

## Product datasheet for **SC125308**

### MDA5 (IFIH1) (NM\_022168) Human Untagged Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	MDA5 (IFIH1) (NM_022168) Human Untagged Clone
Tag:	Tag Free
Symbol:	MDA5
Synonyms:	AGS7; Hlcd; IDDM19; MDA-5; MDA5; RLR-2; SGMRT1
Mammalian Cell Selection:	None
Vector:	<u><a href="#">pCMV6-XL5</a></u>
E. coli Selection:	Ampicillin (100 ug/mL)



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**Fully Sequenced ORF:** >NCBI ORF sequence for NM\_022168, the custom clone sequence may differ by one or more nucleotides

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ATGTCGAATGGGTATTCCACAGACGAGAATTTCCGCTATCTCATCTCGTGCTTCAGGGCCAGGGTGAAAA
TGTACATCCAGGTGGAGCCTGTGCTGGACTACCTGACCTTCTGCCTGCAGAGGTGAAGGAGCAGATTCA
GAGGACAGTCGCCACCTCCGGGAACATGCAGGCAGTTGAACTGCTGCTGAGCACCTTGGAGAAGGGAGTC
TGGCACCTTGGTTGGACTCGGGAATTCGTGGAGGCCCTCCGGAGAACCGGCAGCCCTCTGGCCGCCGCT
ACATGAACCCTGAGCTCACGGACTTGCCCTCTCCATCGTTTTGAGAACGCTCATGATGAATATCTCCAAC
TCTGAACTCCTTCAGCCCACTCTGGTGGACAAGCTTCTAGTTAGAGACGCTTTGGATAAGTGCATGGAG
GAGGAAGTGTGACAATTGAAGACAGAAACCGATTGCTGCTGCAGAAAACAATGGAAAATGAATCAGGTG
TAAGAGAGCTACTAAAAAGATTGTGCAGAAAGAAAAGTTCTCTGCATTTCTGAATGTTCTTCGTCA
AACAGGAAACAATGAACCTGTCCAAGAGTTAACAGGCTCTGATTGCTCAGAAAGCAATGCAGAGATTGAG
AATTTATCACAAGTTGATGGTCTCAAGTGAAGAGCAACTTCTTCAACCACAGTTCAGCCAAATCTGG
AGAAGGAGGTCTGGGCCATGGAGAATAACTCATCAGAATCATCTTTGCAGATTCTTCTGTAGTTTCAGA
ATCAGACACAAGTTTGGCAGAAGGAAGTGCAGCTGCTTAGATGAAAAGTCTTGGACATAACAGCAACATG
GGCAGTGATTCAGGCACCATGGGAAGTGATTGAGATGAAGAGAATGTGGCAGCAAGAGCATCCCCGGAGC
CAGAACTCCAGCTCAGGCCTTACCAATGGAAGTTGCCAGCCAGCCTTGGAAAGGGAAGAATATCATCAT
CTGCCTCCCTACAGGGAGTGGAAAAACAGAGTGGCTGTTACATTGCCAAGGATCACTTAGACAAGAAG
AAAAAAGCATCTGAGCCTGGAAAAGTTATAGTTCTTGTCAATAAGGTAAGTACTGCTAGTTGAACAGCTTCC
GCAAGGAGTTCACCAATTTTGAAGAAATGGTATCGTGTATTGGATTAAGTGGTGATACCCAAGTAA
AATATCATTCCAGAAGTTGTCAAGTCTGTGATATTATTATCAGTACAGCTCAAATCCTGAAAAGTCC
CTCTTAAACTGGAAAATGGAGAAGATGCTGGTTCATTTGTCAGACTTTCCCTCATTATCATGATGATG
AATGTCATCACACCAACAAGAAAGCAAGTGTATAATAACATCATGAGGCATTATTTGATGCAGAAGTTGAA
AAACAATAGACTCAAGAAAGAAAACAACCAAGTATTCCCTTCCCTCAGATACTGGGACTAACAGCTTCA
CCTGGTGTGGAGGGGCCACGAAGCAAGCCAAAGCTGAAGAACACATTTTAAACTATGTGCCAATCTTG
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GAAGTTTGCCATTGCAGATGCAACCAGAGAAGATCCATTTAAAGAGAACTTCTAGAAAATATGACAAGG
ATTCAAATTTATGTCAAATGAGTCCAATGTCAGATTTTGGAACTCAACCCTATGAACAATGGGCCATTC
AAATGGAAAAAAGCTGCAAAAAGAAAGAAATCGCAAAGAACGTGTTTGTGCAGAACATTTGAGGAAGTA
CAATGAGGCCCTACAAATTAATGACACAATTCGAATGATAGATGCGTATACTCATCTTGAAGCTTTCTAT
AATGAAGAGAAAAGATAAGAAGTTTGCAGTCATAGAAGATGATAGTGATGAGGGTGGTGTATGATGAGTATT
GTGATGGTGTATGAAGATGAGGATGATTTAAAGAAACCTTTGAAACTGGATGAAACAGATAGATTTCTCAT
GACTTTATTTTTTGAACAATAAAATGTTGAAAAGGCTGGCTGAAAACCCAGAATATGAAAATGAAAAG
CTGACCAAAATTAAGAAATACCATAATGGAGCAATATACTAGGACTGAGGAATCAGCACGAGGAATAATCT
TTACAAAAACACGACAGAGTGCATATGCGCTTCCAGTGGATTACTGAAAATGAAAATTTGCTGAAGT
AGGAGTCAAAGCCCACCATCTGATTGGAGCTGGACACAGCAGTGAGTTCAAACCCATGACACAGAATGAA
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CCAGGCCCGTGGTCGAGCCAGAGCTGATGAGAGCACCTACGTCCTGGTTGCTCACAGTGGTTCAGGAGTT
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TGAAACCAGAGGAGTATGCTCATAAGATTTTGAATTACAGATGCAAAGTATAATGGAAAAGAAAATGAA
AACCAAGAGAAAATTTGCCAAGCATTACAAGAATAACCCATCACTAATAACTTTCCTTTGCAAAAAGTGC
AGTGTGCTAGCCTGTTCTGGGGAAGATATCCATGTAATTGAGAAAATGCATCACGTCAATATGACCCAG
AATTCAAGGAACCTTACATTGTAAGAGAAAACAAGCACTGCAAAAAGAGTGGCCGACTATCAAAATAAA
TGGTGAATCATCTGCAATGTGGCCAGGCTTGGGGAACAATGATGGTGCACAAAAGGCTTAGATTTGCCT
TGCTCAAAAATAAGGAATTTTGTAGTGGTTTTCAAAAATAAATCAACAAAAGAAACAATAAAAAGTGGG
TAGAATTACCTATCACATTTCCCAATCTTGACTATTGAGAAATGCTGTTTTATTAGTGATGAGGATTAG
    
