IRGM / LRG-47 Antibody (Internal)
Rabbit Polyclonal Antibody
Catalog # ALS12432

Specification

IRGM / LRG-47 Antibody (Internal) - Product Information

Application	**WB, IHC-P, IF, E**
Primary Accession	**A1A4Y4**
Reactivity	**Human, Mouse, Rat**
Host	**Rabbit**
Clonality	**Polyclonal**
Calculated MW	**20kDa KDa**
Dilution	**WB~~1:1000**
	IHC-P~~N/A
	IF~~1:50~200
	E~~N/A

IRGM / LRG-47 Antibody (Internal) - Additional Information

Gene ID 345611

Other Names
Immunity-related GTPase family M protein, 3.6.5.-, Immunity-related GTPase family M protein 1,
Interferon-inducible protein 1, LPS-stimulated RAW 264.7 macrophage protein 47 homolog,
LRG-47, IRGM, IFI1, IRGM1, LRG47

Reconstitution & Storage
Short term 4°C, long term aliquot and store at -20°C, avoid freeze thaw cycles. Store undiluted.

Precautions
IRGM / LRG-47 Antibody (Internal) is for research use only and not for use in diagnostic or
therapeutic procedures.

IRGM / LRG-47 Antibody (Internal) - Protein Information

Name IRGM {ECO:0000303|PubMed:19266026, ECO:0000312|HGNC:HGNC:29597}

Function
Immunity-related GTPase that plays important roles in innate immunity and inflammatory
response (PubMed:16888103, PubMed:19165925, PubMed:25891078). Acts as a dynamin-like protein that binds to intracellular
membranes and promotes remodeling and trafficking of those membranes (By similarity).
Required for clearance of acute protozoan and bacterial infections by interacting with autophagy
and lysosome regulatory proteins, thereby promoting the fusion of phagosomes with lysosomes for
efficient degradation of cargo including microbes (PubMed:16888103, PubMed:

href="http://www.uniprot.org/citations/25891078" target="_blank">25891078, PubMed:29420192, PubMed:32939830). Regulates selective autophagy, including xenophagy and mitophagy, both directly and indirectly (PubMed:16888103, PubMed:25891078, PubMed:29420192, PubMed:32939830). Directly regulates autophagy by acting as a molecular adapter that promotes the coassembly of the core autophagy machinery to mediate antimicrobial defense: IRGM (1) activates AMPK, which in turn phosphorylates ULK1 and BECN1 to induce autophagy, (2) promotes the coassembly of ULK1 and BECN1, enhancing BECN1-interacting partners and (3) influences the composition of the BECN1 complex, by competing with the negative regulators BCL2 and RUBCN, to trigger autophagy (PubMed:25891078). Also activates autophagy by promoting recruitment of STX17 to autophagosomes (PubMed:29420192). In collaboration with ATG8 proteins, regulate lysosomal biogenesis, a fundamental process for any autophagic pathway, by promoting TFEB dephosphorylation (PubMed:32753672). Also modulates autophagy by assisting with autophagosome formation and preventing lysosomal deacidification (By similarity). While activating autophagy, acts as a key negative regulator of the inflammatory and interferon responses both by (1) promoting mitophagy and (2) mediating autophagy- dependent degradation of effectors of the inflammatory response (PubMed:30612879, PubMed:32715615, PubMed:36221902). Promotes degradation of damaged and IFNG/IFN-gamma-stressed mitochondria via mitophagy, preventing cytosolic release of ligands that activate inflammation (PubMed:32715615). Acts as a suppressor of inflammation by promoting recruitment of inflammation effectors, such as CGAS, RIGI/RIG-I and NLRP3, to autophagosome membranes, leading to their SQSTM1/p62-dependent autophagic degradation (PubMed:30612879, PubMed:32715615). Also directly inhibits assembly of the NLRP3 inflammasome by preventing the association between NLRP3 and PYCARD (PubMed:30612879). Acts as a negative regulator of antiviral innate immune response by suppressing the RIPK2-dependent pro-inflammatory response: mediates recruitment of RIPosomes, composed of RIPK2 and NOD1 or NOD2, to autophagosome membranes, promoting their SQSTM1/p62- dependent autophagic degradation (PubMed:34467632, PubMed:36221902).

