide SimpleStep ELISA kit and traditional ELISA kit from leading competitor. SimpleStep ELISA kit shows increased sensitivity.



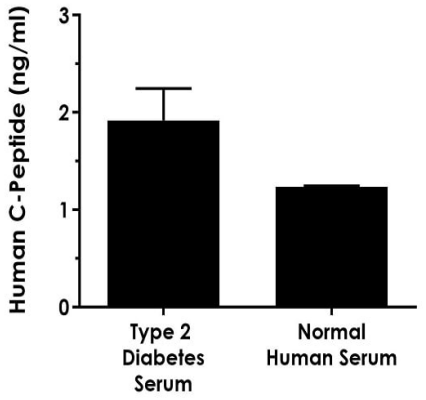

Example of human C-Peptide standard curve in Sample Diluent NS.

The C-Peptide standard curve was prepared as described in Section 10. Raw data values are shown in the table. Background-subtracted data values (mean +/- SD) are graphed.



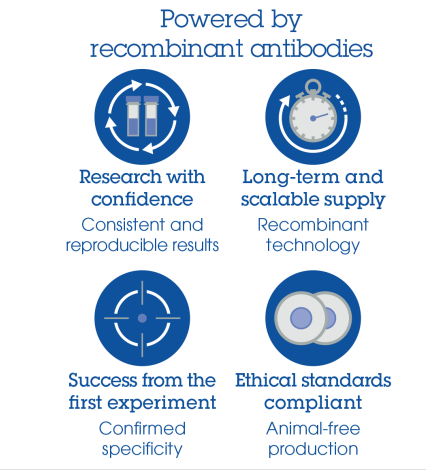

Interpolated concentrations of native C-Peptide in human serum, plasma (heparin) and pooled-sex urine samples.

The concentrations of C-Peptide were measured in duplicates, interpolated from the C-Peptide standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 12.5%, plasma (heparin) 12.5%, and urine 1: 200. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean C-Peptide concentration was determined to be 1.3 ng/mL in serum, 0.6 ng/mL in plasma (heparin), and 31.7 ng/mL in pooled-sex urine.




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

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean C-Peptide concentration in type 2 diabetes serum samples was determined to be 1.9 ng/mL with a range of 1.4 – 2.2 ng/mL.




Sandwich ELISA - Human C-Peptide ELISA Kit (ab260064)

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

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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