

## Product datasheet for **MR225605**

### Calprotectin (S100a8) (NM\_013650) Mouse Tagged ORF Clone

#### Product data:

**Product Type:** Expression Plasmids  
**Product Name:** Calprotectin (S100a8) (NM\_013650) Mouse Tagged ORF Clone  
**Tag:** Myc-DDK  
**Symbol:** S100a8  
**Synonyms:** 60B8Ag; AI323541; B8Ag; Caga; CFAg; CP-10; MRP8; p8  
**Mammalian Cell Selection:** Neomycin  
**Vector:** pCMV6-Entry (PS100001)  
**E. coli Selection:** Kanamycin (25 ug/mL)  
**ORF Nucleotide Sequence:** >MR225605 representing NM\_013650  
Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGCCGTCTGAAGTGGAGAAGGCCTTGAGCAACCTCATTGATGTCTACCACAATTATTCCAATATACAAG  
GAAATCACCATGCCCTCTACAAGAATGACTTCAAGAAAATGGTCACTACTGAGTGTCTCAGTTTGTGCA  
GAATATAAATATCGAAAATTGTTTCAGAGAATTGGACATCAATAGTGACAATGCAATTAACCTCGAGGAG  
TTCCTTGGCATGGTGATAAAAGTGGGTGTGGCATCTCACAAAGACAGCCACAAGGAG

**ACGCGT**ACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
ACAAGGATGACGACGATAAGGTTTAA

**Protein Sequence:** >MR225605 representing NM\_013650  
Red=Cloning site Green=Tags(s)  
MPSELEKALSNLIDVYHNYSNIQGNHHALYKNDFKMMVTTECPQFVQNIENLFRILDINSDNAINFEE  
FLAMVIKVGVAHKDSHKE

**TRTRPLEQKLISEEDLAANDILDYKDDDDKV**

**Restriction Sites:** Sgfl-MluI



[View online »](#)

**Cloning Scheme:**


**ACCN:** NM\_013650

**ORF Size:** 267 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.

**RefSeq:** [NM\\_013650.2](#), [NP\\_038678.1](#)

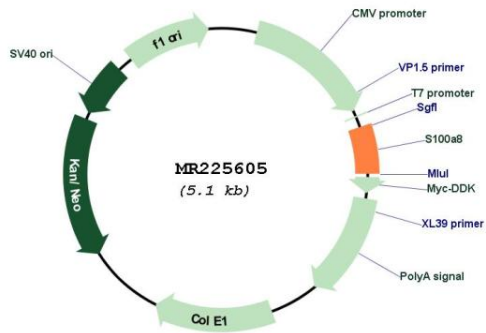
**RefSeq Size:** 392 bp

**RefSeq ORF:** 270 bp

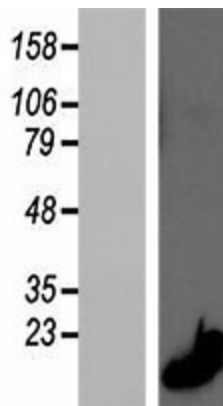
Locus ID: 20201  
UniProt ID: [P27005](#)  
Cytogenetics: 3 39.9 cM  
MW: 10.7 kDa

**Gene Summary:** S100A8 is a calcium- and zinc-binding protein which plays a prominent role in the regulation of inflammatory processes and immune response. It can induce neutrophil chemotaxis and adhesion. Predominantly found as calprotectin (S100A8/A9) which has a wide plethora of intra- and extracellular functions. The intracellular functions include: facilitating leukocyte arachidonic acid trafficking and metabolism, modulation of the tubulin-dependent cytoskeleton during migration of phagocytes and activation of the neutrophilic NADPH-oxidase. Activates NADPH-oxidase by facilitating the enzyme complex assembly at the cell membrane, transferring arachidonic acid, an essential cofactor, to the enzyme complex and S100A8 contributes to the enzyme assembly by directly binding to NCF2/P67PHOX. The extracellular functions involve proinflammatory, antimicrobial, oxidant-scavenging and apoptosis-inducing activities. Its proinflammatory activity includes recruitment of leukocytes, promotion of cytokine and chemokine production, and regulation of leukocyte adhesion and migration. Acts as an alarmin or a danger associated molecular pattern (DAMP) molecule and stimulates innate immune cells via binding to pattern recognition receptors such as Toll-like receptor 4 (TLR4) and receptor for advanced glycation endproducts (AGER). Binding to TLR4 and AGER activates the MAP-kinase and NF-kappa-B signaling pathways resulting in the amplification of the proinflammatory cascade. Has antimicrobial activity towards bacteria and fungi and exerts its antimicrobial activity probably via chelation of Zn(2+) which is essential for microbial growth. Can induce cell death via autophagy and apoptosis and this occurs through the cross-talk of mitochondria and lysosomes via reactive oxygen species (ROS) and the process involves BNIP3. Can regulate neutrophil number and apoptosis by an anti-apoptotic effect; regulates cell survival via ITGAM/ITGB and TLR4 and a signaling mechanism involving MEK-ERK. Its role as an oxidant scavenger has a protective role in preventing exaggerated tissue damage by scavenging oxidants. The iNOS-S100A8/A9 transnitrosylase complex is proposed to direct selective inflammatory stimulus-dependent S-nitrosylation of multiple targets such as GAPDH, ANXA5, EZR, MSN and VIM by recognizing a [IL]-x-C-x-x-[DE] motif; S100A8 seems to contribute to S-nitrosylation site selectivity (By similarity).  
[UniProtKB/Swiss-Prot Function]

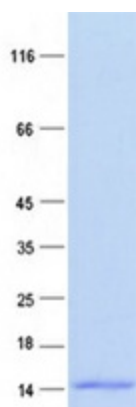
Product images:



Circular map for MR225605



Western validation with an anti-DDK antibody; L: Control HEK293 lysate R: Over-expression lysate



Coomassie blue staining of purified S100a8 protein (Cat# [TP525605]). The protein was produced from HEK293T cells transfected with S100a8 cDNA clone (Cat# MR225605) using MegaTran 2.0 (Cat# [TT210002]).