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**5' Read Nucleotide Sequence:**

>OriGene 5' read for NM\_022168 unedited  
 TTGTAATCAGACTCACTATAGGGCGGCCGGAATTCGGCACGAGGCTGACAGAAAGCTG  
 GACTCAAAGCTCTACCCGAGTGTGACAGAGGATCGCCCCGGTCCGGGACCCAGGGCGCA  
 CACCGCAGAGTCCAAAGTGCCGCGCCTGCCGGCCGCACCTGCCTGCCGCGGCCCGCGCG  
 CCGCCCCGCTGCCACCTGCCCGCCTGCCACCTGCCAGGTGCGAGTGCAGCCCCGCGC  
 GCCCGCTGAGAGCCCTGTGGACAACCTCGTCATTGTCAGGCACAGAGCGGTAGACCCTG  
 CTTCTCTAAGTGGGCAGCGGACAGCGGCACGACATTTACCTGTCCCGCAGACAACAGC  
 ACCATCTGCTTGGGAGAACCCTCTCCCTTCTCTGAGAAAAGAAAGATGTCGAATGGGTATT  
 CCACAGACGAGAATTTCCGCTATCTCATCTCGTCTTCAGGGCCAGGGTAAAAATGTACA  
 TCCAGGTGGAGCCCTTGCTGGACTACCTGACCTTTCTGCCTGCAGAAGTGAAGGAGCATA  
 TTCAGAGGACAGTCGCCACCTCCGGGAACATGCAGGCAGTTTGAAGTGTGCTGAACCC  
 TTGAGAACCGAGTCTGGCACCTTGGGTCGCACTCGGGAATTCGTGGAGGCCCTCCCGAG  
 AACCGGCAGNCCCTTCCCGCCCGCTACAATGAACCCTGAGCACACGGAACCTCCCTT  
 TCCATTGGTTTAAAAACCGCTCATGGATGATAATCTCCAACTGGTGAACCTCCCTTAA  
 GCCATTCTGGGAGGAACAAGCTTTTAATTTAAAAACGCCCTTGGATAAAGGGCATGCAA  
 GGAAGGAACTGTTTGAATTTGAAGAACAAGCCGGTTTGTGCGTGCGCAAACACCAT  
 GGAATGATCCACGCGCCACAAATCCACTCACN

