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AIM2 Polyclonal Antibody

Catalog # AP68334

Product Information

Application	WB, IHC-P, IF, ICC, E
Primary Accession	O14862
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	38954

Additional Information

Gene ID	9447
Other Names	AIM2; Interferon-inducible protein AIM2; Absent in melanoma 2
Dilution	WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. Immunofluorescence: 1/200 - 1/1000. ELISA: 1/40000. Not yet tested in other applications. IHC-P~~N/A IF~~1:50~200 ICC~~N/A E~~N/A
Format	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.
Storage Conditions	-20℃

Protein Information

Name	AIM2 {ECO:0000303|PubMed:9242382, ECO:0000312|HGNC:HGNC:357}
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:17726700, PubMed:19158675, PubMed:19158676, PubMed:19158679, PubMed:20566831, PubMed:23530044, PubMed:26197926, PubMed:26583071, PubMed:29440442, PubMed:33980849, PubMed:37364111). 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:17726700, PubMed:19158675, PubMed:19158676, PubMed:19158679, PubMed:20566831, PubMed:26197926, PubMed:29440442, PubMed:33980849). 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:17726700, PubMed:19158675, PubMed:19158676, PubMed:19158679, PubMed:20566831, PubMed:26197926, PubMed:29440442, PubMed:33980849). Recruitment of

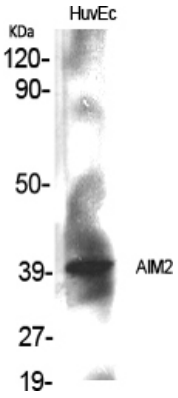
	pro-caspase-1 (proCASP1) to the AIM2 inflammasome promotes caspase-1 (CASP1) activation, which subsequently cleaves and activates inflammatory cytokines IL1B and IL18 and gasdermin-D (GSDMD), promoting cytokine secretion (PubMed:17726700, PubMed:19158675, PubMed:19158676, PubMed:19158679, PubMed:20566831). In some cells, CASP1 activation mediates cleavage and activation of GSDMD, triggering pyroptosis without promoting cytokine secretion (PubMed:19158675, PubMed:19158676). Detects cytosolic dsDNA of viral and bacterial origin in a non-sequence-specific manner (PubMed:17726700, PubMed:19158675, PubMed:19158676, PubMed:19158679, PubMed:20566831, PubMed:26197926, PubMed:26583071, PubMed:29440442, PubMed:33980849). 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 (By similarity). Mechanistically, AIM2 senses DNA damage in the nucleus to mediate inflammasome assembly and inflammatory cell death (By similarity). 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 (By similarity). Pyroptosis mediated by the AIM2 inflammasome in response to DNA damage is dependent on GSDMD without involving IL1B and IL18 cytokine secretion (By similarity). Also acts as a mediator of pyroptosis, necroptosis and apoptosis (PANoptosis), an integral part of host defense against pathogens, in response to bacterial infection (By similarity). Can also trigger PYCARD/ASC- dependent, caspase-1-independent cell death that involves caspase-8 (CASP8) (By similarity).
Cellular Location	Cytoplasm. Inflammasome. Nucleus. Note=Activated inflammasomes can aggregate in the cytosol as speck-like particles (PubMed:19158675, PubMed:19158676, 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 (By similarity). {ECO:0000250|UniProtKB:Q91VJ1, ECO:0000269|PubMed:19158675, ECO:0000269|PubMed:19158676, ECO:0000269|PubMed:19158679}
Tissue Location	Expressed in spleen, small intestine, peripheral blood leukocytes, and testis.

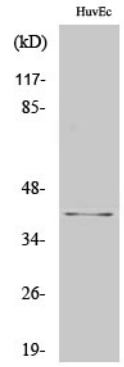
Background

Involved in innate immune response by recognizing cytosolic double-stranded DNA and inducing caspase-1-activating inflammasome formation in macrophages. Upon binding to DNA is thought to undergo oligomerization and to associate with PYCARD initiating the recruitment of caspase-1 precusrsor and processing of interleukin-1 beta and interleukin-18. Detects cytosolic dsDNA of viral and bacterial origin in a non-sequence-specific manner. Can also trigger PYCARD-dependent, caspase-1-independent cell death that involves caspase-8 (By similarity). Tumor suppressor which may act by repressing NF-kappa-B transcriptional activity.

Images

Western Blot analysis of various cells using AIM2 Polyclonal Antibody cells nucleus extracted by Minute TM Cytoplasmic and Nuclear Fractionation kit (SC-003,Inventbiotech,MN,USA).





Western Blot analysis of HuvEc cells using AIM2 Polyclonal Antibody cells nucleus extracted by Minute TM Cytoplasmic and Nuclear Fractionation kit (SC-003,Inventbiotech,MN,USA).

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