

Recombinant Mouse AIM2 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51818

Size: 10ug, 100ug

Protein Name: Interferon-inducible protein AIM2 (Interferon-inducible protein 210) (Ifi-210) (Interferon-inducible protein p210)

Synonym: Aim2, Gm1313, Ifi210

UniProt ID: Q91VJ1

UniProt Link: www.uniprot.org/uniprotkb/Q91VJ1/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 354 AA

Molecular Weight: 40 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MESEYREMLLLTGLDHITTEELKRKFYFALTEFQIARSTLDVADRTELADHLIQSAGAASAVTKAINIFQ
KLNVMHIANALEEKKKEAERKLMNTNKKRGTQKVENRSQAENCSAASATRSNDNFKEQAATEVCPQ
AKPQKKQMVAEQEAIREDLQKDPLVTVLKAINPFECETQEGRQEIFHATVATETDFFFVKVLNAQFK
DKFIPKRTIKISNYLWHSNFM EVTSSSVVDVESNHEVPNNVVKRARETPRISKLKIQPCGTIVNGLFK
VQKITEEKDRVLYGIHDKTGTMEVLVLGNPSKTKCEE GDKIRLTFFEVS KNGVKIQLKSGPCSFFKVIK
AAKPKTDMKSVE

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 Interferon-inducible protein AIM2 (Interferon-inducible protein 210) (IFI-210) (Interferon-inducible protein p210) 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: Sensor component of the AIM2 inflammasome, which mediates inflammasome activation in response to the presence of double-stranded DNA (dsDNA) in the cytosol, leading to subsequent pyroptosis (PubMed:19131592, PubMed:19158675, PubMed:19158676, PubMed:19158679, PubMed:20351692, PubMed:20351693, PubMed:20417169, PubMed:20457908, PubMed:21902795, PubMed:23567559, PubMed:32350463, PubMed:34006824). Inflammasomes are supramolecular complexes that assemble in the cytosol in response to pathogens and other damage-associated signals and play critical roles in innate immunity and inflammation (PubMed:19131592, PubMed:19158675, PubMed:19158676, PubMed:20351692, PubMed:20351693, PubMed:20417169, PubMed:20457908, PubMed:21902795, PubMed:23567559, PubMed:32350463). Acts as a recognition receptor (PRR): specifically recognizes and binds dsDNA in the cytosol, and mediates the formation of the inflammasome polymeric complex composed of AIM2, CASP1 and PYCARD/ASC (PubMed:19131592, PubMed:19158675, PubMed:19158676, PubMed:20351692, PubMed:20351693, PubMed:20417169, PubMed:20457908, PubMed:21902795, PubMed:23567559). Recruitment of pro-caspase-1 (proCASP1) to the AIM2 inflammasome promotes caspase-1 (CASP1) activation, which subsequently cleaves and activates inflammatory cytokines IL1B and IL18 and gasdermin-D (GSDMD), promoting cytokine secretion (PubMed:19158676). In some cells, CASP1 activation mediates cleavage and activation of GSDMD, triggering pyroptosis without promoting cytokine secretion (PubMed:27846608, PubMed:32350463). Detects cytosolic dsDNA of viral and bacterial origin in a non-sequence-specific manner (PubMed:19131592, PubMed:19158675, PubMed:20351692, PubMed:23567559). Involved in the DNA damage response caused by acute ionizing radiation by mediating pyroptosis of intestinal epithelial cells and bone marrow cells in response to double-strand DNA breaks (PubMed:27846608). Mechanistically, AIM2 senses DNA damage in the nucleus to mediate inflammasome assembly and inflammatory cell death (PubMed:27846608). Also acts as a regulator of neurodevelopment via its role in the DNA damage response: acts by promoting neural cell death in response to DNA damage in the developing brain, thereby purging genetically compromised cells of the central nervous system (PubMed:32350463). Pyroptosis mediated by the AIM2 inflammasome in response to DNA damage is dependent on GSDMD without involving IL1B and IL18 cytokine secretion (PubMed:27846608, PubMed:32350463). Also acts as a mediator of pyroptosis, necroptosis and apoptosis (PANoptosis), an integral part of host defense against pathogens, in response to bacterial infection (PubMed:34471287). Can also trigger PYCARD/ASC-dependent, caspase-1-independent cell death that involves caspase-8 (CASP8) (PubMed:22555457).; Also acts as a tumor suppressor independently of its role in inflammatory response (PubMed:26095253). Able to suppress overt cell proliferation in enterocytes: restricts stem cell proliferation in the intestinal mucosa in an inflammasome-independent manner, contributing to a decrease in the likelihood of colorectal cancer development (PubMed:26095253, PubMed:26107252). AIM2 suppresses cell proliferation by inhibiting phosphorylation of AKT1 at 'Ser-473', preventing AKT1 activation and AKT-mTOR signaling pathway (PubMed:26095253, PubMed:26107252). Inhibits AKT1 phosphorylation both by inhibiting the activity of PRKDC/DNA-PK kinase and promoting dephosphorylation by PP2A phosphatase (PubMed:26107252, PubMed:33505023). Also acts as a key regulator of regulatory T-cells (Treg) homeostasis by promoting their stability: acts by preventing AKT1 activation (PubMed:33505023). Its role in Treg homeostasis is important to restrain autoimmune diseases (PubMed:33505023).

Subcellular Localization: Cytoplasm . Inflammasome . Nucleus . Note=Activated inflammasomes can aggregate in the cytosol as speck-like particles (PubMed:19158679). Activated inflammasomes

can also aggregate in the nucleus in response to DNA damage: AIM2 is recruited to double-strand DNA breaks and mediates activation of the AIM2 inflammasome (PubMed:27846608).

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.