

# IRAK-1 (E-5): sc-515512

## BACKGROUND

Three structurally related ligands for IL-1Rs have been described. These include two agonists, IL-1 $\alpha$  and IL-1 $\beta$ , and a specific receptor antagonist, IL-1R $\alpha$ . Two distinct receptors designated IL-1RI and IL-1RII have been identified, each of which belong to the Ig superfamily. The preponderance of evidence suggests IL-1RI to be the functional IL-1 receptor. Binding of IL-1 to its cognate receptor results in the activation of the NF $\kappa$ B signaling pathway. The IL-1-dependent kinase termed IRAK (for IL-1 receptor-associated kinase) co-immunoprecipitates with activated IL-1RI and has been implicated as an upstream mediator of NF $\kappa$ B activation. Additional support for this assertion comes from the fact that a related *Drosophila* protein, Pelle, is a known upstream activator of Dorsal, the *Drosophila* homolog of NF $\kappa$ B.

## REFERENCES

1. Sims, J.E., et al. 1989. Cloning of the interleukin-1 receptor from human T cells. *Proc. Natl. Acad. Sci. USA* 86: 8946-8950.
2. McMahan, C.J., et al. 1991. A novel IL-1 receptor, cloned from B cells by mammalian expression, is expressed in many cell types. *EMBO J.* 10: 2821-2832.
3. Dower, S.K., et al. 1992. The interleukin-1 system: receptors, ligands and signals. *Chem. Immunol.* 51: 33-64.
4. Arend, W.P., et al. 1994. Binding of IL-1 $\alpha$ , IL-1 $\beta$  and IL-1 receptor antagonist by soluble IL-1 receptors and levels of soluble IL-1 receptors in synovial fluids. *J. Immunol.* 153: 4766-4774.
5. Giri, J.G., et al. 1994. Elevated levels of shed type II IL-1 receptor in sepsis. Potential role for type II receptor in regulation of IL-1 responses. *J. Immunol.* 153: 5802-5809.
6. Croston, G.E., et al. 1995. NF $\kappa$ B activation by interleukin-1 (IL-1) requires an IL-1 receptor-associated protein kinase activity. *J. Biol. Chem.* 270: 16514-16517.
7. Cao, Z., et al. 1996. IRAK: a kinase associated with the interleukin-1 receptor. *Science* 271: 1128-1131.

## CHROMOSOMAL LOCATION

Genetic locus: IRAK1 (human) mapping to Xq28; Irak1 (mouse) mapping to X A7.3.

## SOURCE

IRAK-1 (E-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 689-712 at the C-terminus of IRAK-1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-515512 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

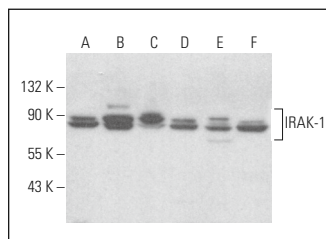
IRAK-1 (E-5) is recommended for detection of IRAK-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for IRAK-1 siRNA (h): sc-35704, IRAK-1 siRNA (m): sc-35705, IRAK-1 siRNA (r): sc-270326, IRAK-1 shRNA Plasmid (h): sc-35704-SH, IRAK-1 shRNA Plasmid (m): sc-35705-SH, IRAK-1 shRNA Plasmid (r): sc-270326-SH, IRAK-1 IRAK-1 shRNA (h) Lentiviral Particles: sc-35704-V, IRAK-1 shRNA (m) Lentiviral Particles: sc-35705-V and IRAK-1 shRNA (r) Lentiviral Particles: sc-270326-V.

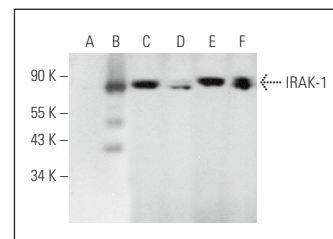
Molecular Weight of IRAK-1: 80 kDa.

Positive Controls: IRAK-1 (h4): 293T Lysate: sc-177400, HeLa whole cell lysate: sc-2200 or MCF7 nuclear extract: sc-2149.

## DATA



IRAK-1 (E-5): sc-515512. Western blot analysis of IRAK-1 expression in T24 (A), SK-N-MC (B), PC-3 (C), NIH/3T3 (D), RAW 264.7 (E) and 3611-RF (F) whole cell lysates.



IRAK-1 (E-5): sc-515512. Western blot analysis of IRAK-1 expression in non-transfected 293T: sc-117752 (A), human IRAK-1 transfected 293T: sc-177400 (B), HeLa (C) and PC-3 (D) whole cell lysates and MCF7 (E) and K-562 (F) nuclear extracts.

## SELECT PRODUCT CITATIONS

1. Li, H.N., et al. 2019. miR-146a-5p suppresses ATP-binding cassette sub-family G member 1 dysregulation in patients with refractory *Mycoplasma pneumoniae* via interleukin 1 receptor-associated kinase 1 downregulation. *Int. J. Mol. Med.* 44: 2003-2014.

## 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.



See **IRAK-1 (F-4): sc-5288** for IRAK-1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.