SANTA CRUZ BIOTECHNOLOGY, INC.

p40-phox (D-8): sc-48388

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Nicotinamide adenine dinucleotide phosphate (NADPH)-oxidase is a multimeric enzyme system that mediates electron transport from NADPH in the cytoplasm to molecular oxygen in the phagosome, thereby generating reactive oxidant intermediates. Upon neutrophil stimulation, NADPH-oxidase and other cytosolic elements localize to the cell membrane from the cytosol to form a complex which produces phagocytic oxygen radicals. There are a number of cytosolic proteins that are involved in NADPH-oxidase activation/deactivation, including p47-phox, p67-phox, p40-phox and the small GTP-binding protein, Rac. Activation of NADPH oxidase is accompanied by the phosphorylation of cytosolic components p40-phox, p47-phox and p67-phox. The PKC consensus phosphorylation sites Thr 154 and Ser 315 in p40-phox are phosphorylated during activation of NADPH oxidase. p40-phox can promote oxidase activation by increasing the affinity of p47-phox for NADPH-oxidase. However, p40-phox appears to downregulate oxidase function as well, by competing with an SH3 domain interaction between other essential oxidase components.

REFERENCES

1. Sathyamoorthy, M., et al. 1997. $p40^{phox}$ down-regulates NADPH oxidase activity through interactions with its SH3 domain. J. Biol. Chem. 272: 9141-9146.
2. Bouin, A.P., et al. 1998. $p40^{phox}$ is phosphorylated on threonine 154 and serine 315 during activation of the phagocyte NADPH oxidase. Implication of a protein kinase c-type kinase in the phosphorylation process. J. Biol. Chem. 273: 30097-30103.

CHROMOSOMAL LOCATION

Genetic locus: NCF4 (human) mapping to 22q12.3; Ncf4 (mouse) mapping to 15 E1.

SOURCE

p40-phox (D-8) is a mouse monoclonal antibody raised against amino acids 1-300 p40-phox of human origin.

PRODUCT

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

p40-phox (D-8) is available conjugated to agarose (sc-48388 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-48388 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-48388 PE), fluorescein (sc-48388 FITC), Alexa Fluor® 488 (sc-48388 AF488), Alexa Fluor® 546 (sc-48388 AF546), Alexa Fluor® 594 (sc-48388 AF594) or Alexa Fluor® 647 (sc-48388 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-48388 AF680) or Alexa Fluor® 790 (sc-48388 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

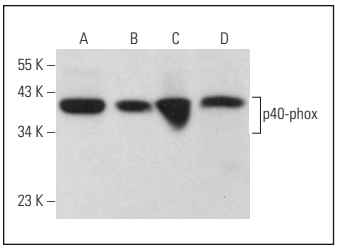
p40-phox (D-8) is recommended for detection of p40-phox of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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 p40-phox siRNA (h): sc-36155, p40-phox siRNA (m): sc-36156, p40-phox shRNA Plasmid (h): sc-36155-SH, p40-phox shRNA Plasmid (m): sc-36156-SH, p40-phox shRNA (h) Lentiviral Particles: sc-36155-V and p40-phox shRNA (m) Lentiviral Particles: sc-36156-V.

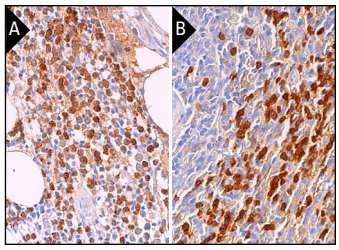
Molecular Weight of p40-phox: 40 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, RAW 264.7 whole cell lysate: sc-2211 or HL-60 whole cell lysate: sc-2209.

DATA



p40-phox (D-8): sc-48388. Western blot analysis of p40-phox expression in HL-60 (**A**), K-562 (**B**), THP-1 (**C**) and RAW 264.7 (**D**) whole cell lysates.



p40-phox (D-8): sc-48388. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bone marrow tissue showing cytoplasmic staining of hematopoietic cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic and nuclear staining of cells in red pulp (**B**).

SELECT PRODUCT CITATIONS

1. Kim, Y.M., et al. 2009. Genetic analysis of 10 unrelated Korean families with p22-phox-deficient chronic granulomatous disease: an unusually identical mutation of the CYBA gene on Jeju Island, Korea. J. Korean Med. Sci. 24: 1045-1050.
2. Sun, R., et al. 2021. TNFSF15 promotes antimicrobial pathways in human macrophages and these are modulated by TNFSF15 disease-risk variants. Cell. Mol. Gastroenterol. Hepatol. 11: 249-272.
3. Owusu, S.B., et al. 2022. Accumulation of cytochrome b_{558} at the plasma membrane: hallmark of oxidative stress in phagocytic cells. Int. J. Mol. Sci. 23: 767.

RESEARCH USE

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