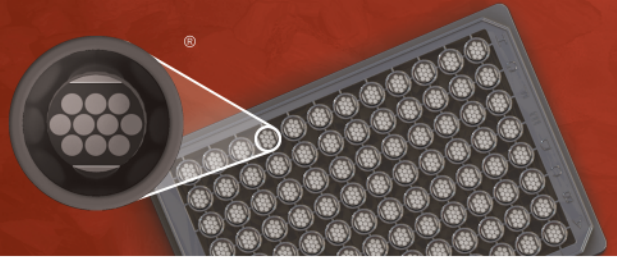
T-PLEX®

Phospho-STAT3 (Tyr705)



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Ordering Information

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This datasheet provides information for the T-PLEX® Phospho-STAT3 (Tyr705) v2 Kit.

Product Option	Format	Catalog Numbers			Description
		1-Plate Kit	5-Plate Kit	25-Plate Kit	
Phospho-STAT3 (Tyr705) v2 Kit	Singleplex	K150AXPD-1	K150AXPD-2	K150AXPD-4	Detection of Phospho-STAT3 (Tyr705)

Phospho-STAT3 (Tyr705) can also be measured with the following kit:

Phospho-STAT Panel	Multiplex	K15758D-1	K15758D-2	K15758D-4	Detection of Phospho-STAT3 (Tyr705), Phospho-STAT4 (Tyr693), and Phospho-STAT5a,b

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Signal transducer and activator of transcription 3 (STAT3) is one of a family of cytoplasmic transcription factors activated by cytokines, growth factors, and hormones.[1] Phosphorylation of STAT3 on tyrosine 705 results in its activation and subsequent dimerization, nuclear translocation, and DNA binding.[1,2] In response to cellular stimulation by cytokines, STAT3 phosphorylation is mediated through the JAK family of receptor associated tyrosine kinases, most notably JAK1.[1] Growth factor receptors with intrinsic tyrosine kinase activities may phosphorylate STAT3 directly, and the non-receptor tyrosine kinase SRC has been shown to phosphorylate STAT3 as well.[2,3] Activated STAT3 has been shown to play a critical role in cellular processes including proliferation, tissue-dependent cell survival of apoptosis, and embryonic development and organogenesis.[1,4] Constitutively activated STAT3 has been observed in breast, skin, prostate, and lung cancers.[5]

Phospho-STAT3 (Tyr705) Assay Kits

MESO SCALE DISCOVERY® T-PLEX assay kits provide a rapid and convenient method for measuring the levels of biomarkers within a single, small-volume sample. The T-PLEX Phospho-STAT3 (Tyr705) assay has the following characteristics:

- This kit measures phosphorylated human STAT3 (Tyr705). It can also be used to measure phosphorylated mouse and rat STAT3 (Tyr705).
- Phospho-STAT3 (Tyr705) can be measured using the singleplex T-PLEX Phospho-STAT3 (Tyr705) v2 Kit or multiplex T-PLEX Phospho-STAT Panel Kit.
- The T-PLEX Phospho-STAT3 (Tyr705) v2 Kit is provided on 96-well plates.
- The SECTOR™ plates used for the Phospho-STAT3 (Tyr705) v2 Kit can be read on the MESO® SECTOR S 600, MESO SECTOR® S 600MM, MESO QuickPlex® SQ 120, and MESO QuickPlex SQ 120MM instruments.
- While this kit detects analyte in human, mouse, and rat lysates, the name specifies the phosphorylation site in the human protein. The phosphorylated amino acid number in mouse and rat orthologs may differ from human.

This datasheet outlines the performance of the assay.

Source

Information on capture and detection antibodies used in the Phospho-STAT3 (Tyr705) v2 Kit is listed below. The antibodies used in the Phospho-STAT3 (Tyr705) v2 Kit cross-react with human, mouse, and rat cell lysates.

