

# IRAK-4 (5-RY38): sc-134368

## BACKGROUND

Interleukin-1 receptor (IL1R)-associated kinases (IRAKs) are important mediators in the signal transduction of Toll-like receptor (TLR) and IL1R family members, collectively referred to as TIRs. IRAK family members include two active kinases, IRAK-1 and IRAK-4, and two inactive kinase, IRAK-2 and IRAK-M. Binding of IL-1 to its cognate receptor results in the activation of the NF $\kappa$ B signaling pathway and MAP kinase pathways. IRAK-4 appears to act upstream of other IRAKs and phosphorylates IRAK-1 on Threonine 387. It is highly expressed in liver and kidney tissues, but also displays a wide, low level of expression in other tissues. IRAK-4 is an essential component of innate immunity. Deficiency of IRAK-4 leads to recurrent bacterial infections and profound hyporesponsiveness to LPS and IL-1. Therefore, IRAK-4 may be a potential target for therapeutic drug design.

## REFERENCES

- Li, S., et al. 2002. IRAK-4: a novel member of the IRAK family with the properties of an IRAK-kinase. *Proc. Natl. Acad. Sci. USA* 99: 5567-5572.
- Janssens, S. and Beyaert, R. 2003. Functional diversity and regulation of different interleukin-1 receptor-associated kinase (IRAK) family members. *Mol. Cell* 11: 293-302.
- Lye, E., et al. 2004. The role of interleukin 1 receptor-associated kinase-4 (IRAK-4) kinase activity in IRAK-4-mediated signaling. *J. Biol. Chem.* 279: 40653-40658.
- Medvedev, A.E., et al. 2005. Cutting edge: expression of IL-1 receptor-associated kinase-4 (IRAK-4) proteins with mutations identified in a patient with recurrent bacterial infections alters normal IRAK-4 interaction with components of the IL-1 receptor complex. *J. Immunol.* 174: 6587-6591.
- Lasker, M.V., et al. 2005. Cutting edge: molecular structure of the IL-1R-associated kinase-4 death domain and its implications for TLR signaling. *J. Immunol.* 175: 4175-4179.

## CHROMOSOMAL LOCATION

Genetic locus: IRAK4 (human) mapping to 12q12.

## SOURCE

IRAK-4 (5-RY38) is a mouse monoclonal antibody raised against recombinant IRAK-4 protein of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG $_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4°C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

IRAK-4 (5-RY38) is recommended for detection of IRAK-4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IRAK-4 siRNA (h): sc-45400, IRAK-4 shRNA Plasmid (h): sc-45400-SH and IRAK-4 shRNA (h) Lentiviral Particles: sc-45400-V.

Molecular Weight (predicted) of IRAK-4: 52 kDa.

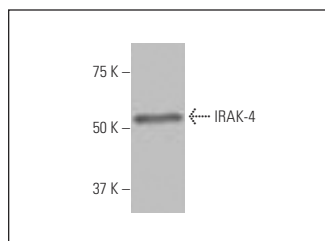
Molecular Weight (observed) of IRAK-4: 51-68 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Jurkat whole cell lysate: sc-2204 or MCF7 whole cell lysate: sc-2206.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## DATA



IRAK-4 (5-RY38): sc-134368. Western blot analysis of IRAK-4 expression in K-562 whole cell lysate.

## SELECT PRODUCT CITATIONS

- Wu, Y., et al. 2017. Nobiletin ameliorates ischemia-reperfusion injury by suppressing the function of Kupffer cells after liver transplantation in rats. *Biomed. Pharmacother.* 89: 732-741.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.