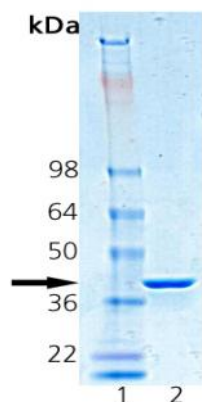


Hsp40 (Hdj1) Recombinant Protein

Product Specifications

Catalog Number:	SPP-400								
Product Description:	Human Recombinant Hsp40								
Format:	Stored in 1x Dulbecco's Phosphate Buffer Saline (DPBS)								
Application:	WB Control: 10 ng of protein recommended (Colorimetric) <i>The optimal dilution for a specific application must be determined by the investigator</i>								
Purity:	>90 % pure as determined by SDS-PAGE and Western blot analyses								
Molecular Weight:	~40 kDa observed								
Concentration:	See product label								
Storage:	Store at -70°C <i>Shipping conditions may differ from the recommended storage temperature</i>								
Related Products:	<table border="0"> <tr> <td>SPA-400</td> <td>Hsp40 Polyclonal Antibody</td> </tr> <tr> <td>SAB-301</td> <td>Goat anti-Rabbit Polyclonal Antibody</td> </tr> <tr> <td>ESP-555</td> <td>Hsp70 Human recombinant Protein</td> </tr> <tr> <td>EKS-700B</td> <td>Hsp70 ELISA Kit</td> </tr> </table>	SPA-400	Hsp40 Polyclonal Antibody	SAB-301	Goat anti-Rabbit Polyclonal Antibody	ESP-555	Hsp70 Human recombinant Protein	EKS-700B	Hsp70 ELISA Kit
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SDS-PAGE Analysis: Lane 1: MWM, Lane 2: 2.0 µg of purified Human Hsp40 Protein (SPP-400).

Background:

Eukaryotic Hsp40, also known as HDJ-1, and bacterial DnaJ belong to the Hsp40 or DnaJ family whose members have a J-domain and various combinations of additional conserved and nonconserved regions. *E. coli* DnaJ consists of two major functional regions. The N-terminal highly conserved 75-amino acid J-domain is mainly responsible for the interaction with DnaK¹. Members of the human and yeast Hsp40 family such as HDJ-1, HDJ-2 and YDJ-1 also have a conserved J domain at the N-terminus. The DnaJ COOH-terminal part containing Gly/Phe-rich, cysteine-rich and less conserved last COOH-terminal regions are involved in the substrate binding^{2,3}. The binding of DnaJ to DnaK is dependent on the ATP binding state of DnaK. DnaJ plays a key catalyst role in the chaperone reaction by stimulating the ATPase activity and activating the substrate binding of Hsp70. The binding of ATP to the ATPase domain of Hsp70 induces a conformational change in the substrate binding domain of Hsp70 which results in an increase in the on/off rate for a substrate polypeptide and a low binding affinity. Subsequent DnaJ-stimulated ATP-hydrolysis involves a further conformation change and conversion of Hsp70 to an ADP form which has a slow on/off rate and relatively high binding affinity for a substrate polypeptide. Recent data also demonstrates that isoforms of the anti-apoptotic protein BAG-1M and BAG-1S stimulate ATP hydrolysis of Hsc70 in an Hsp40-dependent manner through an acceleration of ADP-ATP exchange⁴. Hsp40 co-chaperones are involved in nearly all aspects of protein synthesis and secretion because of their importance in Hsp70 function and they are also thought to have an intrinsic ability to bind and fold some misfolded proteins⁵.

References:

1. Greene, M.K., Maskos, K. and Landry, S.J. (1998) Proc Natl Acad Sci USA **88**, 1565-1569.
2. Buchberrger, A., et al. (1995) J Biol Chem. **270**, 16903-16910.
3. Shi, L., Kataoka, M. and Fink, A.L. (1996) Biochemistry **35**, 3297-3308.
4. Luders, J., et al. (2000) J Biol Chem. **275**, 14817-14823.
5. Hartl, F.U. (1996) Nature **381**, 571-579.

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