

Product datasheet for **MC220030**

Hspa1a (NM_010479) Mouse Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Hspa1a (NM_010479) Mouse Untagged Clone
Tag:	Tag Free
Symbol:	Hspa1a
Synonyms:	hsp68; Hsp70-3; Hsp70.3; hsp70A1; Hsp72
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Cell Selection:	Neomycin



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Fully Sequenced ORF: >MC220030 representing NM_010479
 Red=Cloning site Blue=ORF Orange=Stop codon

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGGATCGCC**

ATGGCCAAGAACACGGCGATCGGCATCGACCTGGGCACCACTACTCGTGCCTGGGCGTGTTCAGCAGC
 GCAAGGTGGAGATCATCGCCAACGACCAGGGCAACCGCACGACCCCCAGCTACGTGGCCTTCACCGACAC
 CGAGCGCCTCATCGGAGACGCCGCAAGAACCAGGTGGCGCTGAACCCGAGAACCCTGTTCGACCGG
 AAGCGGCTGATCGGCCGCAAGTTCGGCGATGCGGTGGTGCAGTCCGACATGAAGCACTGGCCCTCCAGG
 TGGTGAACGACGGCGACAAGCCCAAGGTGCAGGTGAACTACAAGGGCGAGAGCCGGTCTTCTCCCGGA
 GGAGATCTCGTCCATGGTGTGACGAAGATGAAGGAGATCGTGAAGGCGTACCTGGGCCACCCGGTGACC
 AACCGGGTATCAGGTGCCGCTACTTCAACGACTCTCAGCGGCAGGCCACCAAGGACGCGGGCGTGA
 TCGCCGGTCTAACGTGTGCGGATCATCAACGAGCCACGGCGGCCCATCGCCTACGGGCTGGACCG
 GACCGCAAGGGCGAGCGCAACGTGCTCATCTTCGACCTGGGGGCGGCACGTTTCGAGTGTCCATCCTG
 ACGATCGACGACGGCATCTTCGAGGTGAAGGCCACGGCGGGCGACACGCACCTGGGAGGGGAGGACTTCG
 ACAACCGGCTGGTGAAGCACTTCGTTGGAGGAGTTCAAGAGGAAGCACAAGAAGGACATCAGCCAGAACAA
 GCGCGCGGTGCGGCGGTGCGCACTGCGTGTGAGAGGGCCAAGAGGACGCTGTCTCCAGCACCCAGGCC
 AGCCTGGAGATCGACTCTCTGTTTCGAGGGCATCGACTTCTACACATCCATCACGCGGGCGCGGTTCAAG
 AGCTGTGCTCAGACCTGTTCCGCGGCACGCTGGAGCCCGTGGAGAAGGCCTGCGCGACGCCAAGATGGA
 CAAGGCGCAGATCCACGACCTGGTGTGGTGGGCGGCTCGACGCGCATCCCAAGGTGCAGAAGCTGCTG
 CAGGACTTCTTCAACGGGCGGACCTGAACAAGAGCATCAACCCGGACGAGGCGGTGGCCTACGGGGCGG
 CGGTGCAGGCGGCCATCCTGATGGGGGACAAGTCGGAGAACGTCAGGACCTGCTGCTGGACGTGGC
 GCCGCTGTCGCTGGCCCTGGAGACTGCGGGCGGGGTGATGACGGCGCTCATCAAGCGCAACTCCACCATC
 CCCACCAAGCAGACGACACCTTACCACCTACTCGGACAACCAGCCCGGGTGTGATCCAGGTGTACG
 AGGGCGAGAGGGCCATGACGCGGACAACAACCTGCTGGGGCGCTTCAACTGAGCGGCATCCCGCCGGC
 GCCCAGGGGCGTGCCACAGATCGAGGTGACCTTCGACATCGACGCCAACGGCATCCTGAACGTCACGGCC
 ACCGACAAGAGCACCGGCAAGGCCAACAAGATCACCATCACCAACGACAAGGGCCGCTGAGCAAGGAGG
 AGATCGAGCGCATGGTGCAGGAGCCGAGCGCTACAAGGCCGAGGACGAGGTGCAGCGGCACAGGGTGGC
 CGCAAGAACGCGCTCGAATCCTATGCCTTCAACATGAAGAGCGCCGTGGAGGACGAGGGTCTCAAGGGC
 AAGCTCAGCGAGGCTGACAAGAAGAAGGTGCTGGACAAGTGCCAGGAGGTATCTCTGGCTGGACTCCA
 ACACGCTGGCCGACAAGGAGGAGTTCGTGCACAAGCGGGAGGAGCTGGAGCGGGTGTGCAGCCCATCAT
 CAGTGGGCTGTACCAGGTTGCGGGTCTCTGGGGCTGGGGGCTTCGGGGCCAGGCGCCCAAGGGAGCC
 TCTGGCTCAGGACCCACCATCGAGGAGGTGGAT**TAG**

ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAATGATATCCTGGATT
 ACAAGGATGACGACGATAAGGTTTAA

- Restriction Sites:** SgfI-MluI
- ACCN:** NM_010479
- Insert Size:** 1926 bp
- OTI Disclaimer:** Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).
- Components:** The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

Reconstitution Method:

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

RefSeq: [NM_010479.2](#), [NP_034609.2](#)

RefSeq Size: 2798 bp

RefSeq ORF: 1926 bp

Locus ID: 193740

UniProt ID: [Q61696](#)

Cytogenetics: 17 18.51 cM

Gene Summary:

Molecular chaperone implicated in a wide variety of cellular processes, including protection of the proteome from stress, folding and transport of newly synthesized polypeptides, activation of proteolysis of misfolded proteins and the formation and dissociation of protein complexes. Plays a pivotal role in the protein quality control system, ensuring the correct folding of proteins, the re-folding of misfolded proteins and controlling the targeting of proteins for subsequent degradation. This is achieved through cycles of ATP binding, ATP hydrolysis and ADP release, mediated by co-chaperones. The co-chaperones have been shown to not only regulate different steps of the ATPase cycle, but they also have an individual specificity such that one co-chaperone may promote folding of a substrate while another may promote degradation. The affinity for polypeptides is regulated by its nucleotide bound state. In the ATP-bound form, it has a low affinity for substrate proteins. However, upon hydrolysis of the ATP to ADP, it undergoes a conformational change that increases its affinity for substrate proteins. It goes through repeated cycles of ATP hydrolysis and nucleotide exchange, which permits cycles of substrate binding and release. The co-chaperones are of three types: J-domain co-chaperones such as HSP40s (stimulate ATPase hydrolysis by HSP70), the nucleotide exchange factors (NEF) such as BAG1/2/3 (facilitate conversion of HSP70 from the ADP-bound to the ATP-bound state thereby promoting substrate release), and the TPR domain chaperones such as HOPX and STUB1. Maintains protein homeostasis during cellular stress through two opposing mechanisms: protein refolding and degradation. Its acetylation/deacetylation state determines whether it functions in protein refolding or protein degradation by controlling the competitive binding of co-chaperones HOPX and STUB1. During the early stress response, the acetylated form binds to HOPX which assists in chaperone-mediated protein refolding, thereafter, it is deacetylated and binds to ubiquitin ligase STUB1 that promotes ubiquitin-mediated protein degradation. Regulates centrosome integrity during mitosis, and is required for the maintenance of a functional mitotic centrosome that supports the assembly of a bipolar mitotic spindle. Enhances STUB1-mediated SMAD3 ubiquitination and degradation and facilitates STUB1-mediated inhibition of TGF-beta signaling. Essential for STUB1-mediated ubiquitination and degradation of FOXP3 in regulatory T-cells (Treg) during inflammation. Negatively regulates heat shock-induced HSF1 transcriptional activity during the attenuation and recovery phase period of the heat shock response.[UniProtKB/Swiss-Prot Function]