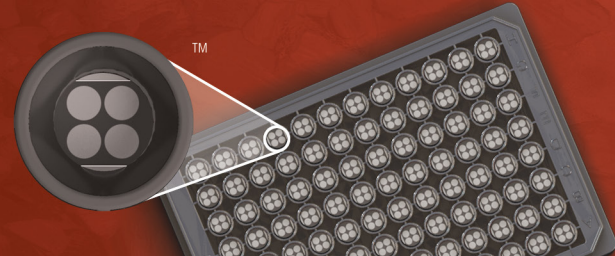


MSD® Total HSP70 Assay Whole Cell Lysate Kit

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 HSP70 Assay: Whole Cell Lysate Kit	
Kit size	
1 plate	K151EVD-1
5 plates	K151EVD-2
20 plates	K151EVD-3

Total HSP70 Whole Cell Lysate Set	
200 µg	C11EV-1

Ordering information

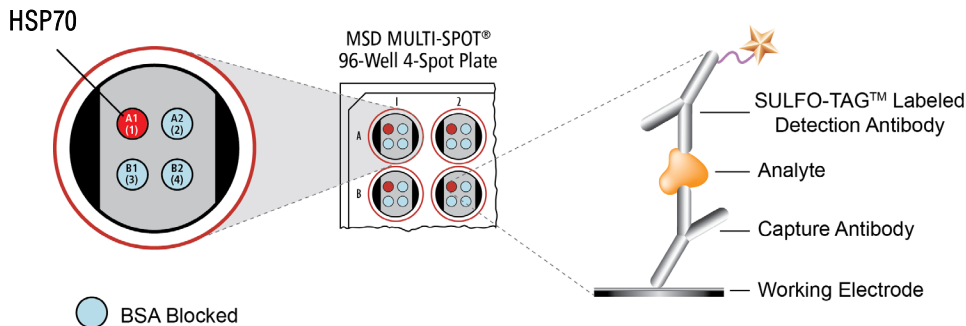
MSD Customer Service
Phone: 1-301-947-2085
Fax: 1-301-990-2776
Email: CustomerService@mesoscale.com

Company Address

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www.mesoscale.com®

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



HSP70 is a 70 kDa family of heat shock proteins (encoded by 11 genes), many of which are inducible, that function as molecular chaperones.¹ In this role, HSP70s assist in folding and stabilization of newly and partially synthesized polypeptides to prevent aggregation before they are completely folded, assist in transmembrane transport of some proteins, prevent aggregation of partially denatured proteins due to thermal and oxidative stress, assist in degradation of damaged and defective proteins, and play a role in inhibiting apoptosis.² HSP70s play a role in cancer and high levels of expression of HSP70 have been associated with negative outcomes in breast, oral, colorectal, prostate, endometrial cancers, and some leukemias.^{3,4} HSP70s also appear to play a role in neurodegenerative diseases such as Alzheimer's Disease, Parkinson's Disease, and Huntington's Disease.⁵ HSP70s play a large role in many different areas of human disease, making them attractive targets for drug development programs, but due to the diversity of actions of the HSP70s it remains a real challenge to design effective drugs with the desired outcomes and not global effects due to modulation of HSP70 activity.⁶

The MSD Total HSP70 Assay is available on 96-well 4-Spot plates. This datasheet outlines the performance of the assay.

Typical Data

Representative results for the Total HSP70 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 analysis of each lysate type was performed with a total HSP70 antibody and is shown below for comparison.

Confluent HeLa cell monolayers (negative) were treated with sorbitol (0.4 M; 30minutes) (positive). Whole cell lysates were added to MSD MULTI-SPOT® 4-Spot plates coated with anti-total HSP70 antibody on one of the four spatially distinct electrodes per well. Total HSP70 was detected with anti-HSP70 antibody conjugated with MSD SULFO-TAG™ reagent.

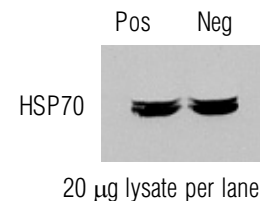
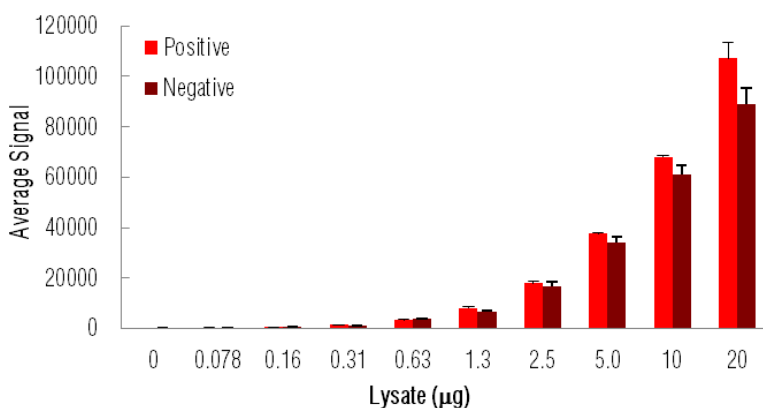


Fig. 1: Sample data generated with the MULTI-ARRAY® Total HSP70 Assay. Increased signal is observed with the titration of both treated and untreated cell lysates. The Total HSP70 Assay provides a quantitative measure of the data obtained with the traditional Western blot.

MSD Phosphoprotein Assays

Lysate Titration

Data for tHSP70 positive and negative HeLa cell lysates using the MULTI-ARRAY Total HSP70 Assay is presented below.

Lysate (μ g)	Positive			Negative			P/N
	Average Signal	StdDev	%CV	Average Signal	StdDev	%CV	
0	88	4	4.8	78	15	19.3	
0.078	335	31	9.1	270	11	4.1	1.2
0.16	633	52	8.1	571	31	5.5	1.1
0.31	1464	104	7.1	1263	62	4.9	1.2
0.63	3389	180	5.3	3776	64	1.7	0.9
1.3	8254	294	3.6	6726	312	4.6	1.2
2.5	17952	871	4.9	16609	1834	11.0	1.1
5.0	37535	676	1.8	34059	2501	7.3	1.1
10	68005	507	0.7	61270	3262	5.3	1.1
20	107118	6296	5.9	88767	6603	7.4	1.2

MSD Advantage

- **Multiplexing:** Multiple analytes can be measured in one well using typical sample amounts of 25 μ g/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

1. Tavarina M, Gabriele T, Kola I, Anderson RL. A hitchhiker's guide to the human Hsp70 family. *Cell Stress Chaperones*. 1996 Apr;1(1):23-8.
2. Kampinga HH, Craig EA. The HSP70 chaperone machinery: J proteins as drivers of functional specificity. *Nat Rev Mol Cell Biol*. 2010 Aug;11(8):579-92.
3. Ciocca DR, Calderwood SK. Heat shock proteins in cancer: diagnostic, prognostic, predictive, and treatment implications. *Cell Stress Chaperones*. 2005; 10:86-103.
4. Rohde M, Daugaard M, Jensen MH, Helin K, Nylandsted J, Jaattela M. Members of the heat-shock protein 70 family promote cancer cell growth by distinct mechanisms. *Genes Dev*. 2005 Mar 1;19(5):570-82.
5. Evans CG, Chang L, Gestwicki JE. Heat shock protein 70 (hsp70) as an emerging drug target. *J Med Chem*. 2010 Jun 24;53(12):4585-602.
6. Patury S, Miyata Y, Gestwicki JE. Pharmacological targeting of the Hsp70 chaperone. *Curr Top Med Chem*. 2009;9(15):1337-51.

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