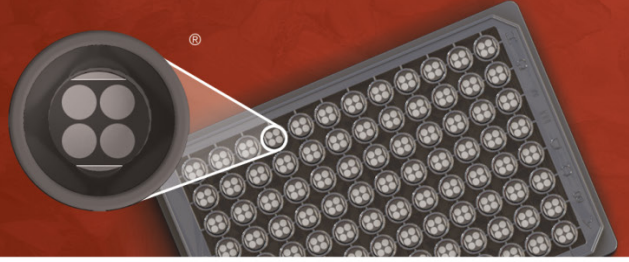
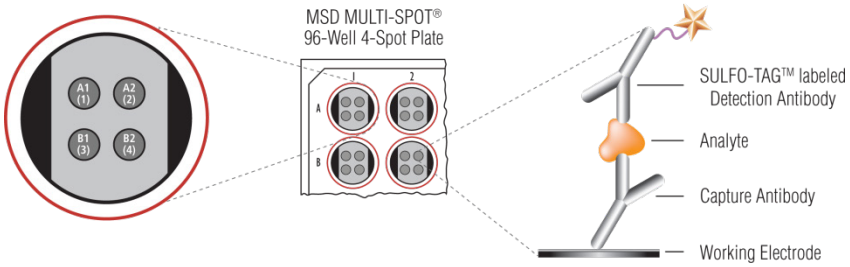
MSD® Phospho-p38 (Thr180/Tyr182) Assay Whole Cell Lysate Kit

For quantitative determination in human, non-human primate, mouse, and rat whole-cell lysate samples



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

1. Phospho-p38
2. *BSA blocked*
3. Phospho-JNK
4. Phospho-ERK1/2



The serine/threonine kinase p38, also known as RK, SAPK2A, and CSBP, is involved in mediating cellular responses to inflammatory cytokines and environmental stresses such as osmotic shock and UV light.[1] Four isoforms (α, β, γ, δ) of p38 have been identified. Activation of p38 by phosphorylation of threonine 180 and tyrosine 182 is controlled by several upstream kinases including MKK3, MKK6, and MKK4 (SEK).[2] Activated p38 in turn can phosphorylate MAPKAPK2, PRAK kinase, and the transcription factors ATF-2, MAX, CHOP, and MEF2.[3] The p38 signaling pathway regulates various biological processes, including cytokine production, transcriptional regulation, cell proliferation, cell differentiation, and apoptosis.[3] The MSD Phospho-p38 (Thr180/Tyr182) assay is available on 96-well, 4-spot plates. This datasheet outlines the performance of the assay.

Catalog Number

Phospho-p38 (Thr180/Tyr182) Kit	
Kit Size	Catalog #
5 plates	K150CYD-2

Ordering Information

MSD Customer Service
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Scientific Support

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Typical Data

Representative results for the Phospho-p38 (Thr180/Tyr182) Kit are illustrated below. The signal and ratio values provided are examples; individual results will vary depending upon the samples tested. Western blot analyses of each lysate type are shown for comparison.

Cell lysate from growing Jurkat cells treated with 50 nM calyculin A and 200 nM PMA for 15 minutes to stimulate phosphorylation (positive) or cell lysate from growing Jurkat treated cells treated with 1 µM rapamycin for 3 hours to inhibit phosphorylation (negative) were added to MSD MULTI-SPOT®, 4-spot plates coated with anti-phospho-p38 (Thr180/Tyr182) antibody on one of the four spatially distinct electrodes in each well. Phospho-p38 (Thr180/Tyr182) was detected with anti-total p38 antibody conjugated with MSD SULFO-TAG™ label.

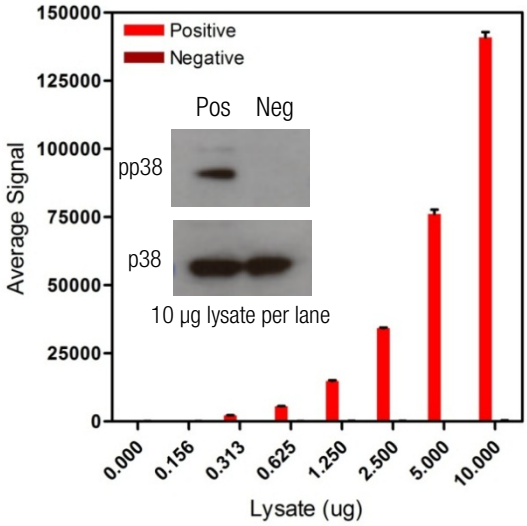

Figure 1: *Sample data generated with the Phospho-p38 (Thr180/Tyr182) Assay. Increased signal for phospho-p38 (Thr180/Tyr182) was observed with phospho-p38 positive cell lysates. The Phospho-p38 (Thr180/Tyr182) Assay provides a measure of the data obtained with the traditional Western blot.*

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

Lysate Titration

Data for positive (P) and negative (N) cell lysates assayed with the Phospho-p38 (Thr180/Tyr182) Kit are presented below.

Lysate	Positive			Negative			P/N
(µg)/well	Average Signal	StdDev	%CV	Average Signal	StdDev	%CV	
0	95	4	4.5	93	22	23.7	
0.156	543	18	3.3	80	14	17.7	7
0.313	2245	47	2.1	106	1	0.7	21
0.625	5570	68	1.2	96	26	27.4	58
1.25	14 816	332	2.2	163	7	4.3	91
2.5	34 217	237	0.7	181	20	10.9	189
5.0	76 090	1631	2.1	286	18	6.4	266
10	140 859	2039	1.4	326	24	7.4	432

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

The 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

References

1. Rouse J, et al. A novel kinase cascade triggered by stress and heat shock that stimulates MAPKAP kinase-2 and phosphorylation of the small heat shock proteins. Cell. 1994 Sep 23;78(6):1027-37.
2. Raingeaud J, et al. Pro-inflammatory cytokines and environmental stress cause p38 mitogen-activated protein kinase activation by dual phosphorylation on tyrosine and threonine. J Biol Chem. 1995 Mar 31;270(13):7420-6.
3. Zarubin T, Han J. Activation and signaling of the p38 MAP kinase pathway. Cell Res. 2005 Jan;15(1):11-8.