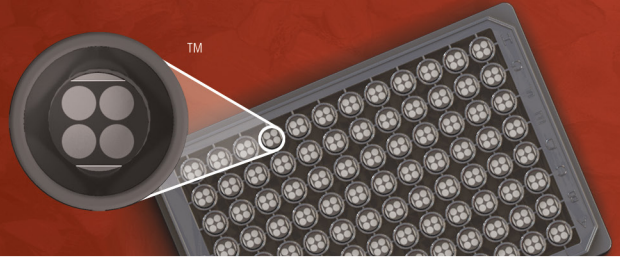
# MSD® Phospho-STAT3 (Tyr705) Assay Whole Cell Lysate Kit

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



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

## Catalog Numbers

| Phospho-STAT3 (Tyr705) Assay: Whole Cell Lysate Kit | |
|---|---|
| Kit size | |
| 1 plate | K150DID-1 |
| 5 plates | K150DID-2 |
| 20 plates | K150DID-3 |

| Phospho-STAT3 (Tyr705) Whole Cell Lysate Set | |
|---|---|
| 200 µg | C11DI-1 |

## Ordering information

MSD Customer Service
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## Company Address

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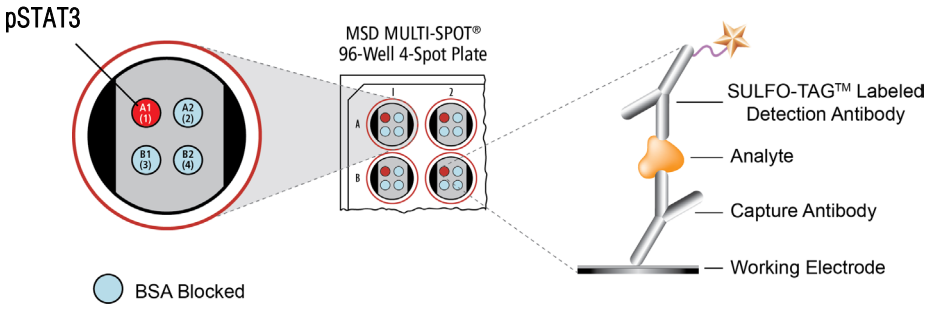
**www.mesoscale.com®**

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




**STAT3** is one of a family of cytoplasmic transcription factors activated by cytokines, growth factors, and hormones. Phosphorylation of STAT3 on tyrosine 705 results in its activation and subsequent dimerization, nuclear translocation, and DNA binding. In response to cellular stimulation by cytokines, STAT3 phosphorylation is mediated through the JAK family of receptor associated tyrosine kinases, most notably JAK1. Growth factor receptors with intrinsic tyrosine kinase activities may phosphorylate STAT3 directly, and the non-receptor tyorsine kinase SRC has been shown to phophorylate STAT3 as well. 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. Constitutively activated STAT3 has been observed in breast, skin, prostate, lung, and breast cancers.

The MSD Phospho-STAT3 (Tyr705) Assay is available on 96-well 4-Spot plates. This datasheet outlines the performance of the assay.

## Typical Data

Representative results for the Phospho-STAT3 (Tyr705) Assay are illustrated below. The signal and ratio values provided below are example data; individual results may vary depending upon the samples tested. Western blot analyses of each lysate type were performed with phospho-STAT3 (Tyr705) and total STAT3 antibodies and are shown below for comparison.
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 were added to MSD MULTI-SPOT® 4-Spot plates coated with anti-total STAT3 antibody on one of the four spatially distinct electrodes per well. Phosphorylated STAT3 was detected with anti-phospho-STAT3 (Tyr705) antibody conjugated with MSD SULFO-TAG™ reagent.

