U-PLEX®

Rat Insulin

Product Options	Catalog Number	Description
Multiplex	K153ACM, K253ACM	U-PLEX Metabolic Group 1 (rat) Assay
Singleplex	K1536HK-1/-2/-4	U-PLEX Rat Insulin Assay with SECTOR™ plates
	K1536HK-21/-22/-24	U-PLEX Rat Insulin Assay with QuickPlex® plates
	K2536HK-2/-4	U-PLEX Rat Insulin Assay with 384-well plates
Antibody Set	B206H-2/-3	U-PLEX Mouse/Rat Insulin Antibody Set
Protocol	U-PLEX Product Inserts are available at www.mesoscale.com	

The U-PLEX® platform was designed to provide ultimate flexibility for detection of biomarkers in a wide variety of sample types. This datasheet provides the representative performance of the U-PLEX Rat Insulin Assay tested on U-PLEX SECTOR plates run as a multiplex. The data do not represent the product specifications. Under your experimental conditions, the assay may perform differently from the representative data. U-PLEX assays are offered in either singleplex or multiplex; both are available on 96- or 384-well plates. See a U-PLEX product insert for instrument compatibility.

Representative Calibration Curve and Sensitivity
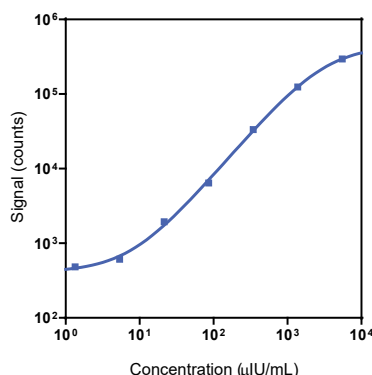
Assay	Median LLOD (μIU/mL)	LLOD Range (μIU/mL)
Insulin	1.5	1.3-2.0

The Calibrator curve was fitted with a 4-parameter logistic model with a $1/Y^2$ weighting. The lower limit of detection (LLOD) is a calculated concentration corresponding to 2.5X the standard deviation above the background (zero Calibrator).

Precision

Control	Average Conc. (μIU/mL)	Average Intra-run Conc. (%CV)	Inter-run Conc. (%CV)
High	604	6.3	12.4
Mid	223	4.8	11.9
Low	71	6.9	20.9

Controls were made by spiking Calibrator into assay diluent at 3 levels within the quantitative range of the assay. Average intra-run concentration %CV is the average %CV of the control replicates within an individual run. Inter-run concentration %CV is the variability of controls across multiple runs.

Spot the Difference®

MSD® U-PLEX Rat Insulin

Tested Samples

Sample Type	Serum (N=12)	EDTA Plasma (N=12)	P800 Plasma (N=9)
Median (µIU/mL)	33.8	29.0	33.1
Range (µIU/mL)	ND–55.1	15.0–113	23.4–62.3
% Detected	92	100	100

Normal serum, EDTA plasma, and P800 plasma samples were diluted 4-fold prior to the assay. ND = non-detectable (<LLOD).

Dilution Linearity

Serum			EDTA Plasma			P800 Plasma			Cell Culture Media		
Fold Dilution	Average % Recovery	% Recovery Range	Fold Dilution	Average % Recovery	% Recovery Range	Fold Dilution	Average % Recovery	% Recovery Range	Fold Dilution	Average % Recovery	% Recovery Range
2	88	72–99	2	87	68–100	2	97	88–118	2	94	87–99
8	111	91–126	8	103	91–107	8	109	102–128	8	97	92–103
16	112	95–122	16	109	60–137	16	108	99–114	16	104	91–128

Normal rat serum, EDTA plasma, P800 plasma, and cell culture media were spiked with Calibrator and tested at different dilutions. Percent recovery at each dilution level was normalized to the dilution-adjusted, 4-fold concentration. Samples may benefit from additional dilution with assay diluent to reduce matrix effects.

% Recovery = (measured concentration / expected concentration) x 100

Spike Recovery

Spike Level	Serum		EDTA Plasma		P800 Plasma		Cell Culture Media	
	Average % Recovery	% Recovery Range	Average % Recovery	% Recovery Range	Average % Recovery	% Recovery Range	Average % Recovery	% Recovery Range
High	100	80–118	96	59–119	88	59–110	120	94–138
Mid	102	83–117	105	79–120	114	107–125	121	97–145
Low	104	93–113	108	92–118	109	100–124	113	98–145

Normal serum, EDTA plasma, P800 plasma, and cell culture media were spiked with Calibrator at 3 levels. Spiked samples were diluted 4-fold to determine the expected concentration of the analyte. Samples may benefit from additional dilution with assay diluent to reduce matrix effects.

% Recovery = (measured concentration / expected concentration) x 100

Specificity

To assess specificity, the Insulin Antibody Set was tested individually against a larger panel of analytes for nonspecific binding (BDNF, C-Peptide, Desghrelin, FGF-21, Ghrelin (octanoylSer3), GLP-1 (7-36), GLP-1 (9-36), Glucagon, Insulin, Leptin, PYY (3-36)). Nonspecific binding was less than 0.5%.

% Nonspecificity = (nonspecific signal / specific signal) x 100

Diluent Compatibility

The data included in this document were collected with Assay Diluent 13 (supplemented with 1,000 KIU/mL Aprotinin [provided] and 100 µM diprotin A [not provided]) and Antibody Diluent 11. MSD offers a range of assay and antibody diluents for separate purchase. Depending on your assay needs, other diluents may be tested. Diprotin A should be purchased separately.

Assay Components

Calibrator: Insulin is included in Calibrator 19. The Insulin Calibrator is a full length recombinant protein expressed in *E. coli*.
Antibodies: The U-PLEX Rat Insulin Assay uses a mouse monoclonal antibody for capture and a mouse monoclonal antibody for detection.
Assay generation: A

Note: This datasheet contains representative assay performance data. In custom multiplex formats, the assay may perform differently from the representative data shown.