

PRODUCT DATASHEET

MxA Protein Human E. coli

Cat. No.: RD172349100

Type: Recombinant protein

Size: 0.1 mg

Source: E. coli

Species: Human

Description

Total 668 AA. MW 76.3 kDa (calculated). UniProtKB acc. No. P20591 (Met1-Gly662). C-terminal His-tag (6 extra AA). Protein identity confirmed by LC-MS/MS.

Other names

Myxovirus resistance protein 1

Introduction to the molecule

Human MxA Protein (Myxovirus resistance protein 1), the product of the MX1 gene, is a 76-kDa protein consisting of 662 amino acid residues and belonging to the dynamic superfamily of large GTPase. MxA Protein plays an important role in antiviral activity in cells against a wide variety of viruses, including influenza, parainfluenza, measles, coxsackie, hepatitis B virus, and Thogoto virus. The viruses are inhibited by MxA protein at an early stage in their life cycle, soon after host cell entry and before genome amplification. The mouse MxA (MX1 GTPase) accumulates in the cell nucleus where it associates with nuclear bodies and inhibits influenza and Thogoto viruses known to replicate in the nucleus. The human MxA protein accumulates in the cytoplasm and endoplasmic reticulum as well. The membrane compartment of endoplasmic reticulum seems to provide an interaction platform that facilitates viral target recognition. MxA appears to detect viral infection by sensing and trapping nucleocapsid-like structures. As a consequence, the viral components become unavailable for the generation of new virus particles. The expression of viral MxA Protein is induced exclusively and in a dose-dependent manner by IFN-alpha and IFN-beta, but not by IFN-gamma, IL-1, TNF-alpha or other cytokines. In clinical diagnostics, MxA protein may offer advantages as a marker for viral infection over the other induced proteins such as 2', 5'-oligoadenylate synthetase, because of its very low basal concentration and long half-life. Several clinical studies have reported on the possible use of MxA protein expression in peripheral blood mononuclear cells as a marker distinguishing viral from bacterial disease, and reliable marker for type I IFN bioavailability during IFN treatment of chronic viral hepatitis and multiple sclerosis.

Research topic

Animal studies, COVID-19, Immune Response, Infection and Inflammation, Sepsis

Amino Acid sequence

MVVSEVDIAK ADPAAASHPL LLNGDATVAQ KNPGSVAENN LCSQYEEKVR PCIDLIDSLR ALGVEQDLAL PAIAVIGDQS
SGKSSVLEAL SGVALPRGSG IVTRCPLVLK LKKLVNEDKW RGKVSQDYD IEISDASEVE KEINKAQNAI AGEGMGISHE
LITLEISSRD VPDLTLDLP GITRVAVGNG PADIGYKIKT LIKKYIQRQE TISLVVPSN VDIATTEALS MAQEVDPEDG
RTIGILTKPD LVDKGTEDKV VDVVRNLVFN LKGYMIVKC RGQEQIQDQL SLSEALQREK IFFENHPYFR DLLEEGKATV
PCLAEKLTSE LITHICKSLP LLENQIKETH QRITEELQKY GVDIPEDENE KMFFLIDKVN AFNQDITALM QGEETVGEED
IRLFTRLRHE FHKWSTIEN NFQEGHKILS RKIQKFENQY RGRELPGFVN YRTFETIVKQ QIKALEEPAV DMLHTVTDNV
RLAFTDVSIIK NFEFFNLHR TAKSKIEDIR AEQEREKEKL IRLHFQMEQI VYCDQVYRG ALQKVREKEL FEEKKKKSWD
FGAFQSSSAT DSSMEEIFQH LMAYHQEASK RISSHIPLII QFFMLQTYGQ QLQKAMLQLL QDKDTYSWLL KERSDTSDDR
KFLKERLRL TQARRRLAQF PGHHHHHH

Purity

Purity as determined by densitometric image analysis: > 90%

Endotoxin

< 0.1 EU/μg

Formulation:

Filtered (0.4 μm) and lyophilized from 0.5 mg/ml solution in 20 mM Tris buffer, 50 mM NaCl, 5% (w/v) trehalose, pH 7.5.

Reconstitution:

Add deionized water to prepare a working stock solution of approximately 0.5 mg/ml and let the lyophilized pellet dissolve completely at 37°C.

Shipping

At ambient temperature. Upon receipt, store the product at the temperature recommended below.

Storage, Stability/Shelf Life

Store the lyophilized protein at –80 °C. Lyophilized protein remains stable until the expiry date when stored at –80 °C. Aliquot reconstituted protein to avoid repeated freezing/thawing cycles and store at –80 °C for long term storage. Reconstituted protein can be stored at 4 °C for three days.

Quality control

BCA to determine quantity of the protein.

SDS PAGE to determine purity of the protein.

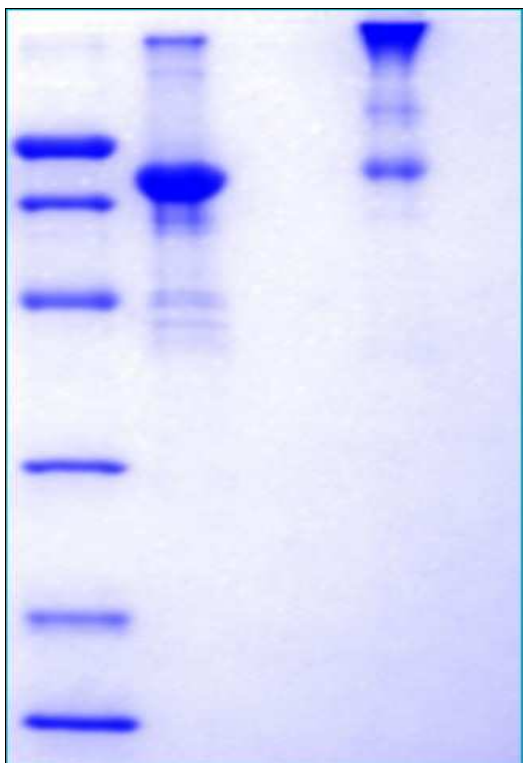
LAL to determine quantity of endotoxin.

Applications

ELISA, Western blotting

Note

This product is intended for research use only.



12 % SDS-PAGE separation of Human MxA (E.coli):

1. M.W. marker – 14, 21, 31, 45, 66, 97 kDa

2. Reduced and boiled sample, 2.5 µg/lane

3. Non-reduced and non-boiled sample, 2.5 µg/lane