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# IRF3 Antibody

Catalog # ASC10271

## Product Information

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| **Application** | WB, IF, ICC, E |
| **Primary Accession** | Q14653 |
| **Other Accession** | NP_001562, 4504725 |
| **Reactivity** | Human |
| **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 immunocytochemistry starting at 2 g/mL. For immunofluorescence start at 2 g/mL. |

## Additional Information

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| **Gene ID** | 3661 |
| **Other Names** | IRF3 Antibody: Interferon regulatory factor 3, IRF-3, interferon regulatory factor 3 |
| **Target/Specificity** | IRF3; |
| **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

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| **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, |

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| | 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

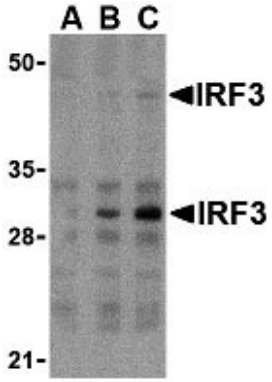
IRF3 Antibody: Interferons (IFN)s are involved in a multitude of immune interactions during viral infections and play a major role in both the induction and regulation of innate and adaptive antiviral mechanisms. During infection, host-virus interactions signal downstream molecules such as transcription 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.

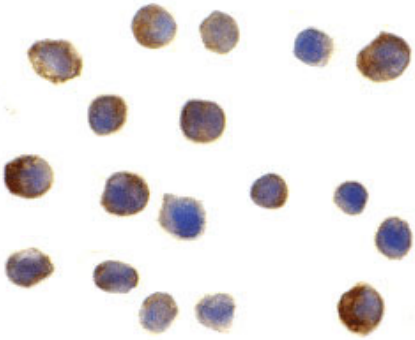
## References


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.

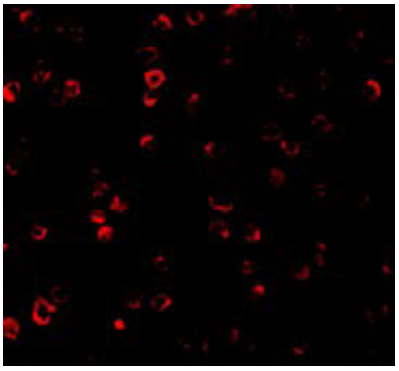

## Images

Western blot analysis of IRF3 in U937 whole cell lysate with IRF3 antibody at (A) 1, (B) 2, and (C) 4 µg/mL.



Immunocytochemistry of IRF3 in Ramos cells with IRF3 antibody at 2 µg/mL.



Immunofluorescence of IRF3 in Ramos cells with IRF3 antibody at 2 µg/mL.

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