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Company Address

Meso Scale Discovery
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Products Covered

Product Option	Catalog Numbers			Description
	1-Plate Kit	5-Plate Kit	25-Plate Kit	
MAP Kinase Panel v2 Kit	K15768U-1	K15768U-2	K15768U-4	MAP Kinase panel

The product insert and certificates of analysis for T-PLEX MAP Kinase Panel v2 Kit can be found at https://www.mesoscale.com/en/products_and_services/assay_kits. For a complete list of products, please visit our website at www.mesoscale.com.

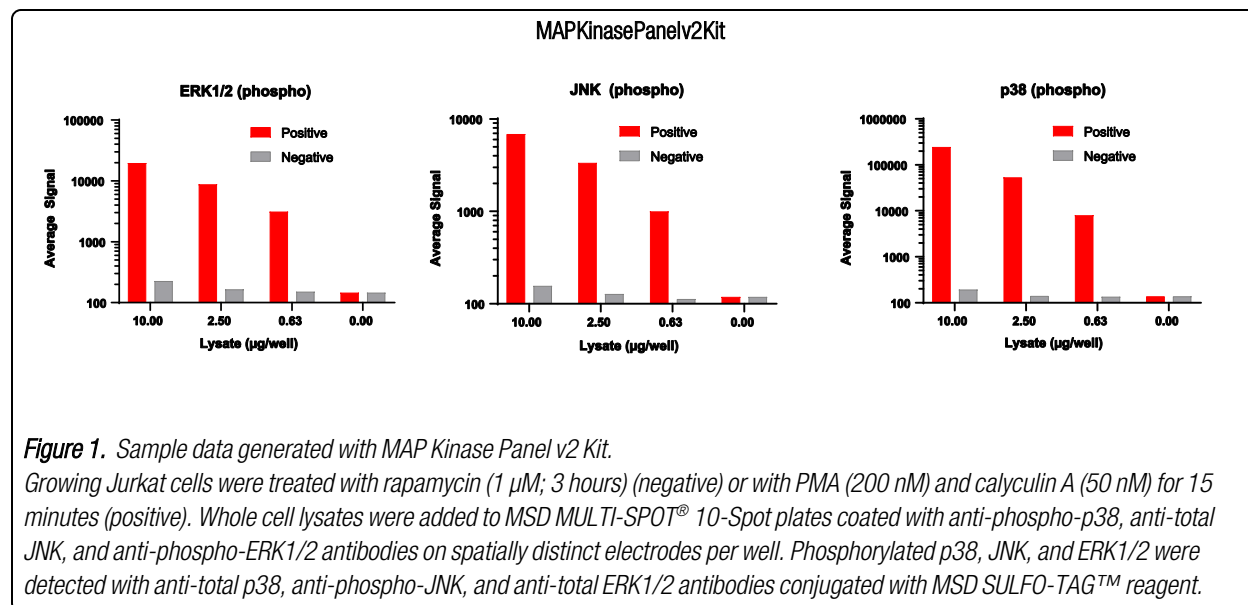
Introduction

MAP (Mitogen-Activated Protein) kinases are a family of evolutionarily conserved eukaryotic serine/threonine protein kinases that link receptors on the cell surface to important intracellular regulatory targets. MAP kinases also elicit an intracellular effect in response to physical and chemical cellular stress. MAP kinase cascades within the cell are composed of a series of proteins, the first of which is a MAP kinase kinase kinase (MAPKKK).¹ The MAPKKK is activated by phosphorylation in response to growth factors, mitogens, inflammatory cytokines, G-protein-coupled receptors (GPCRs), or stress. The MAPKKK in turn phosphorylates MAPKK, which then phosphorylates MAPK.² The activated terminal MAPK translocates into the nucleus, thereby exerting an effect on gene transcription. Through these pathways, the cell regulates responses leading to cell proliferation and differentiation, development, inflammation, and cell survival or apoptosis.² ERK1/2, p38, and JNK are all MAP kinases, activated by the MAPK kinases MEK1/2, MKK3/6, and MKK4/7, respectively.² Because these pathways are critical for the regulation of cell growth and survival, the MAP kinase family of enzymes offers desirable targets for the development of anti-cancer therapeutics.³

The T-PLEX® MAP Kinase Panel v2 Kit is available on 96-well SECTOR™ plates. This datasheet outlines the performance of the assay.

Typical Data

Representative results for the MAP Kinase Panel v2 Kit are illustrated in Figure 1. The signal and ratio values below are example data; individual results may vary depending upon the samples tested. Increased signals for phosphorylated forms of p38, ERK1/2, and JNK were observed with only Phospho-MAPK positive cell lysate. Signals for negative lysate remained low.



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MSD[®] T-PLEX MAP Kinase Panel v2 Kit

Western Blot Comparison

Western blot analyses of each lysate type were performed with p38 (phospho), ERK1/2 (phospho), and JNK (phospho) antibodies and are shown in Figure 2. The MAP Kinase Panel v2 Kit provides a measure of the data obtained with the traditional Western blot.

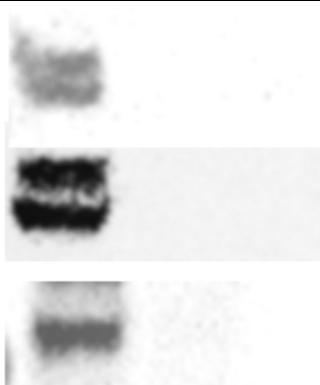


Figure 2. Western blot analyses of each lysate type described in Figure 1 were performed with ERK1/2 (phospho), and JNK (phospho), and p38 (phospho) antibodies for comparison.

Lysate Titration

Data for positive and negative Jurkat cell lysates using the MAP Kinase Panel v2 Kit are presented below.

	Lysate (µg/mL)	Positive		Negative		Pos/Neg Fold Change
		Avg Signal	CV (%)	Avg Signal	CV (%)	
ERK1/2 (phospho)	0	144	7.4	—	—	—
	0.625	3,092	5.3	150	7.4	20.6
	2.5	8,701	5.1	164	6.8	53.1
	10	19,492	4.7	225	4.4	87.9
JNK (phospho)	0	118	8.7	—	—	—
	0.625	994	6	112	6.8	8.9
	2.5	3,330	5.3	127	5.7	26.3
	10	6,831	7.5	155	7.1	43.9
p38 (phospho)	0	135	8.5	—	—	—
	0.625	7,936	2.3	133	12.4	60
	2.5	52,575	2.5	139	6.2	379
	10	242,723	3.9	191	2.9	1,299

Dash (—) = not applicable.

References

1. Keshet Y, Seger R. The MAP kinase signaling cascades: a system of hundreds of components regulates a diverse array of physiological functions. *Mol Cancer Ther. Methods Mol Biol.* 2010;661:3-38.
2. Zhang YL, Dong C. MAP kinases in immune responses. *Cell Mol Immunol.* 2005 Feb;2(1):20-7.
3. Dhillon AS, et al. MAP kinase signalling pathways in cancer. *Oncogene.* 2007 May 14;26(22):3279-90.

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