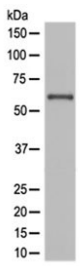
NOX4 Antibody / Hydrogen Peroxide Producing Enzyme Antibody [clone E-14] (RQ4482)

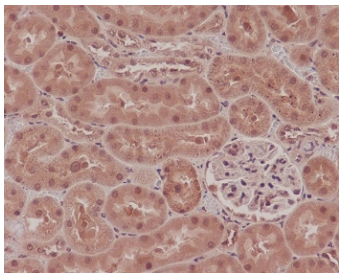
Catalog No.	Formulation	Size
RQ4482	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

Bulk quote request

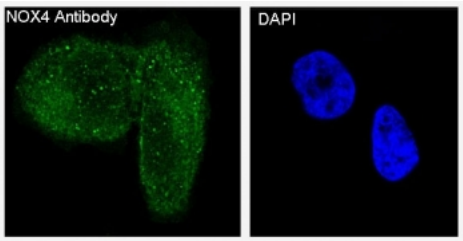
Availability	1-2 weeks
Species Reactivity	Human, Mouse, Rat
Format	Purified
Host	Rabbit
Clonality	Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	E-14
Purity	Protein A affinity
UniProt	Q9NPH5
Localization	Cytoplasm (ER membrane)
Applications	Western blot: 1:500-1:2000 Immunohistochemisty (FFPE): 1:50-1:200 Immunofluorescence: 1:50-1:200
Limitations	This NOX4 Antibody / Hydrogen Peroxide Producing Enzyme Antibody is available for research use only.



NOX4 Antibody Human JAR Cell WB. Western blot analysis was performed on human JAR cell lysate using NOX4 Antibody at 0.5 ug/ml. A specific immunoreactive band is detected at approximately 65 kDa, consistent with the expected molecular weight of NOX4, which may also be observed at approximately 75â€“80 kDa depending on post-translational modification and glycosylation status. The blot demonstrates specific detection with minimal background, supporting reliable recognition of endogenous NOX4 in human cells. These results demonstrate that this Hydrogen Peroxide Producing Enzyme Antibody is suitable for Western blot detection of NOX4 in human JAR cell lysates.



NOX4 Antibody Rat Kidney IHC. Immunohistochemistry was performed on FFPE rat kidney tissue using NOX4 Antibody at 2 ug/ml. Heat-induced epitope retrieval was carried out in pH 6 citrate buffer prior to antibody incubation. Bound antibody was visualized using an HRP-conjugated secondary antibody with DAB chromogen. Moderate to strong cytoplasmic staining is observed throughout the renal tubular epithelium, while glomeruli exhibit comparatively weaker immunoreactivity, consistent with the established renal expression pattern of NOX4. These results demonstrate that this Hydrogen Peroxide Producing Enzyme Antibody is suitable for immunohistochemical detection of NOX4 in formalin-fixed, paraffin-embedded rat kidney tissue.



NOX4 Antibody HeLa Cell IF. Immunofluorescence was performed on human HeLa cells using NOX4 Antibody (green) with DAPI as a nuclear counterstain (blue). Distinct cytoplasmic staining with a punctate intracellular distribution is observed, while nuclei remain DAPI-positive and largely negative for NOX4 immunoreactivity. The staining pattern is consistent with the intracellular localization of NOX4 within membrane-associated organelles involved in reactive oxygen species generation. These results demonstrate that this Hydrogen Peroxide Producing Enzyme Antibody is suitable for immunofluorescent detection of endogenous NOX4 in human HeLa cells.

Description

NOX4 Antibody recognizes NADPH oxidase 4 (NOX4), a unique member of the NADPH oxidase family that primarily generates hydrogen peroxide rather than superoxide as its principal reactive oxygen species. This distinctive biochemical property differentiates NOX4 from other NOX enzymes and allows it to function as a sustained regulator of intracellular redox signaling rather than a mediator of rapid oxidative bursts. Constitutively active under basal conditions, NOX4 is regulated largely through changes in expression level and subcellular localization, enabling precise control of hydrogen peroxide production in response to physiological and pathological stimuli. NSJ Bioreagents supplies NOX4 Antibody, clone E-14, for dependable detection of this important redox-regulating enzyme in a wide range of research applications.

Hydrogen peroxide generated by NOX4 functions as a signaling molecule that reversibly modifies cysteine residues within target proteins, thereby influencing kinase activity, phosphatase function, transcription factor activation, and gene expression. Through these mechanisms, NOX4 regulates diverse biological processes including cellular differentiation, proliferation, apoptosis, autophagy, extracellular matrix remodeling, angiogenesis, and transforming growth factor beta signaling. Because hydrogen peroxide readily diffuses across cellular compartments, NOX4 plays an essential role in coordinating intracellular communication during physiological adaptation and cellular stress. Consequently, NOX4 Antibody is widely used to investigate oxidative signaling and mechanisms that maintain redox homeostasis.

Persistent elevation of NOX4 expression contributes to excessive hydrogen peroxide production and has been implicated in numerous diseases, including pulmonary fibrosis, chronic kidney disease, diabetic nephropathy, cardiac remodeling, vascular dysfunction, neurodegenerative disorders, and several forms of cancer. As a result, NOX4 has become an important therapeutic target for limiting pathological oxidative stress while preserving normal redox-dependent signaling. Investigators frequently study NOX4 to understand how sustained hydrogen peroxide production influences fibrosis, inflammation, metabolism, epithelial-to-mesenchymal transition, and tumor progression.

A NOX4 Antibody is a valuable reagent for investigating hydrogen peroxide production, oxidative stress, redox signaling, and cellular homeostasis. By enabling reliable detection of this distinctive reactive oxygen species-generating enzyme, a NOX4 Antibody supports research into fibrosis, cardiovascular disease, renal pathology, cancer biology, and the molecular mechanisms that regulate hydrogen peroxide-dependent signaling.

For a broader overview of this reactive oxygen species-producing enzyme and additional validated reagents, visit our NOX4 Antibody / Reactive Oxygen Species Enzyme Antibody page.

Application Notes

Optimal dilution of the NOX4 Antibody / Hydrogen Peroxide Producing Enzyme Antibody should be determined by the researcher.

Immunogen

A synthetic peptide from human NADPH oxidase 4 was used as the immunogen for the NOX4 antibody.

Storage

Store the NOX4 antibody at -20oC.

Alternate Names

NADPH Oxidase 4 antibody, RENOX antibody, Renal NADPH Oxidase antibody, Kidney Oxidase antibody, KOX-1 antibody, NOH-4 antibody

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