

Product datasheet for **MG227368**

Hspa1a (NM_010479) Mouse Tagged ORF Clone

Product data:

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
 GCCCGCATCGCC

ATGGCCAAGAACACGGCGATCGGCATCGACCTGGGACCACTACTCGTGCCTGGGCGTGTTCAGCAGC
 GCAAGGTGGAGATCATCGCAACGACCAGGGCAACCGCACGACCCAGCTACGTGGCCTTCACCGACAC
 CGAGCGCCTCATCGGAGACGCCGCAAGAACAGGTGGCGCTGAACCCGAGAACACCGTGTTCAGCAGC
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 ACACGCTGGCCGACAAGGAGGAGTTCGTGCACAAGCGGGAGGAGCTGGAGCGGGTGTGACGCCCCATCAT
 CAGTGGGCTGTACCAGGGTGCGGGTGCTCCTGGGGCTGGGGGCTTCGGGGCCAGGCGCCCAAGGGAGCC
 TCTGGCTCAGGACCCACCATCGAGGAGGTGGAT

ACGCGTACGCGGCCGCTCGAG - GFP Tag - GTTTAA

Protein Sequence:

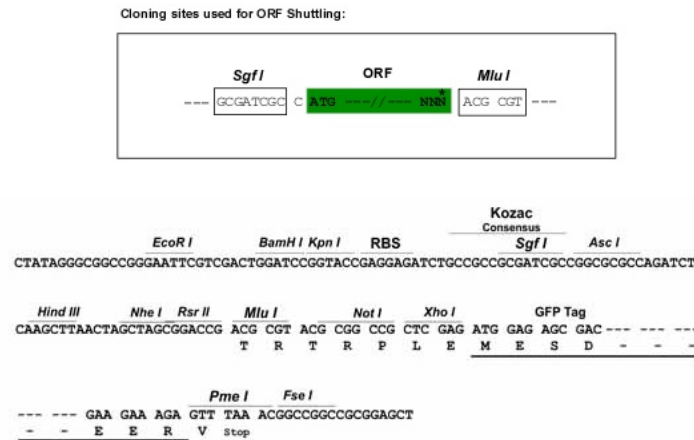
>MG227368 representing NM_010479
 Red=Cloning site Green=Tags(s)

MAKNTAIGIDLGTYSYVGFQHGKVEIIANDQGNRTTPSYVAFDTERLIGDAAKNQVALNPQNTVFDA
 KRLIGRKFGDAVVQSDMKHWPQVVDGDKPKVQVNYKGESRFFPEEISSMVLTKMKEIAEAYLGHPVT
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 SLEIDSLFEGIDFYTSITRARFEELCSDLFRGTLEPVEKALRDAKMDKAQIHDLLVVGSTRIKPVQKLL
 QDFFNGRDLNKSINPDEAVAYGAAYQAAILMGDKSENVQDLLLLDVAPLSLGLTAGGVM TALIKRNSTI
 PTKQTQTFTTYSNQPGLIQQVYGERAMTRDNNLLGRFELSGIPPAPRGVPQIEVTFDIDANGILNVTA
 TDKTTGKANKITITNDKGRLSKEEIERMVQEAERYKAEDVQRDRVAAKNALESYAFNMKSAVEDEGLKG
 KLSEADKKVLDKQEVISWLDSENTLADKEEFVHKREELERVCSPIISGLYQAGAGPAGGFGAQAQPKGA
 SSGSPTIEEVD

TRTRPLE - GFP Tag - V

Restriction Sites: SgfI-MluI

Cloning Scheme:



ACCN: NM_010479

ORF Size: 1923 bp

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:

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.

Note: Plasmids are not sterile. For experiments where strict sterility is required, filtration with 0.22um filter is required.

RefSeq: [NM_010479.1](#)

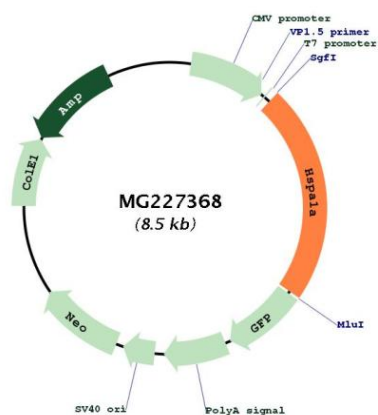
RefSeq Size: 2798 bp

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]

Product images:



Circular map for MG227368