

Recombinant Mouse ZC12A Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51601

Size: 10ug, 100ug

Protein Name: Endoribonuclease ZC3H12A (EC 3.1.-.-) (Monocyte chemotactic protein-induced protein 1) (MCP-induced protein 1) (MCPIP-1) (Regnase-1) (Reg1) (Zinc finger CCCH domain-containing protein 12A)

Synonym: Zc3h12a, Mcpip, Mcpip1

UniProt ID: Q5D1E7

UniProt Link: www.uniprot.org/uniprotkb/Q5D1E7/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 596 AA

Molecular Weight: 66 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSDPCGTKPVQESNPTMSLWSLEDHRSSQGRPQPDQDPVAKEAPTSELQMKVDFFRKLGYSSSEI
HSV LQKLGVQADTNTVLGELVKHGSATERECQALTAPSPQPPLVPRGGSTPKPSTLEPSLPEEDRE
GSDLRPVVIDGSNVAMSHGNKEVFSCRGILLAVNWFLERGHDTITVFVPSWRKEQPRPDVPITDQHI
LRELEKKKILVFTPSRRVGGKRVVCYDDRFIVKLAFESDGVVVSNDTYRDLQGERQEWKRFIEERLL
MYSFVNDKFMPPDDPLGRHGPSLDNFLRKKPLPSEHRKQPCPYGKKCTYGIKCRFFHPPERPSRPQ
RSVADELARANALLSPRPPTPVKDKSSQRPSPASQSSSVSLEAEPGSLDGKKLGARSSPGPHREGSPQ
TCAPAGRSLPVSGGSFGPTEWLAHTQDSLPTYTSQECLDSGIGSLESQMSELWGVRRGGSPGESGPT
RGPYAGYHSYGSKVPAAPSFSPFRPAMGAGHFSVPTDYVPPPPTYPSPREYWSEPYPLPPPTPVLQ
EPQRPSPGAGGGPWGRVGD LAKERAGVYTKLCGVFPPHLVEAVMRRFPQLLDPQQLAAEILSYKS
QHLSE

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Endoribonuclease ZC3H12A (EC 3.1.-.-) (Monocyte chemotactic protein-induced protein 1) (MCP-induced protein 1) (MCPIP-1) (Regnase-1) (Reg1) (Zinc finger CCCH domain-containing protein 12A) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Endoribonuclease involved in various biological functions such as cellular inflammatory response and immune homeostasis, glial differentiation of neuroprogenitor cells, cell death of cardiomyocytes, adipogenesis and angiogenesis. Functions as an endoribonuclease involved in mRNA decay (PubMed:26000482). Modulates the inflammatory response by promoting the degradation of a set of translationally active cytokine-induced inflammation-related mRNAs, such as IL6 and IL12B, during the early phase of inflammation (PubMed:19322177, PubMed:21115689, PubMed:23185455, PubMed:26000482). Prevents aberrant T-cell-mediated immune reaction by degradation of multiple mRNAs controlling T-cell activation, such as those encoding cytokines (IL6 and IL2), cell surface receptors (ICOS, TNFRSF4 and TNFR2) and transcription factor (REL) (PubMed:19322177, PubMed:21115689, PubMed:23185455, PubMed:23706741, PubMed:26000482). Inhibits cooperatively with ZC3H12A the differentiation of helper T cells Th17 in lungs. They repress target mRNA encoding the Th17 cell-promoting factors IL6, ICOS, REL, IRF4, NFKBID and NFKBIZ. The cooperation requires RNA-binding by RC3H1 and the nuclease activity of ZC3H12A (PubMed:25282160). Together with RC3H1, destabilizes TNFRSF4/OX40 mRNA by binding to the conserved stem loop structure in its 3'UTR (PubMed:29244194, PubMed:35819231). Self regulates by destabilizing its own mRNA (PubMed:22037600). Cleaves mRNA harboring a stem-loop (SL), often located in their 3'-UTRs, during the early phase of inflammation in a helicase UPF1-dependent manner (PubMed:19322177, PubMed:23185455, PubMed:23706741, PubMed:26000482, PubMed:26134560). Plays a role in the inhibition of microRNAs (miRNAs) biogenesis (By similarity). Cleaves the terminal loop of a set of precursor miRNAs (pre-miRNAs) important for the regulation of the inflammatory response leading to their degradation, and thus preventing the biosynthesis of mature miRNAs (By similarity). Also plays a role in promoting angiogenesis in response to inflammatory cytokines by inhibiting the production of antiangiogenic microRNAs via its anti-dicer RNase activity (By similarity). Affects the overall ubiquitination of cellular proteins (PubMed:21115689). Positively regulates deubiquitinase activity promoting the cleavage at 'Lys-48'- and 'Lys-63'-linked polyubiquitin chains on TNF receptor-associated factors (TRAFs), preventing JNK and NF-kappa-B signaling pathway activation, and hence negatively regulating macrophage-mediated inflammatory response and immune homeostasis (PubMed:21115689). Induces also deubiquitination of the transcription factor HIF1A, probably leading to its stabilization and nuclear import, thereby positively regulating the expression of proangiogenic HIF1A-targeted genes. Involved in a TANK-dependent negative feedback response to attenuate NF-kappaB activation through the deubiquitination of IKBKG or TRAF6 in response to interleukin-1-beta (IL1B) stimulation or upon DNA damage (By similarity). Prevents stress granules (SGs) formation and promotes macrophage apoptosis under stress conditions, including arsenite-induced oxidative stress, heat shock, and energy deprivation (PubMed:21971051). Plays a role in the regulation of macrophage polarization; promotes IL4-induced polarization of macrophages M1 into anti-inflammatory M2 state (PubMed:25934862). May also act as a transcription factor that regulates the expression of multiple genes involved in inflammatory response, angiogenesis, adipogenesis and apoptosis (PubMed:18178554, PubMed:19666473, PubMed:22739135). Functions as a positive regulator of glial differentiation of neuroprogenitor cells through an amyloid precursor protein (APP)-dependent

signaling pathway (By similarity). Attenuates septic myocardial contractile dysfunction in response to lipopolysaccharide (LPS) by reducing I-kappa-B-kinase (IKK)-mediated NF-kappa-B activation, and hence myocardial pro-inflammatory cytokine production (PubMed:21616078).

Subcellular Localization: Nucleus . Cytoplasm . Rough endoplasmic reticulum membrane ; Peripheral membrane protein ; Cytoplasmic side . Cytoplasmic granule . Cytoplasm, P-body . Note=Predominantly localized in the cytoplasm (PubMed:19322177). Colocalizes with GW182 on many granule-like structures, probably corresponding to cytoplasmic GW bodies (GWBs), also called processing bodies (P bodies) (PubMed:21971051). Colocalizes with calnexin on the surface of the rough endoplasmic reticulum (RER) membrane and with translationally active polysomes (PubMed:26000482). Colocalizes with ZC3H12D in cytoplasmic mRNA processing P-body, also known as GW bodies (GWBs) (By similarity).

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.