# Data Sheet (Cat.No.TMPH-02049)

TargetMol

## ZC3H12A Protein, Human, Recombinant (His)

### General Information

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| Synonyms: | ZC3H12A;Monocyte chemotactic protein-induced protein 1 (MCP-induced protein 1;MCPIP-1); Zinc finger CCCH domain-containing protein 12A;Regnase-1 (Reg1);Endoribonuclease ZC3H12A;MCPIP1;MCPIP |
| Protein Construction: | 1-599 aa |
| Species: | Human |
| Expression Host: | E. coli |
| Accession: | Q5D1E8 |
| Molecular Weight: | 69.8 kDa (predicted) |
| AA Sequence: | MSGPCGEKPVLEASPTMSLWEFEDSHSRQGTPRPGQELAAEEASALELQMKVDFFRKLGYSSTEIHSVLQKL GVQADTNTVLGELVKHGTATERERQTSPDPCPQLPLVPRGGGTPKAPNLEPPLPEEEKEGSDLRPVVIDGSNV AMSHGNKEVFSCRGILLAVNWFLERGHTDITVFVPSWRKEQPRPDVPITDQHILRELEKKKILVFTPSRRVGGK RVVCYDDRFIVKLAYESDGIVVSNDTYRDLQGERQEWKRFIEERLLMYSFVNDKFMPPDDPLGRHGPSLDNFL RKKPLTLEHRKQPCPYGRKCTYGIKCRFFHPERPSCPQRSVADELRANALLSPPRAPSKDKNGRRPSPSSQSS SLLTESEQCSLDGKKLGAQASPGSRQEGLTQTYAPSGRSLAPSGGSGSSFGPTDWLPQTLDSLPYVSQDCLD SGIGSLESQMSELWGVRGGGPGEPGPPRAPYTGYSPYGSELPATAAFSAFGRAMGAGHFSVPADYPPAPPA FPPREYWSEPYPLPPPTSVLQEPPVQSPGAGRSPWGRAGSLAKEQASVYTKLCGVFPPHLVEAVMGRFPQLL DPQQLAAEILSYKSQHPSE |

### QC Testing

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| Biological Activity: | Activity has not been tested. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first. |
| Purity: | > 85% as determined by SDS-PAGE. |
| Endotoxin: | < 1.0 EU/μg of the protein as determined by the LAL method. |
| Formulation: | If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol.If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose, pH 8.0. |

### Preparation and Storage

Reconstitution:

Reconstitute the lyophilized protein in sterile deionized water. The product concentration should not be less than 100 μg/mL. Before opening, centrifuge the tube to collect powder at the bottom. After adding the reconstitution buffer, avoid vortexing or pipetting for mixing.

Stability & Storage:

Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

## Protein Background

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. 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. 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). 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. Together with RC3H1, destabilizes TNFRSF4/OX40 mRNA by binding to the conserved stem loop structure in its 3'UTR. Self regulates by destabilizing its own mRNA. 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. Plays a role in the inhibition of microRNAs (miRNAs) biogenesis. 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. Plays also a role in promoting angiogenesis in response to inflammatory cytokines by inhibiting the production of antiangiogenic microRNAs via its anti-dicer RNase activity. Affects the overall ubiquitination of cellular proteins. 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. 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. Prevents stress granule (SGs) formation and promotes macrophage apoptosis under stress conditions, including arsenite-induced oxidative stress, heat shock and energy deprivation. Plays a role in the regulation of macrophage polarization; promotes IL4-induced polarization of macrophages M1 into anti-inflammatory M2 state. May also act as a transcription factor that regulates the expression of multiple genes involved in inflammatory response, angiogenesis, adipogenesis and apoptosis. Functions as a positive regulator of glial differentiation of neuroprogenitor cells through an amyloid precursor protein (APP)-dependent signaling pathway. 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 proinflammatory cytokine production.; (Microbial infection) Binds to Japanese encephalitis virus (JEV) and Dengue virus (DEN) RNAs.; (Microbial infection) Exhibits antiviral activity against HIV-1 in lymphocytes by decreasing the abundance of HIV-1 viral RNA species.



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