**3' Read Nucleotide Sequence:**

>OriGene 3' read for NM\_022168 unedited  
 GACCGCGCCGCAATCTAGGATCGAGCTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT  
 TTTTGCAGAGTAAAAAATCATTTTATTGATTCTTATGGCAGTTCTGTACCTAATGAAT  
 ACCTTAATCATAATCCTATTAATGGTTAACTGATAGCATTTTAAAAAATCTTCAATCA  
 AGGGCTAATCCTCATCACTAAATAAACAGCATTCTGAATAGTCAAAATTGGGAAATGGGA  
 TAGGTAATTCTACCCACTTTTTGGATTGTTCTTTGGTGAATTATTTTAAAAACCCCA  
 CAAAATTCCTTATTTGAAACAAGGCAAATCTAAGCCTTTGGGCACCATCATTGTTCCCC  
 AACCTGGCCACATTTGCCGATGATTTACCATTTATTTGATAGCCGGCACACTTTTTTT  
 GCAGTGGTTTGTCTTACCATGTAAGTTTCCTTGAATTCTGGGGTCATATTGACCA  
 GAAGCCTTTTCAATTACATGGATATCTTCCCAGAACAGGCTAACACACTGCATTTTT  
 TGCAAACGAAAGCTTTACCCGATTACGGTATTCTTGTACGCTCGGCAATATTTCTCT  
 GGCTTTCACTTTTTTTTCCATTATACTTTGCATCTGTTATTTCCAAACCTTATGAACCA  
 CTTCCCTGGTTTACCCTTTGAACCCACTGTTTACCTTCTACACATTACCCTTCTTTT  
 CGGAAAACATTAAGTGTATCCCTTCCAAACCCCTGAAACACTGTGCACAACCCAGA  
 CCTAAGCGGCCCCATACCCCGGGCTTTACCCAGGCCCCCCCATCGGTTTTCCCTT  
 GCGCCCCCCCCACCCGGTCAAACCAGCTCCACTTTTCTCACACCAACCTTTTCTCGT  
 CCTTGGGGCGTTCGACAAACAAACTTTTCTTTTCGCGGCCAATTAACAGAGAGCTCCT  
 TCTCGT

**Restriction Sites:**

NotI-NotI

**ACCN:**

NM\_022168

**Insert Size:**

3700 bp

**OTI Disclaimer:** Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at [custsupport@origene.com](mailto:custsupport@origene.com) or by calling 301.340.3188 option 3 for pricing and delivery.

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](#)

**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\\_022168.2](#), [NP\\_071451.2](#)

**RefSeq Size:** 3434 bp

**RefSeq ORF:** 3078 bp

**Locus ID:** 64135

**UniProt ID:** [Q9BYX4](#)

**Cytogenetics:** 2q24.2

**Domains:** DEAD, helicase\_C

**Protein Pathways:** RIG-I-like receptor signaling pathway

**Gene Summary:** IFIH1 encodes MDA5 which is an intracellular sensor of viral RNA that triggers the innate immune response. Sensing RNA length and secondary structure, MDA5 binds dsRNA oligonucleotides with a modified DExD/H-box helicase core and a C-terminal domain, thus leading to a proinflammatory response that includes interferons. It has been shown that Coronaviruses (CoVs) as well as various other virus families, are capable of evading the MDA5-dependent interferon response, thus impeding the activation of the innate immune response to infection. MDA5 has also been shown to play an important role in enhancing natural killer cell function in malaria infection. In addition to its protective role in antiviral responses, MDA5 has been implicated in autoimmune and autoinflammatory diseases such as type 1 diabetes, systemic lupus erythematosus, and Aicardi-Goutieres syndrome[provided by RefSeq, Jul 2020]