SANTA CRUZ BIOTECHNOLOGY, INC.

IRAK-4 (G-2): sc-374349

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.

SOURCE

IRAK-4 (G-2) is a mouse monoclonal antibody raised against amino acids 1-100 mapping at the N-terminus of IRAK-4 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IRAK-4 (G-2) is available conjugated to agarose (sc-374349 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-374349 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374349 PE), fluorescein (sc-374349 FITC), Alexa Fluor® 488 (sc-374349 AF488), Alexa Fluor® 546 (sc-374349 AF546), Alexa Fluor® 594 (sc-374349 AF594) or Alexa Fluor® 647 (sc-374349 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374349 AF680) or Alexa Fluor® 790 (sc-374349 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

IRAK-4 (G-2) is recommended for detection of IRAK-4 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

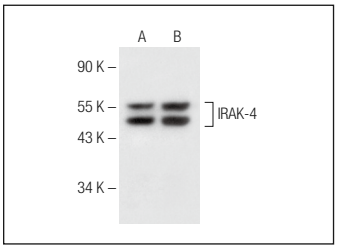
Suitable for use as control antibody for IRAK-4 siRNA (h): sc-45400, IRAK-4 shRNA Plasmid (h): sc-45400-SH and IRAK-4 shRNA (h) Lentiviral Particles: sc-45400-V.

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

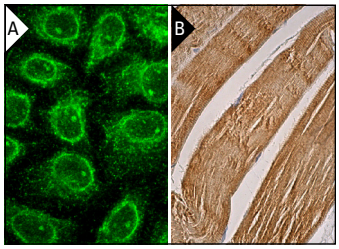
Molecular Weight (observed) of IRAK-4: 51-68 kDa.

Positive Controls: THP-1 cell lysate: sc-2238, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

DATA



IRAK-4 (G-2): sc-374349. Western blot analysis of IRAK-4 expression in Jurkat (**A**) and K-562 (**B**) whole cell lysates.



IRAK-4 (G-2): sc-374349. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes (**B**).

SELECT PRODUCT CITATIONS

1. Fan, C.S., et al. 2022. Extracellular HSP90α induces MyD88-IRAK complex-associated IKKα/β-NFκB/IRF3 and JAK2/TYK2-Stat3 signaling in macrophages for tumor-promoting M2-polarization. Cells 11: 229.
2. Li, Y., et al. 2023. Sufu limits sepsis-induced lung inflammation via regulating phase separation of TRAF6. Theranostics 13: 3761-3780.
3. Qin, B.F., et al. 2023. Regulation of Nur77-TLR4/MyD88 signaling pathway is required for Ginsenoside Rc ameliorates hepatic fibrosis regression by deactivating hepatic stellate cells. Acta Histochem. 125: 152079.

STORAGE

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

RESEARCH USE

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