Cellular Location

Golgi apparatus membrane. Cell membrane {ECO:0000250|UniProtKB:Q60766}. Cytoplasmic vesicle, phagosome membrane {ECO:0000250|UniProtKB:Q60766}. Cytoplasmic vesicle, autophagosome membrane. Lysosome membrane {ECO:0000250|UniProtKB:Q60766}. Late endosome membrane {ECO:0000250|UniProtKB:Q60766}. Mitochondrion membrane {ECO:0000250|UniProtKB:Q60766}. Cell projection, phagocytic cup {ECO:0000250|UniProtKB:Q60766}. Note=Behaves like an integral membrane protein. Recruited to the plasma membrane around forming phagocytic cups, it remains associated with maturing phagosomes. Association with phagosomes is dependent on nucleotide-binding but is IFNG-independent Also detected in late endosomes and lysosomes {ECO:0000250|UniProtKB:Q60766}

Tissue Location

Widely expressed (at protein level) (PubMed:16888103). Expressed in several tissues including

colon, small bowel and peripheral blood leukocytes (PubMed:17554261)
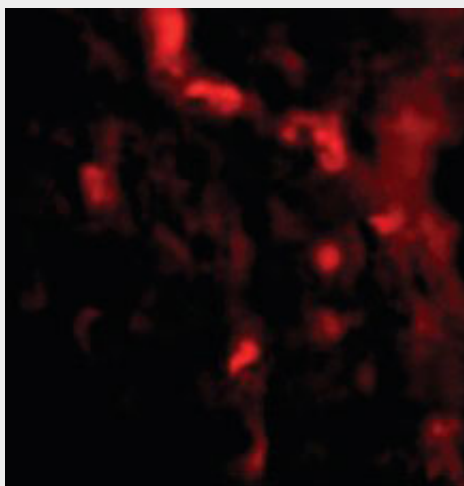
IRGM / LRG-47 Antibody (Internal) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
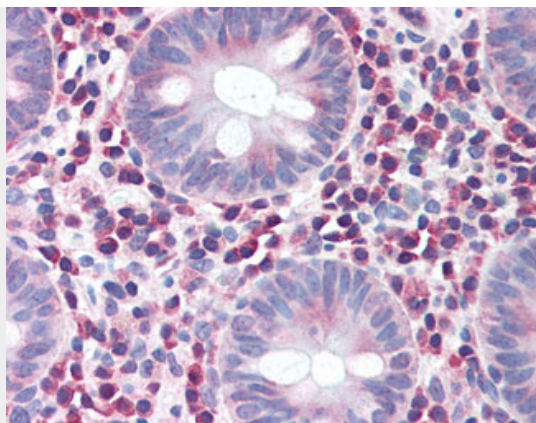- Flow Cytomety
- Cell Culture

IRGM / LRG-47 Antibody (Internal) - Images
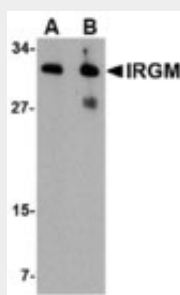
Western blot of IRGM in human brain lysate with IRGM antibody at (A) 1 and (B) 2 ug/ml.

Immunofluorescence of IRGM in Human Brain cells with IRGM antibody at 20 ug/ml.

Anti-IRGM antibody IHC of human colon.

IRGM / LRG-47 Antibody (Internal) - Background

Putative GTPase which is required for clearance of acute protozoan and bacterial infections. Functions in innate immune response probably through regulation of autophagy. May regulate proinflammatory cytokine production and prevent endotoxemia upon infection. May also play a role in macrophages adhesion and motility (By similarity).

IRGM / LRG-47 Antibody (Internal) - References

Bekpen C.,et al.PLoS Genet. 5:E1000403-E1000403(2009).
Mural R.J.,et al.Submitted (SEP-2005) to the EMBL/GenBank/DDBJ databases.
Bekpen C.,et al.Genome Biol. 6:R92.1-R92.18(2005).
Singh S.B.,et al.Science 313:1438-1441(2006).
Parkes M.,et al.Nat. Genet. 39:830-832(2007).