MSD® Mouse/Rat C-peptide Kit

For quantitative determination in mouse and rat serum and plasma

Alzheimer's Disease
BioProcess
Cardiac
Cell Signaling
Clinical Immunology
Cytokines
Growth Factors
Hypoxia
Immunogenicity
Inflammation
Metabolic
Oncology
Toxicology
Vascular

Catalog Numbers

Mouse/Rat C-peptide Kit	
Kit Size	Catalog #
1 plate	K150OID-1
5 plates	K150OID-2
25 plates	K150OID-4

Ordering Information

MSD Customer Service
Phone: 1-301-947-2085
Fax: 1-301-990-2776
Email: CustomerService@
mesoscale.com

Scientific Support

Phone: 1-301-947-2025
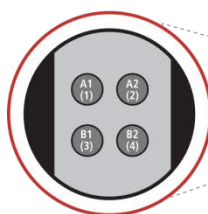Email: ScientificSupport@
mesoscale.com

Company Address

MESO SCALE DISCOVERY®
A division of
Meso Scale Diagnostics, LLC.
1601 Research Boulevard
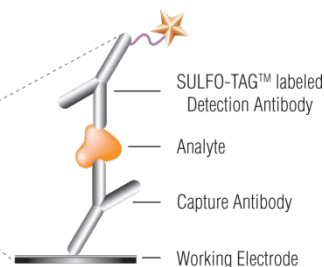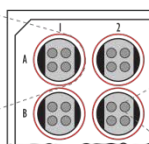Rockville, MD 20850-3173 USA
www.mesoscale.com®

For Research Use Only.
Not for use in
diagnostic procedures.

1. C-peptide
2. *BSA blocked*
3. *BSA blocked*
4. *BSA blocked*

MSD MULTI-SPOT®
96-Well 4-Spot Plate

SULFO-TAG™ labeled Detection Antibody
Analyte
Capture Antibody
Working Electrode

Connecting peptide, or C-peptide, is a 31 amino acid protein constituent of proinsulin produced by pancreatic β-cells in the Islets of Langerhans. C-peptide connects the A-chain and the B-chain of the proinsulin polypeptide and facilitates proper processing of proinsulin in the endoplasmic reticulum. Proinsulin is cleaved by Ca2+-dependent endopeptidases; equimolar quantities of active insulin and C-peptide are stored in secretory granules, released into the portal vein, enter circulation, and are excreted by the kidneys.[1] Circulating C-peptide binds multiple cell types, including endothelial cells, fibroblasts, neuronal cells, and renal tubular cells. Bound C-peptide activates Ca2+-dependent signaling pathways, including MAPK, PLCγ, and PKC, resulting in both increased eNOS and Na+K+ATPase activity and upregulation of transcription factors.[2]

Plasma levels of C-peptide have traditionally been used to distinguish between Type 1 and Type 2 diabetes.[3] Type 1 diabetics fail to produce proinsulin so that C-peptide levels are decreased, while Type II diabetics produce increased quantities of proinsulin so that C-peptide levels are increased. C-peptide is an active biomolecule of interest in the study of hormone-dependent conditions, including gastromas associated with multiple endocrine neoplasms syndrome, polycystic ovarian syndrome, metabolic syndrome X, and sub-sets of renal disease.[4] The MSD Mouse/Rat C-peptide assay is available on 96-well, 4-spot plates. Representative data from the assay is presented below.

Assay Sensitivity

The following standard curve illustrates the dynamic range of the Mouse/Rat C-peptide assay.
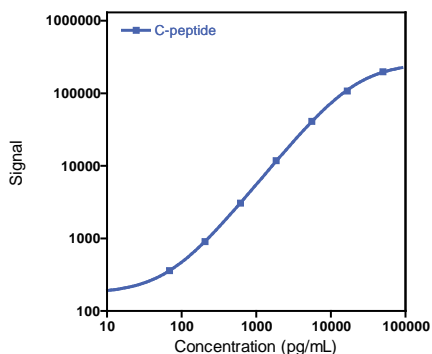
	C-peptide
Average LLOD (pg/mL)	25
LLOD Range (pg/mL)	18–32

The lower limit of detection (LLOD) is a calculated concentration based on a signal 2.5 standard deviations above the background (zero calibrator blank). The LLOD shown above was calculated based on 3 runs.

MSD Advantage

➢ **Multiplexing:** Multiple analytes can be measured in one well using typical sample volumes of 25 µL or less without compromising speed or performance

➢ **Large dynamic range**: Linear range of up to five logs enables the measurement of native levels of biomarkers in normal and diseased samples without multiple dilutions

➢ **Minimal background:** The stimulation mechanism (electricity) is decoupled from the response (light signal), minimizing matrix interference

➢ **Simple protocols:** Only labels bound near the electrode surface are excited, enabling assays with fewer washes

➢ **Flexibility:** Labels are stable, non-radioactive, and conveniently conjugated to biological molecules

➢ **High sensitivity and precision:** Multiple rounds of label excitation and emission enhance light levels and improve sensitivity

For a complete list of products, please visit our website at www.mesoscale.com.

Spot the Difference®

MSD®

Tested Samples

Normal mouse plasma and rat serum samples were collected and tested with the Mouse/Rat C-peptide Kit. Median and range of concentrations for each sample set are displayed below.

Sample Type	Statistic	C-peptide
Mouse EDTA plasma	Median (pg/mL)	335
	Range (pg/mL)	284–391
	Number of Samples	4
	Samples in Quantitative Range	4
Rat serum	Median (pg/mL)	209
	Range (pg/mL)	108–693
	Number of Samples	3
	Samples in Quantitative Range	3

References

1. Steiner DF, et al. Insulin biosynthesis: evidence for a precursor. Science. 1967 Aug 11;157(3789):697-700.

2. Hills CE, et al. Intracellular signaling by C-peptide. Exp Diabetes Res. 2008;2008:635158.

3. Vasic C, et al. C-peptide: a new mediator of artherosclerosis in diabetes. Mediators Inflamm. 2012;2012:858692.

4. Wahren J. C-peptide: new findings and therapeutic implications in diabetes. Clin Physiol Funct Imaging. 2004 Jul;24(4):180-9.

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