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NOX4 Antibody

Catalog # ASC11835

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q9NPH5
Other Accession	NP_058627, 8393843
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	66932
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	NOX4 antibody can be used for detection of NOX4 by Western blot at 1 - 2 g/ml. Antibody can also be used for Immunohistochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	50507
Other Names	NADPH oxidase 4, 1.6.3.-, Kidney oxidase-1, KOX-1, Kidney superoxide-producing NADPH oxidase, Renal NAD(P)H-oxidase, NOX4, RENOX
Target/Specificity	NOX4; NOX4 antibody is human, mouse, and rat reactive. At least four isoforms of NOX4 are known to exist. NOX4 is predicted to not cross-react with other NOX proteins.
Reconstitution & Storage	NOX4 antibody can be stored at 4°C for three months and -20°C, stable for up to one year.
Precautions	NOX4 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NOX4
Synonyms	RENOX
Function	NADPH oxidase that catalyzes predominantly the reduction of oxygen to H2O2 (PubMed:14966267, PubMed:15356101, PubMed:15927447, PubMed:21343298, PubMed:25062272). Can also catalyze to a smaller extent, the reduction of oxygen to superoxide (PubMed:10869423, PubMed:11032835, PubMed:15155719, PubMed:15572675, PubMed:15927447, PubMed:16019190, PubMed:16179589, PubMed:16230378, PubMed:16324151, PubMed:25062272). May function as

	an oxygen sensor regulating the KCNK3/TASK-1 potassium channel and HIF1A activity (PubMed:16019190). May regulate insulin signaling cascade (PubMed:14966267). May play a role in apoptosis, bone resorption and lipolysaccharide-mediated activation of NFKB (PubMed:15356101, PubMed:15572675). May produce superoxide in the nucleus and play a role in regulating gene expression upon cell stimulation (PubMed:16324151). Promotes ferroptosis, reactive oxygen species production and reduced glutathione (GSH) levels by activating NLRP3 inflammasome activation and cytokine release (PubMed:39909992).
Cellular Location	Cytoplasm. Endoplasmic reticulum membrane; Multi-pass membrane protein. Cell membrane; Multi-pass membrane protein. Cell junction, focal adhesion {ECO:0000250|UniProtKB:Q924V1}. Nucleus [Isoform 3]: Cytoplasm. Cytoplasm, perinuclear region [Isoform 6]: Cytoplasm. Cytoplasm, perinuclear region
Tissue Location	Expressed by distal tubular cells in kidney cortex and in endothelial cells (at protein level). Widely expressed. Strongly expressed in kidney and to a lower extent in heart, adipocytes, hepatoma, endothelial cells, skeletal muscle, brain, several brain tumor cell lines and airway epithelial cells

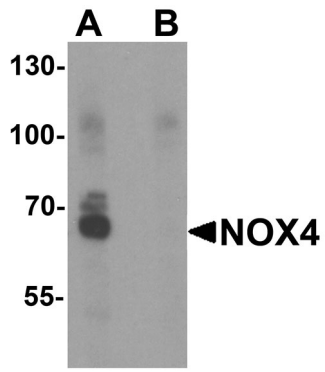
Background

The NOX family of NAPDH oxidases is comprised of seven transmembrane proteins that oxidize intracellular NAPDH/NADH, causing electron transport across the membrane and the reduction of molecular oxygen to superoxide (1). NOX4 is is expressed in multiple tissues and catalyzes the reduction of molecular oxygen to various reactive oxygen species (ROS) (2,3). Unlike other NOX proteins, NOX4 does not require cytosolic subunits and thus is constitutively active (4). The function of NOX4 remains unclear as it plays both protective and deleterious roles in cellular metabolism.

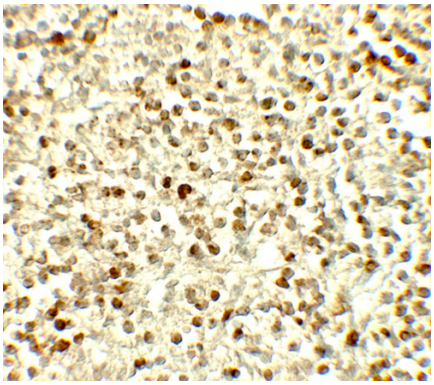
References

Bedard K and Krause KH. The Nox family of ROS-generating NAPDH oxidases: physiology and pathophysiology. Physiol. Rev. 2007; 87:245-313.
Cheng G, Cao Z, Xu X, et al. Homologs of gp91phox: cloning and tissue expression of Nox3, Nox4, and Nox5. Gene 2001; 269:131-40.
Montezano AC, Burger D, Ceravolo GS, et al. Novel Nox homologues in the vasculature: focusing on Nox4 and Nox5. Clin. Sci. 2011; 120:131-41.
Martyn KD, Frederick LM, von Loehneysen K, et al. Functional analysis of Nox4 reveals unique characteristics compared to other NAPDH oxidases. Cell. Signal. 2006; 18:69-82.

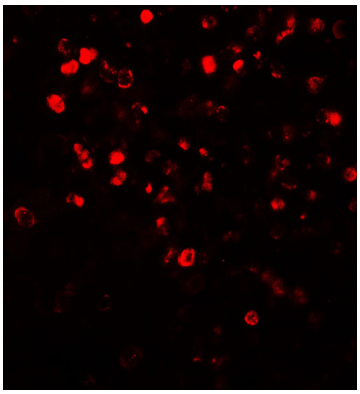
Images



Western blot analysis of NOX4 in Jurkat cell lysate with NOX4 antibody at 1 µg/ml in (A) the absence and (B) the presence of blocking peptide.



Immunohistochemistry of NOX4 in human spleen tissue with NOX4 antibody at 5 µg/ml.



Immunofluorescence of NOX4 in human spleen tissue with NOX4 antibody at 20 µg/ml.