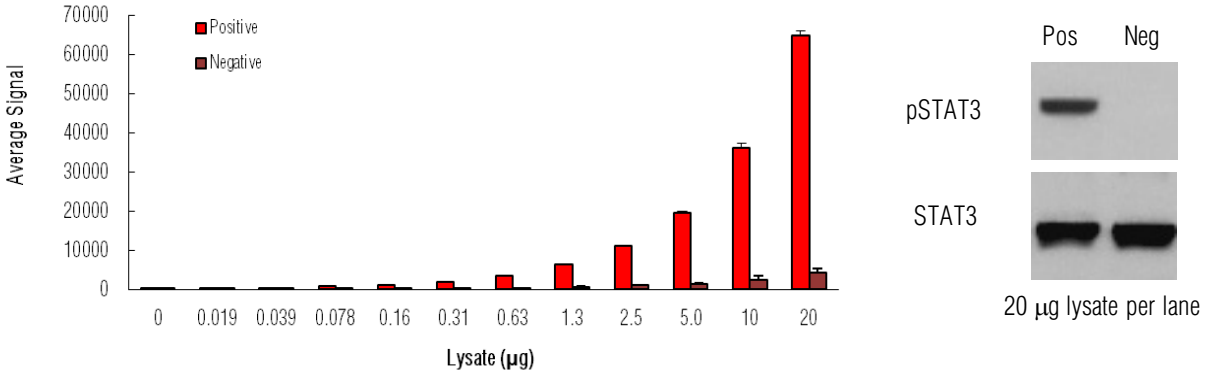



**Fig. 1:** Sample data generated with the MULTI-ARRAY® Phospho-STAT3 (Tyr705) Assay. Increased signal is observed with the titration of pSTAT3 positive cell lysate. Signal for negative lysate remains low throughout the titration. The Phospho-STAT3 (Tyr705) Assay provides a quantitative measure of the data obtained with the traditional Western blot.

## Lysate Titration

Data for pSTAT3 positive and negative HeLa cell lysates using the MULTI-ARRAY Phospho-STAT3 (Tyr705) Assay are presented below.

| Lysate (µg) | Positive | | | Negative | | | P/N |
|---|---|---|---|---|---|---|---|
| | Average Signal | StdDev | %CV | Average Signal | StdDev | %CV | |
| 0 | 120 | 9 | 7.2 | 120 | 9 | 7.2 | |
| 0.019 | 269 | 10 | 3.7 | 116 | 5 | 4.6 | 2.3 |
| 0.039 | 428 | 20 | 4.7 | 134 | 27 | 20.0 | 3.2 |
| 0.078 | 709 | 23 | 3.2 | 141 | 4 | 3.0 | 5.0 |
| 0.16 | 1224 | 58 | 4.7 | 169 | 9 | 5.2 | 7.2 |
| 0.31 | 1978 | 61 | 3.1 | 216 | 6 | 2.9 | 9.2 |
| 0.63 | 3582 | 116 | 3.2 | 300 | 2 | 0.7 | 12 |
| 1.3 | 6294 | 241 | 3.8 | 459 | 4 | 0.9 | 14 |
| 2.5 | 11105 | 166 | 1.5 | 971 | 28 | 2.8 | 11 |
| 5.0 | 19524 | 376 | 1.9 | 1265 | 23 | 1.8 | 15 |
| 10 | 36095 | 1204 | 3.3 | 2335 | 71 | 3.1 | 15 |
| 20 | 64751 | 1119 | 1.7 | 4287 | 127 | 3.0 | 15 |

## MSD Advantage

- **Multiplexing:** Multiple analytes can be measured in one well using typical sample amounts of 25 µg/well 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 signal (light)
- **Simple protocols:** Only labels near the electrode surface are detected, enabling no-wash assays
- **Flexibility:** Labels are stable, non-radioactive, and conveniently conjugated to biological molecules
- **High sensitivity and precision:** Multiple excitation cycles of each label enhance light levels and improve sensitivity

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

## References using MSD's platform for the measurement of phosphoproteins


1. Fursov N, Gates IV, Panavas T, Giles-Komar J, Powers G. Development and Utilization of Activated STAT3 Detection Assays for Screening a Library of Secreted Proteins. Assay Drug Dev Technol. 2011 Aug;9(4):420-9. Epub 2011 Feb 6.
2. Lam LT, Wright G, Davis RE, Lenz G, Farinha P, Dang L, Chan JW, Rosenwald A, Gascoyne RD, Staudt LM. Cooperative signaling through the signal transducer and activator of transcription 3 and nuclear factor-{kappa}B pathways in subtypes of diffuse large B-cell lymphoma. od. 2008 Apr 1;111(7):3701-13. Epub 2007 Dec 26.
3. Gowan SM, Hardcastle A, Hallsworth AE, Valenti MR, Hunter LJ, de Haven Brandon AK, Garrett MD, Raynaud F, Workman P, Aherne W, Eccles SA. Application of meso scale technology for the measurement of phosphoproteins in human tumor xenografts. Assay Drug Dev Technol. 2007 Jun;5(3):391-401.