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IRF3 Antibody

Catalog # ASC10270

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q14653
Other Accession	NP_001562, 4504725
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	47219
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	IRF3 antibody can be used for detection of IRF3 by Western blot at 1 - 4 g/mL. Antibody can also be used for immunohistochemistry starting at 2 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	3661
Other Names	IRF3 Antibody: Interferon regulatory factor 3, IRF-3, interferon regulatory factor 3
Target/Specificity	IRF3; At least three isoforms of IRF3 are known to exist.
Reconstitution & Storage	IRF3 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	IRF3 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	IRF3 {ECO:0000303|PubMed:9803267, ECO:0000312|HGNC:HGNC:6118}
Function	Key transcriptional regulator of type I interferon (IFN)- dependent immune responses which plays a critical role in the innate immune response against DNA and RNA viruses (PubMed:22394562, PubMed:24049179, PubMed:25636800, PubMed:27302953, PubMed:31340999, PubMed:36603579, PubMed:8524823, PubMed:39362857). Regulates the transcription of type I IFN genes (IFN-alpha and IFN-beta) and IFN- stimulated genes (ISG) by binding to an interferon-stimulated response element (ISRE) in their promoters (PubMed:11846977, PubMed:16846591, PubMed:16979567, PubMed:20049431, PubMed:32972995, PubMed:36603579,

	PubMed:8524823). Acts as a more potent activator of the IFN-beta (IFNB) gene than the IFN-alpha (IFNA) gene and plays a critical role in both the early and late phases of the IFNA/B gene induction (PubMed:16846591, PubMed:16979567, PubMed:20049431, PubMed:36603579). Found in an inactive form in the cytoplasm of uninfected cells and following viral infection, double-stranded RNA (dsRNA), or toll-like receptor (TLR) signaling, is phosphorylated by IKBKE and TBK1 kinases (PubMed:22394562, PubMed:25636800, PubMed:27302953, PubMed:36603579). This induces a conformational change, leading to its dimerization and nuclear localization and association with CREB binding protein (CREBBP) to form dsRNA-activated factor 1 (DRAF1), a complex which activates the transcription of the type I IFN and ISG genes (PubMed:16154084, PubMed:27302953, PubMed:33440148, PubMed:36603579). Can activate distinct gene expression programs in macrophages and can induce significant apoptosis in primary macrophages (PubMed:16846591). In response to Sendai virus infection, is recruited by TOMM70:HSP90AA1 to mitochondrion and forms an apoptosis complex TOMM70:HSP90AA1:IRF3:BAX inducing apoptosis (PubMed:25609812). Key transcription factor regulating the IFN response during SARS-CoV-2 infection (PubMed:33440148).
Cellular Location	Cytoplasm. Nucleus Mitochondrion. Note=Shuttles between cytoplasmic and nuclear compartments, with export being the prevailing effect (PubMed:10805757, PubMed:35922005). When activated, IRF3 interaction with CREBBP prevents its export to the cytoplasm (PubMed:10805757) Recruited to mitochondria via TOMM70:HSP90AA1 upon Sendai virus infection (PubMed:25609812).
Tissue Location	Expressed constitutively in a variety of tissues.

Background

IRF3 Antibody: Interferons (IFN)s are involved in a multitude of immune interactions during viral infections and play a major role in both the induction and regulation of innate and adaptive antiviral mechanisms. During infection, host-virus interactions signal downstream molecules such as transcription factors such as IFN regulatory factor-3 (IRF3) which can act to stimulate transcription of IFN-alpha/beta genes. IRF3 is present in an inactive form in the cytoplasm of most cells. Following viral infection, IRF3 can be activated by IκB kinase-ε and TANK-binding kinase 1 (TBK1), whereupon IRF3 translocates to the nucleus. IRF3 can also be activated by stimulation of toll-like receptor 3 (TLR3) by dsRNA. IRF3 exists as at least two distinct isoforms.

References

Malmgaard L. Induction and regulation of IFNs during viral infections. J. Interferon & Cyto. Res. 2004; 24:439-54

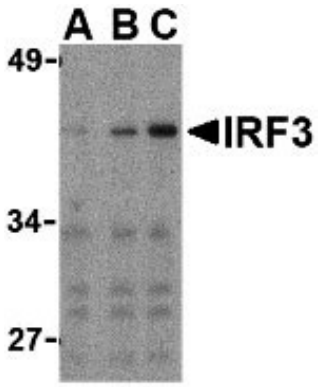
Au WC, Moore PA, Lowther W, et al. Identification of a member of the interferon regulatory factor family that binds to the interferon-stimulated response element and activates expression of interferon-induced genes. Proc. Natl. Acad. Sci. USA 1995; 92:11657-61.

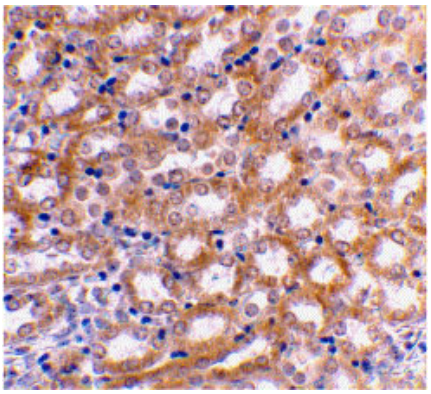
Fitzgerald KA, McWhirter SM, Faia KL, et al. IKKepsilon and TBK1 are essential components of the IRF3 signaling pathway. Nat. Immunol. 2003; 4:491-6.

Sharma S, Tenoever BR, Grandvaux N, et al. Triggering the interferon antiviral response through an IKK-related pathway. Science 2003; 300:1148-51.

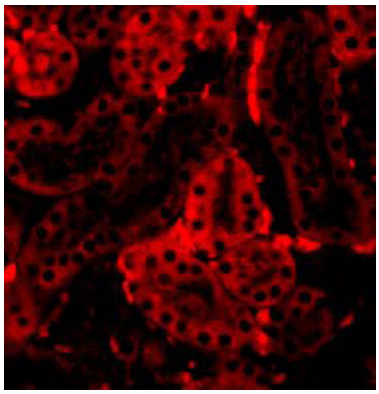
Images

Western blot analysis of IRF3 in Ramos whole cell lysate with IRF3 antibody at (A) 1, (B) 2, and (C) 4 µg/mL.





Immunohistochemical staining of mouse kidney using IRF3 antibody at 2 µg/mL.



Immunofluorescence of IRF3 in Mouse Kidney cells with IRF3 antibody at 20 µg/mL.

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