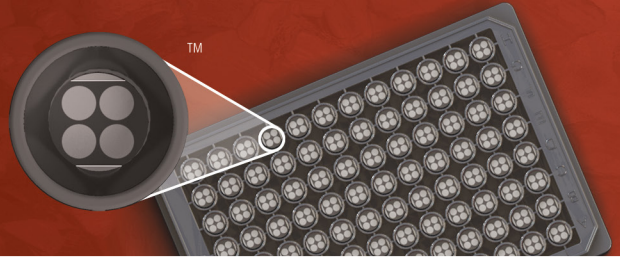
MSD® Total HSP27 Assay Whole Cell Lysate Kit

For quantitative determination in human whole cell lysate samples



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

Catalog Numbers

Total HSP27 Assay: Whole Cell Lysate Kit	
Kit size	
1 plate	K150CTD-1
5 plates	K150CTD-2
20 plates	K150CTD-3

Phospho-HSP27 Whole Cell Lysate Set	
200 µg	C11CS-1

Ordering information

MSD Customer Service
Phone: 1-301-947-2085
Fax: 1-301-990-2776
Email: CustomerService@mesoscale.com

Company Address

MESO SCALE DISCOVERY®
A division of
Meso Scale Diagnostics, LLC.
9238 Gaither Road
Gaithersburg, MD 20877 USA

www.mesoscale.com®

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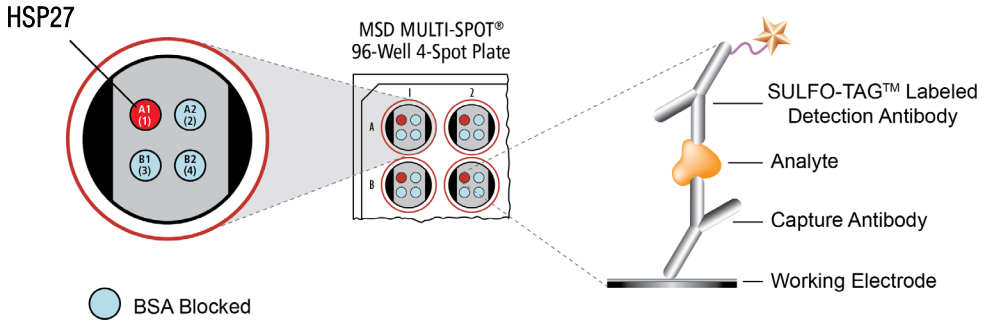

HSP27 (Heat Shock Protein 27) is one of the smaller members of the ubiquitous heat shock protein family whose expression is regulated by cellular stresses, growth factors, and inflammatory cytokines. The function of heat shock protein overexpression is to increase cellular resistance to temperature and oxidative shock, chemicals, and other environmental insults. In addition to changes in expression, HSP27 is phosphorylated on several serines (15, 78, 82) during the stress response. HSP27 is phosphorylated by MAPKAP kinase 2 during induction of the p38 MAP kinase pathway. Following phosphorylation, HSP27 undergoes oligomeric reorganization to facilitate its molecular chaperone, protein scaffolding, and cellular protective functions. HSP27 also functions to inhibit translation during heat shock by binding to initiation factor eIF4G. Due to the diversity of its protein interactions, HSP27 has been implicated in the control of cell growth, prevention of apoptosis, and smooth muscle cell migration and dysfunction.

The MSD Total HSP27 Assay is available on 96-well 4-Spot plates. This datasheet outlines the performance of the assay.

Typical Data

Representative results for the Total HSP27 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-HSP27 (Ser15) and total HSP27 antibodies and are shown below for comparison.
Confluent HeLa cell monolayers (negative) were treated with sorbitol (0.4 M; 30 minutes) (positive). Whole cell lysates were added to MSD MULTI-SPOT® 4-Spot plates coated with anti-total HSP27 antibody on one of the four spatially distinct electrodes within a well. Total HSP27 was detected with anti-total HSP27 antibody conjugated with MSD SULFO-TAG™ reagent.

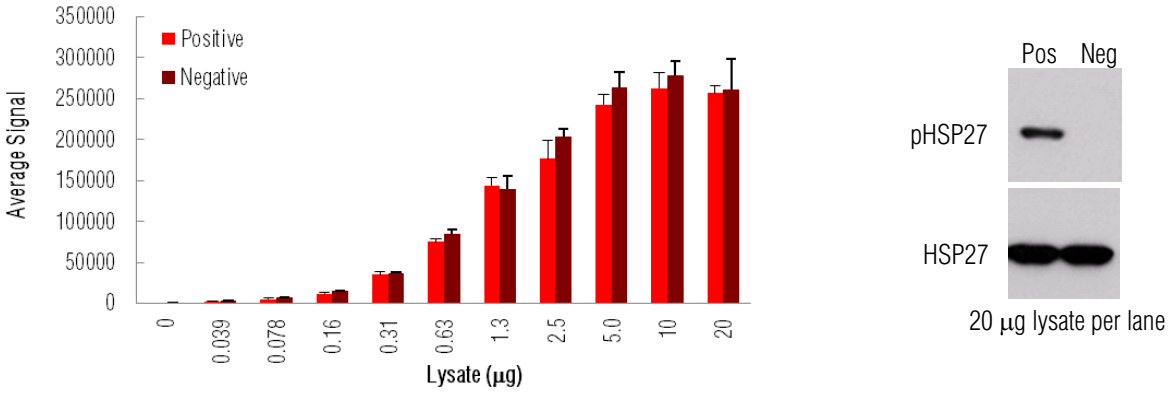

Fig. 1: Sample data generated with the MULTI-ARRAY® Total HSP27 Assay. Increased signal was observed with both pHSP27 positive and negative cell lysates. The Total HSP27 Assay provides a quantitative measure of the data obtained with the traditional Western blot.

Lysate Titration

Data for pHSP27 positive and negative HeLa cell lysates using the MULTI-ARRAY Total HSP27 Assay are presented below.

Lysate (µg)	Positive			Negative			P/N
	Average Signal	StdDev	%CV	Average Signal	StdDev	%CV	
0	67	23	35.1	77	6	8.1	
0.039	2611	442	16.9	3274	356	10.9	0.8
0.078	5377	737	13.7	6879	176	2.6	0.8
0.16	11773	1081	9.2	15515	264	1.7	0.8
0.31	34909	3389	9.7	36529	1831	5.0	1.0
0.63	74935	4509	6.0	84556	5991	7.1	0.9
1.3	143749	10202	7.1	139881	15726	11.2	1.0
2.5	176631	22441	12.7	203067	9403	4.6	0.9
5.0	242428	12974	5.4	263022	18702	7.1	0.9
10	262475	19229	7.3	277949	17122	6.2	0.9
20	256712	9266	3.6	260577	37543	14.4	1.0

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 technology for the measurement of phosphoproteins

1. Singh D, Smyth L, Borrill Z, Sweeney L, Tal-Singer R. A Randomized, Placebo-Controlled Study of the Effects of the p38 MAPK Inhibitor SB-681323 on Blood Biomarkers of Inflammation in COPD Patients. J Clin Pharmacol. 2010 Jan;50(1):94-100. Epub 2009 Oct 30.
2. Hendriks BS, Hua F, Chabot JR. Analysis of mechanistic pathway models in drug discovery: p38 pathway. Biotechnol Prog. 2008 Jan-Feb;24(1):96-109. Epub 2007 Oct 5.
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.