SANTA CRUZ BIOTECHNOLOGY, INC.

IRAK-4 (S-20): sc-34469

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 NFκB signaling pathway and MAP kinase pathways. IRAK-4 appears to act up-stream 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

1. 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.
2. Janssens, S., et al. 2003. Functional diversity and regulation of different interleukin-1 receptor-associated kinase (IRAK) family members. Mol. Cell 11: 293-302.
3. 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.
4. 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 J. Immunol. 174: 6587-6591.
5. 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; Irak4 (mouse) mapping to 15 E3.

SOURCE

IRAK-4 (S-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of IRAK-4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-34469 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

IRAK-4 (S-20) is recommended for detection of IRAK-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

IRAK-4 (S-20) is also recommended for detection of IRAK-4 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for IRAK-4 siRNA (h): sc-45400, IRAK-4 siRNA (m): sc-45401, IRAK-4 shRNA Plasmid (h): sc-45400-SH, IRAK-4 shRNA Plasmid (m): sc-45401-SH, IRAK-4 shRNA (h) Lentiviral Particles: sc-45400-V and IRAK-4 shRNA (m) Lentiviral Particles: sc-45401-V.

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

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

Positive Controls: THP-1 cell lysate: sc-2238, MCF7 whole cell lysate: sc-2206 or Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Blander, J.M. 2009. Analysis of the TLR/NFκB pathway in antigen-presenting cells in malignancies promoted by inflammation. Methods Mol. Biol. 512: 99-117.
2. Garcıa, J.A., et al. 2015. Disruption of the NFκB/NLRP3 connection by melatonin requires retinoid-related orphan receptor-α and blocks the septic response in mice. FASEB J. E-published.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.