Dako

THE SHAPE OF EXCELLENT
LABORATORY PERFORMANCE

Insulin and C-Peptide | ELISA kits

Non-Isotopic Microplate Enzyme Immunoassays

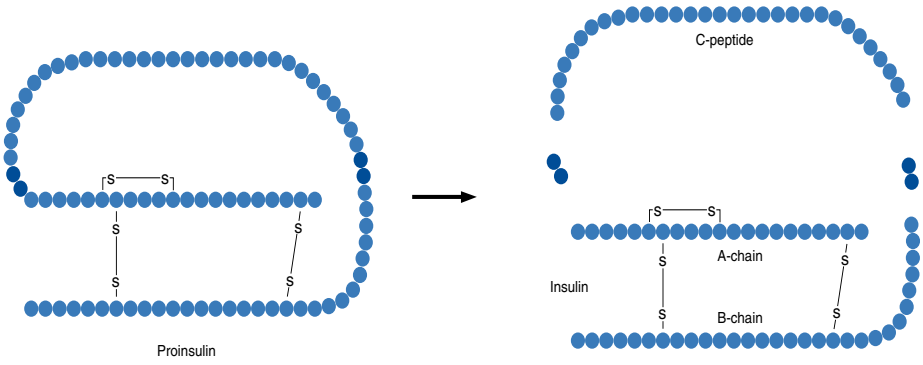
- Very sensitive
  Detection limit Insulin
  < 0.5 µIU/mL and
  C-peptide < 0.09 ng/mL
- Results in less than
  90 minutes
- Excellent specificity
  Insulin assay has a very low
  cross-reactivity against
  proinsulin
- Markers of β-cell function

Let's connect.

To maximize quality

Introduction

Insulin is the principal hormone responsible for the control of glucose metabolism. It is synthesised in the β-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.



Insulin

Secretion of insulin is mainly controlled by plasma glucose concentration and the hormone has a number of metabolic actions. Its principal function is to control the uptake and utilization of glucose in the peripheral tissues via the glucose transporter. Insulin concentrations are severely reduced in insulin-dependent diabetes (IDDM) and some other conditions such as hypopituitarism. Insulin concentrations are raised in certain disease stages in non insulin-dependent diabetes (NIDDM), insulinoma and some endocrine dysfunctions such as Cushing's syndrome and acromegaly.

Insulin measurements may be used for the following clinical applications:

- To assess the residual β-cell function, especially in newly-diagnosed cases of IDDM.
- To discriminate between IDDM and NIDDM.
- To diagnose the presence of insulinoma.
- To investigate the pathophysiology of diabetes mellitus.

C-peptide

C-peptide is cleared from the body by the kidney and, unlike insulin, urine concentrations are 20-25 times higher than plasma. Unlike plasma insulin levels, which fluctuate in response to meals, measurements of the 24-hour urinary excretion of C-peptide provide a useful monitor of average β-cell insulin secretion.

C-peptide measurements may be used for the following clinical applications:

- To assess the residual β-cell function in patients treated with insulin and to distinguish between IDDM and NIDDM.
- To diagnose factitious hypoglycaemia.
- To diagnose the presence of insulinoma.
- To assess residual pancreatic tissue after pancreatectomy.

Assay Protocol

Add 25 µL sample or cali-brator and 100 µL conjugate

Incubate while shaking at room temperature for 1 hour

Wash 3 times

Add 100 µL TMB substrate

Incubate while shaking at room temperature for 10 minutes

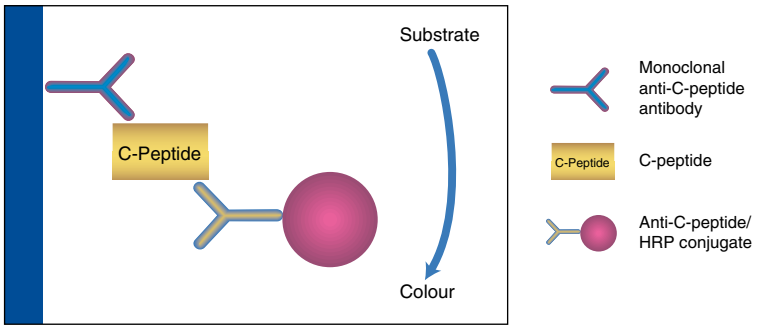
Add 100 µL stop solution

Read the plate at 450 nm

Total time less than 90 minutes

Assay Principle

Both ELISAs are based on two monoclonal antibodies. Simultaneous incubation of sample and enzyme-labelled antibody in a microplate well coated with a specific anti-insulin or anti-C-peptide antibody forms a complex. A simple washing step removes unbound enzyme-labelled antibody. The bound conjugate is detected by reaction with a TMB substrate.



A schematic illustration of the C-peptide assay. The insulin assay is based on the same principle.

Insulin

Samples		Human serum or plasma		
Measuring range		0-180 µIU/mL or 0-1080 pmol/L		
Detection limit/sensitivity		< 0.5 µIU/mL or < 3 pmol/L		
Cross-reactivity		No significant cross reactivity with proinsulin		
Precision		**Sample 1**	**Sample 2**	**Sample 3**
Within assay	Mean (µIU/mL)	6.5	45	206
	CV %	7.5	7.5	5.1
	N	20	20	20
Between assay	Mean (µIU/mL)	6.7	48	206
	CV %	9.3	8.9	4.2
	N	20	19	19

C-peptide

Samples		Human serum or plasma		
Measuring range		0-15 ng/ml or 0-5000 pmol/L		
Detection limit/sensitivity		< 0.09 ng/mL or < 30 pmol/L		
Cross-reactivity		No significant cross reactivity with proinsulin		
Precision		**Sample 1**	**Sample 2**	**Sample 3**
Within assay	Mean (ng/mL)	1.55	3.6	6.7
	CV %	2.6	3.3	3.9
	N	24	24	24
Between assay	Mean (ng/mL)	1.77	3.4	5.1
	CV %	4.5	1.5	3.3
	N	10	10	10

DAKO Diabetes Product Range

C-peptide ELISA
A microplate enzyme immunoassay for the quantitative detection of C-peptide in human serum, plasma or urine. A very sensitive assay with a detection limit less than 0.09 ng/mL.

Insulin ELISA
A microplate enzyme immunoassay for the quantitative detection of insulin in human serum or plasma.
A very specific and sensitive assay with a detection limit less than 0.5 µIU/mL.

Ordering information

	Code	Regulatory status EU
DAKO C-peptide ELISA Kit, 96 determinations	K 6220	CE – IVD*
DAKO Insulin ELISA Kit, 96 determinations	K 6219	CE – IVD

* Complies with Directive 98/79/EC of the European Parliament and of the Council on *in vitro* diagnostic medical devices.

For further information please contact your local DAKO distributor.

Dako

Corporate Headquarter
Denmark
+45 44 85 95 00

Find your local distributor through:
www.dako.com
or contact
Reagent Partnership Division on
reagent.partnerships@dako.com

Distributors in more than
50 countries

28999 16OCT08