Analyte	Phospho-specific Antibody	Capture Antibody	Detection Antibody	Assay Generation
Phospho-STAT3 (Tyr705)	Detection	Mouse Monoclonal	Rabbit Monoclonal	D

Typical Data

Representative results for the Phospho-STAT3 (Tyr705) v2 Kit are illustrated in Figure 1. The signal values provided are examples; individual results will vary depending upon the samples tested. Western blot analysis of each lysate type is shown for comparison.

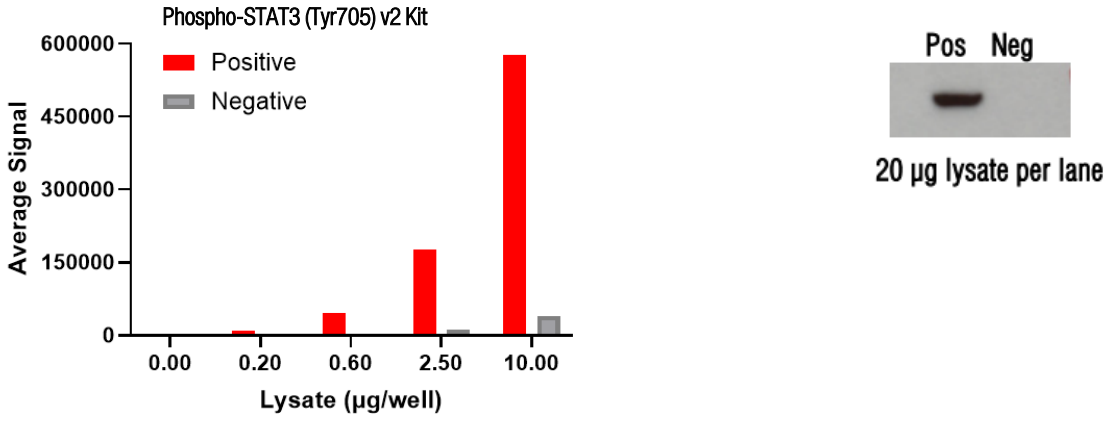

Figure 1. *Sample data generated with Phospho-STAT3 (Tyr705) v2 Kit.*
Confluent HeLa cells (negative) were pretreated with sodium vanadate (1 mM; 4 hours) and stimulated with Oncostatin M (40 ng/mL; 5 minutes) (positive). Whole cell lysates (MSD catalog number C10KQ-1) were added to MSD MULTI-SPOT® plates coated with anti-STAT3 antibody on one of the ten spots in each well. Phospho-STAT3 (Tyr705) was detected with anti-phospho-STAT3 (Tyr705) antibody conjugated with MSD SULFO-TAG™ reagent. Increased signal is observed with the titration of positive control lysates from treatment. Signal for negative control lysates from confluent cells remains low throughout the titration. The Phospho-STAT3 (Tyr705) v2 Kit enables quantitative measurement as an alternative to traditional Western blotting.

Lysate Titration

Average signal for positive and negative control cell lysates and positive/negative ratio using the Phospho-STAT3 (Tyr705) v2 Kit are presented below.

Lysate (µg/well)	Positive	Negative	Positive/Negative
0.00	136	136	—
0.63	52,353	3,571	15
2.50	199,726	13,776	14
10.00	537,550	40,965	13

Dash (—) = not applicable.

References

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3. Yu CL, Meyer DJ, Campbell GS, et al. Enhanced DNA-binding activity of a Stat3-related protein in cells transformed by the Src oncoprotein. Science. 1995;269(5220):81-83.
4. Takeda K, Kaisho T, Yoshida N, et al. Targeted disruption of the mouse Stat3 gene leads to early embryonic lethality. Proc Natl Acad Sci U S A. 1997 Apr 15;94(8):3801-3804.
5. Pedranzini L, Leitch A, Bromberg J. Stat3 is required for the development of skin cancer. J Clin Invest. 2004 Sep;114(5):619-622.