

**IRAK1 / IRAK Antibody (clone 3F7)**  
**Mouse Monoclonal Antibody**  
**Catalog # ALS13345****Specification**

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**IRAK1 / IRAK Antibody (clone 3F7) - Product Information**

Application	WB, IF, IHC
Primary Accession	<a href="#">P51617</a>
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Calculated MW	77kDa KDa

**IRAK1 / IRAK Antibody (clone 3F7) - Additional Information****Gene ID** 3654**Other Names**

Interleukin-1 receptor-associated kinase 1, IRAK-1, 2.7.11.1, IRAK1, IRAK

**Reconstitution & Storage**

Store at -20°C. Aliquot to avoid freeze/thaw cycles.

**Precautions**

IRAK1 / IRAK Antibody (clone 3F7) is for research use only and not for use in diagnostic or therapeutic procedures.

**IRAK1 / IRAK Antibody (clone 3F7) - Protein Information****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 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).

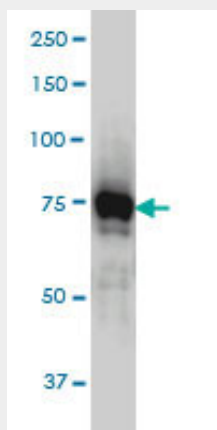
**Tissue Location**

Isoform 1 and isoform 2 are ubiquitously expressed in all tissues examined, with isoform 1 being more strongly expressed than isoform 2.

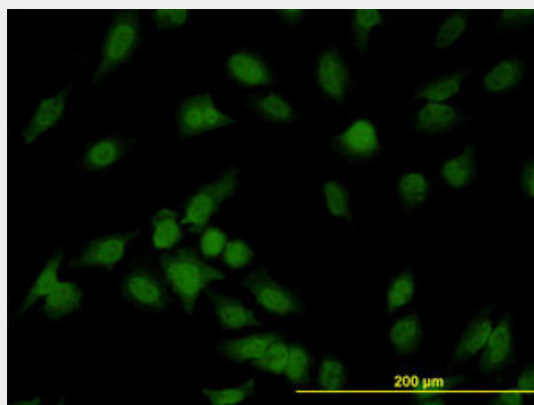
**IRAK1 / IRAK Antibody (clone 3F7) - Protocols**

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

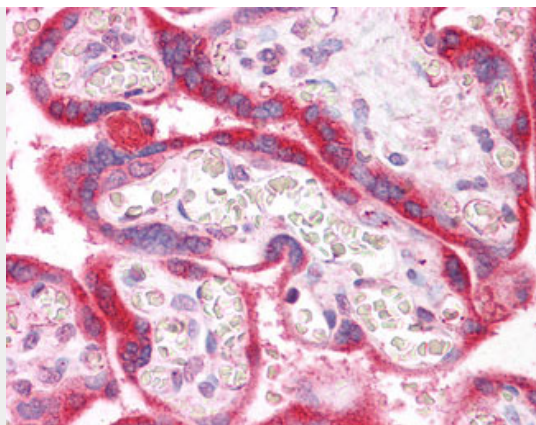
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

**IRAK1 / IRAK Antibody (clone 3F7) - Images**

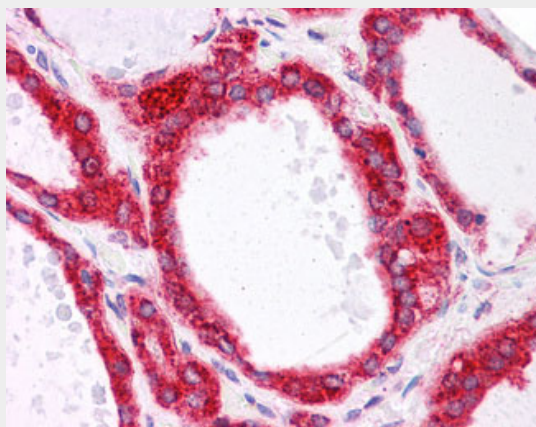
IRAK1 monoclonal antibody clone 3F7 Western blot of IRAK1 expression in K-562.



Immunofluorescence of monoclonal antibody to IRAK1 on HeLa cell (antibody concentration 10 ug/ml).



Anti-IRAK1 / IRAK antibody IHC of human placenta.



Anti-IRAK1 / IRAK antibody IHC of human thyroid.

#### **IRAK1 / IRAK Antibody (clone 3F7) - Background**

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 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.

#### **IRAK1 / IRAK Antibody (clone 3F7) - References**

- Cao Z.,et al.Science 271:1128-1131(1996).  
Reichwald K.,et al.Mamm. Genome 11:182-190(2000).  
Jensen L.E.,et al.J. Biol. Chem. 276:29037-29044(2001).  
Rao N.,et al.Mol. Cell. Biol. 25:6521-6532(2005).  
Ross M.T.,et al.Nature 434:325-337(2005).