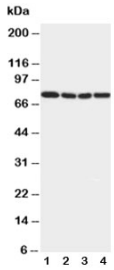
IRAK1 Antibody / Interleukin 1 receptor associated kinase 1 (R31305)

Catalog No.	Formulation	Size
R31305	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide/thimerosal
UniProt	P51617
Applications	Western Blot : 0.5-1ug/ml
Limitations	This IRAK1 antibody is available for research use only.



Western blot testing of IRAK1 antibody and Lane 1: rat liver; 2: human placenta; 3: human MCF-7; 4: human PANC cell lysate. Predicted molecular weight: ~76 kDa.

Description

IRAK1 antibody targets Interleukin 1 receptor associated kinase 1, encoded by the IRAK1 gene. IRAK1 is a cytoplasmic serine-threonine kinase that plays a central role in innate immune signaling downstream of Toll-like receptors and the interleukin 1 receptor. Upon receptor activation, IRAK1 is recruited to receptor complexes where it participates in early signal transduction events that link extracellular inflammatory cues to intracellular responses. Its localization is primarily cytoplasmic, with dynamic association to receptor-proximal signaling complexes during immune activation.

Functionally, Interleukin 1 receptor associated kinase 1 acts as a key mediator of MyD88-dependent signaling pathways.

IRAK1 undergoes phosphorylation and activation following receptor engagement, enabling downstream signaling cascades that lead to activation of NF-kappaB and MAPK pathways. Through these mechanisms, IRAK1 regulates transcription of inflammatory cytokines, chemokines, and other immune response genes. An IRAK1 antibody supports studies focused on innate immune signaling and inflammatory pathway regulation.

IRAK1 is expressed in a wide range of immune and non-immune cell types, reflecting the broad involvement of Toll-like receptor and interleukin 1 signaling across tissues. Its activity is tightly regulated through post-translational modifications, including phosphorylation and ubiquitination, which control signal amplitude and duration. IRAK1 interacts with multiple adaptor and regulatory proteins, positioning it as a central hub in early immune signaling networks.

From a disease-relevance perspective, dysregulation of IRAK1 signaling has been implicated in chronic inflammatory disorders, autoimmune disease, and cancer. Aberrant IRAK1 activation can contribute to sustained inflammatory signaling, while altered regulation has been associated with tumor progression and immune evasion in certain malignancies. These associations have made IRAK1 an important focus of research into inflammation-driven disease mechanisms and therapeutic intervention strategies.

At the molecular level, Interleukin 1 receptor associated kinase 1 contains a conserved kinase domain and regulatory regions that control its activation and interaction with signaling partners. Phosphorylation-dependent mobility shifts and protein complex formation can influence its apparent behavior in biochemical assays without altering primary sequence. IRAK1 antibody reagents support research applications focused on immune receptor signaling, inflammation biology, and disease-associated alterations in innate immune pathways, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

The stated application concentrations are suggested starting points. Titration of the IRAK1 antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

An amino acid sequence from the N-terminus of human IRAK (FLYEVPPWVMCRFYKVMDAL) was used as the immunogen for this IRAK1 antibody (100% homologous in human, mouse and rat).

Storage

After reconstitution, the IRAK1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.