SANTA CRUZ BIOTECHNOLOGY, INC.

gp91-phox (54.1): sc-130543

BACKGROUND

Mox1 and the glycoprotein gp91-phox are largely related proteins that are essential components of the NADPH oxidase. The superoxide-generating NADPH oxidase is present in phagocytes, neuroepithelial bodies, vascular smooth muscle cells and endothelial cells. It includes a membrane-bound flavocytochrome containing two subunits, gp91-phox and p22-phox, and the cytosolic proteins p47-phox and p67-phox. During activation of the NADPH oxidase, p47-phox and p67-phox migrate to the plasma membrane, where they associate with the flavocytochrome cytochrome b558 to form the active enzyme complex. The p22- and gp91-phox subunits also function as surface O_2 sensors that initiate cellular signaling in response to hypoxic conditions. Mox1 and gp91 contain identical C-terminal sequence identity, yet they have distinct expression patterns. gp91-phox is expressed in eosinophils, neutrophils, monocytes and B-lymphocytes, whereas Mox1 is predominantly detected in the colon, and low expression is also detected in the uterus and prostate. Mox1 is also upregulated in vascular smooth-muscle cells in response to PDGF stimulation, which collectively indicates that Mox1 may function analogously to gp91-phox, yet regulate the NADPH superoxide production in non-phagocytic cells.

RESEARCH USE

1. Henderson, L.M., et al. 1995. The arachidonate-activable, NADPH oxidase-associated H^+ channel. Evidence that gp91-phox functions as an essential part of the channel. J. Biol. Chem. 270: 5909-5916.
2. Ushio-Fukai, M., et al. 1996. p22phox is a critical component of the superoxide-generating NADH/NADPH oxidase system and regulates angiotensin II-induced hypertrophy in vascular smooth muscle cells. J. Biol. Chem. 271: 23317-23321.

CHROMOSOMAL LOCATION

Genetic locus: CYBB (human) mapping to Xp11.4; Cybb (mouse) mapping to X A1.1.

SOURCE

gp91-phox (54.1) is a mouse monoclonal antibody raised against amino acids 383-390 of gp91-phox of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

gp91-phox (54.1) is available conjugated to agarose (sc-130543 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-130543 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-130543 PE), fluorescein (sc-130543 FITC), Alexa Fluor® 488 (sc-130543 AF488), Alexa Fluor® 546 (sc-130543 AF546), Alexa Fluor® 594 (sc-130543 AF594) or Alexa Fluor® 647 (sc-130543 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-130543 AF680) or Alexa Fluor® 790 (sc-130543 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

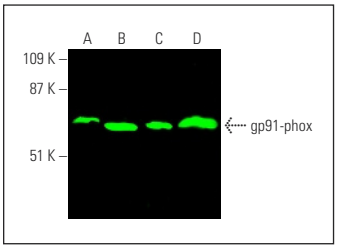
gp91-phox (54.1) is recommended for detection of gp91-phox of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); also recommended for detection of ERp57, Mox1, Nox3 and Nox4.

Suitable for use as control antibody for gp91-phox siRNA (h): sc-35503, gp91-phox siRNA (m): sc-35504, gp91-phox siRNA (r): sc-61838, gp91-phox shRNA Plasmid (h): sc-35503-SH, gp91-phox shRNA Plasmid (m): sc-35504-SH, gp91-phox shRNA Plasmid (r): sc-61838-SH, gp91-phox shRNA (h) Lentiviral Particles: sc-35503-V, gp91-phox shRNA (m) Lentiviral Particles: sc-35504-V and gp91-phox shRNA (r) Lentiviral Particles: sc-61838-V.

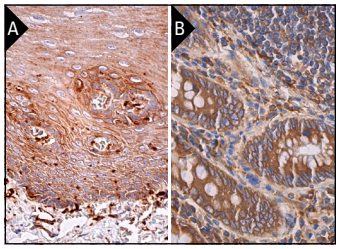
Molecular Weight of gp91-phox: 60/91 kDa.

Positive Controls: COLO 205 whole cell lysate: sc-364177, WEHI-3 cell lysate: sc-3815 or A-10 cell lysate: sc-3806.

DATA



gp91-phox (54.1): sc-130543. Near-infrared western blot analysis of gp91-phox expression in A-10 (**A**), COLO 205 (**B**), OVCAR-3 (**C**) and WEHI-3 (**D**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



gp91-phox (54.1): sc-130543. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic staining of squamous epithelial cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing cytoplasmic staining of glandular cells and lymphoid cells (**B**).

SELECT PRODUCT CITATIONS

1. Fortuno, A., et al. 2009. Insulin resistance determines phagocytic nicotinamide adenine dinucleotide phosphate oxidase overactivation in metabolic syndrome patients. J. Hypertens. 27: 1420-1430.
2. Pellegrino, E., et al. 2023. Peroxisomal ROS control cytosolic *Mycobacterium tuberculosis* replication in human macrophages. J. Cell Biol. 222: e202303066.
3. Shen, Y., et al. 2024. Panobinostat attenuates experimental autoimmune encephalomyelitis in mice via suppressing oxidative stress-related neuroinflammation and mitochondrial dysfunction. Int. J. Mol. Sci. 25: 12035.

STORAGE

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