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# IRAK Antibody [8F1A7]

Catalog # ASC12010

## Product Information

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| **Application** | WB, E, IHC-P |
| **Primary Accession** | P51617 |
| **Other Accession** | P51617, 8928535 |
| **Reactivity** | Human, Mouse |
| **Host** | Mouse |
| **Clonality** | Monoclonal |
| **Isotype** | IgG1 |
| **Clone Names** | 8F1A7 |
| **Calculated MW** | 76537 |
| **Concentration (mg/ml)** | 1 mg/mL |
| **Conjugate** | Unconjugated |
| **Application Notes** | IRAK antibody can be used for Western blot at 1 - 2 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL. |

## Additional Information

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| **Gene ID** | 3654 |
| **Other Names** | Interleukin-1 receptor-associated kinase 1, IRAK-1, 2.7.11.1, IRAK1, IRAK |
| **Target/Specificity** | IRAK1; |
| **Reconstitution & Storage** | IRAK monoclonal antibody can be stored at -20℃, stable for one year. |
| **Precautions** | IRAK Antibody [8F1A7] is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | IRAK1 ( HGNC:6112) |
| **Synonyms** | IRAK |
| **Function** | Serine/threonine-protein kinase that plays a critical role in initiating innate immune response against foreign pathogens. Involved in Toll-like receptor (TLR) and IL-1R signaling pathways. Is rapidly recruited by MYD88 to the receptor-signaling complex upon TLR activation. Association with MYD88 leads to IRAK1 phosphorylation by IRAK4 and subsequent autophosphorylation and kinase activation. Phosphorylates E3 ubiquitin ligases Pellino proteins (PELI1, PELI2 and PELI3) to promote pellino-mediated polyubiquitination of IRAK1. Then, the ubiquitin-binding domain of IKBKG/NEMO binds to polyubiquitinated IRAK1 bringing together the IRAK1-MAP3K7/TAK1-TRAF6 complex and the NEMO-IKKA-IKKB complex. In turn, MAP3K7/TAK1 activates IKKs (CHUK/IKKA and IKBKB/IKKB) leading to |

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| | NF-kappa-B nuclear translocation and activation. Alternatively, phosphorylates TIRAP to promote its ubiquitination and subsequent degradation. Phosphorylates the interferon regulatory factor 7 (IRF7) to induce its activation and translocation to the nucleus, resulting in transcriptional activation of type I IFN genes, which drive the cell in an antiviral state. When sumoylated, translocates to the nucleus and phosphorylates STAT3. |
| **Cellular Location** | Cytoplasm. Nucleus. Lipid droplet Note=Translocates to the nucleus when sumoylated. RSAD2/viperin recruits it to the lipid droplet (By similarity). |
| **Tissue Location** | Isoform 1 and isoform 2 are ubiquitously expressed in all tissues examined, with isoform 1 being more strongly expressed than isoform 2. |

## Background

IRAK Monoclonal Antibody: Nuclear factor kappa B (NF-kappaB) is a ubiquitous transcription factor and an essential mediator of gene expression during activation of immune and inflammatory responses. NF-κB mediates the expression of a great variety of genes in response to extracellular stimuli including IL-1, TNFalpha and LPS. A serine/threonine protein kinase associated with IL-1 receptor (IRAK) and its homologue mouse pelle-like protein kinase (mPLK) were identified recently. IRAK is associated with the IL-1 receptor subunits IL-1RI and IL-1RAcP after IL-1 binding and serves as a signaling molecule to mediate IL-1 response. IRAK mediates a signaling cascade leading to NF-κB activation by members in IL-1 family including IL-1 and a novel cytokine IL-18 (also termed IGIF).

## References

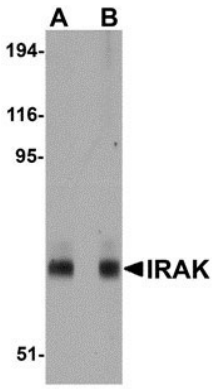

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Jianing Huang, Xiong Gao, Shyun Li, et al. Recruitment of IRAK to the interleukin 1 receptor complex requires interleukin-1 receptor accessory protein. Proc. Natl. Acad. Sci. USA 1997; 94:12829-32.

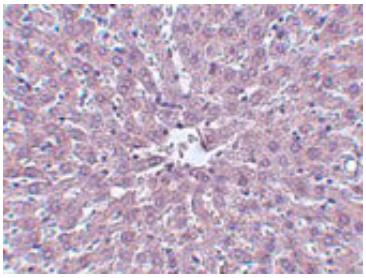
Robinson D, Shibuya K, Mui A, et al. IGIF does not drive Th1 development but synergizes with IL-12 for interferon-gamma production and activates IRAK and NF-kB. Immunity 1997; 7:571-81.


## Images




Western blot analysis of IRAK in mouse liver lysate with IRAK antibody at (A) 1 and (B) 2 µg/mL.

Immunohistochemistry of IRAK in rat liver tissue with IRAK antibody at 5 µg/mL.



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