

Product datasheet for **MG227368**

Hspa1a (NM_010479) Mouse Tagged ORF Clone

Product data:

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|---------------------------|---|
| Product Type: | Expression Plasmids |
| Product Name: | Hspa1a (NM_010479) Mouse Tagged ORF Clone |
| Tag: | TurboGFP |
| Symbol: | Hspa1a |
| Synonyms: | hsp68; Hsp70-3; Hsp70.3; hsp70A1; Hsp72 |
| Mammalian Cell Selection: | Neomycin |
| Vector: | pCMV6-AC-GFP (PS100010) |
| E. coli Selection: | Ampicillin (100 ug/mL) |



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ORF Nucleotide Sequence:

>MG227368 representing NM_010479
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGGATCGCC**

ATGGCCAAGAACACGGCGATCGGCATCGACCTGGCACCACCTACTCGTGCCTGGGCGTGTTCAGCAGC
 GCAAGGTGGAGATCATCGCAACGACCAGGGCAACCGCACGACCCAGCTACGTGGCCTTCACCGACAC
 CGAGCGCCTCATCGGAGACGCCGCAAGAACCAGGTGGCGCTGAACCCGAGAACCCTGTTCAGCGG
 AAGCGGCTGATCGGCCGCAAGTTCGGCGATGCGGTGGTGCAGTCCGACATGAAGCACTGGCCCTCCAGG
 TGGTGAACGACGGCGACAAGCCCAAGGTGCAGGTGAACAAGGGCGAGAGCCGGTCTTCTCCCGGA
 GGAGATCTCGTCCATGGTGTGACGAAGATGAAGGAGATCGTGAAGGCGTACCTGGGCCACCCGGTGACC
 AACCGGGTATCACGGTCCCGCCTACTTCAACGACTCTCAGCGGCAGGCCACCAAGGACGCGGGCGTGA
 TCGCCGGTCTAACGTGTGCGGATCATCAACGAGCCACGGCGGCCCATCGCCTACGGGCTGGACCG
 GACCGGCAAGGGCGAGCGCAACGTGCTCATCTTCGACCTGGGGGCGGCACGTTTCAGCTGTCCATCCTG
 ACGATCGACGACGGCATCTTCGAGGTGAAGGCCACGGCGGGCGACACGCACCTGGGAGGGGAGGACTTCG
 ACAACCGGCTGGTGGCCACTTCGTGGAGGAGTTCAAGAGGAAGCACAAGAAGGACATCAGCCAGAACAA
 GCGCGCGGTGCGGCGGTGCGCACTGCGTGTGAGAGGGCAAGAGGACGCTGTCTCCAGCACCCAGGCC
 AGCCTGGAGATCGACTCTCTGTTTCGAGGGCATCGACTTCTACACATCCATCACGCGGGCGCGGTTCAAG
 AGCTGTGCTCAGACCTGTTCCGCGGCACGCTGGAGCCCGTGGAGAAGGCCTGCGCGACGCCAAGATGGA
 CAAGGCGCAGATCCACGACCTGGTGTGGTGGGCGGCTCGACGCGCATCCCCAAGGTGCAGAAGCTGCTG
 CAGGACTTCTTCAACGGGCGGACCTGAACAAGAGCATCAACCCGGACGAGGCGGTGGCCTACGGGGCGG
 CGGTGCAGGCGGCCATCCTGATGGGGGACAAGTCCGGAACGTCAGGACCTGCTGCTGGACGTGGC
 GCCGCTGTGCTGGCCCTGGAGACTGCGGGCGGCGTGTGACGCGCTCATCAAGCGCAACTCCACCATC
 CCCACCAAGCAGACGACACCTTACCACCTACTCGGACAACCAGCCCGGGTGTGATCCAGGTGTACG
 AGGGCGAGAGGGCCATGACGCGCGACAACAACCTGCTGGGGCGCTTCAACTGAGCGGCATCCCGCCGGC
 GCCCAGGGGCGTGCCACAGATCGAGGTGACCTTCGACATCGACGCCAACGGCATCCTGAACGTCACGGCC
 ACCGACAAGACCACCGCAAGGCCAACAAGATCACCATCACCAACGACAAGGGCCGCTGAGCAAGGAGG
 AGATCGAGCGCATGGTGCAGGAGCCGAGCGCTACAAGGCCGAGGACGAGGTGCAGCGGACAGGGTGGC
 CGCAAGAACGCGCTCGAATCCTATGCCTCAACATGAAGAGCGCCGTGGAGGACGAGGGTCTCAAGGGC
 AAGCTCAGCGAGGCTGACAAGAAGAAGGTGCTGGACAAGTGCCAGGAGGTATCTCTGGCTGGACTCCA
 ACACGCTGGCCGACAAGGAGGAGTTCGTGCACAAGCGGGAGGAGCTGGAGCGGGTGTGCAGCCCATCAT
 CAGTGGGCTGTACCAGGTGCGGGTGTCTCTGGGGCTGGGGGCTTCGGGGCCAGGCGCCCAAGGGAGCC
 TCTGGCTCAGGACCCACCATCGAGGAGGTGGAT

ACGCGTACGCGGGCCGCTCGAG - GFP Tag - GTTTAA

Protein Sequence:

>MG227368 representing NM_010479
 Red=Cloning site Green=Tags(s)

MAKNTAIGIDLGTYSVGVFQHGKVEIIANDQGNRTTPSYVAFDTERLIGDAAKNQVALNPQNTVFDA
 KRLIGRKFDAVQSDMKHWPFFVNDGDKPKVQVNYKGESRFFPEEISSMVLTKMKEIAEAYLGHPVT
 NAVITVPAYFNDSQRQATKDAGVIAGLNVLRIINEPTAAAIAAYGLDRTGKGERNVLIFDLGGTFDVSIL
 TIDDGIFEVKATAGDTHLGGEDFDNRLVSHFVEEFKRKHKKDISQNKRAVRRRLTACERAKRTLSSTQA
 SLEIDSLFEGIDFYTSITRARFEELCSDLFRGTLEPVEKALRDAKMDKAQIHDLVLVGGSTRIPKVQKLL
 QDFNFGRDLNKSINPDEAVAYGAAVQAAILMGDKSENVQDLLLDVAPLSLGLTAVGGVMTALIKRNSTI
 PTKQTQFTTYSNQPGLVIQVYEGERAMTRDNNLLGRFELSGIPPAPRGVPIEVTFDIDANGILNVTA
 TDKTTGKANKITITNDKGRLSKEEIERMVQEAERYKAEDEVQRDRVAAKNALESYAFNMKSAVEDEGLKG
 KLSEADKKKVLDKCQEVISWLDSENTLADKEEFVHKREELERVCSPIISGLYQGAGAPGAGGFGAQPKA
 SSGSPTIEEVD

TRTRPLE - GFP Tag - V

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|-------------------------------|---|
| OTI Disclaimer: | The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. More info |
| OTI Annotation: | This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene. |
| 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: | <ol style="list-style-type: none"> 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_010479.1 |
| 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]