NOXA1 Antibody / NADPH oxidase activator 1 (FY13338)

Catalog No.	Formulation	Size
FY13338	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q86UR1
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This NOXA1 antibody is available for research use only.

Description

NOXA1 antibody detects NADPH oxidase activator 1, a cytoplasmic adaptor protein encoded by the NOXA1 gene located on chromosome 9q34.3. NOXA1 is an essential activator of the NADPH oxidase (NOX) enzyme family, which catalyzes the production of reactive oxygen species (ROS) in various cell types. It is highly expressed in colon, kidney, brain, and vascular smooth muscle cells, where it modulates redox signaling, host defense, and cell proliferation. NOXA1 belongs to the NOXO/NOXA family of cytosolic regulatory proteins that assemble with membrane-bound catalytic subunits to activate superoxide generation.

NOXA1 functions as an organizer and activator of NOX1 and NOX3 oxidase complexes. It forms part of a multi-protein complex that includes NOX1, NOXO1, p22phox, and Rac1/2, facilitating electron transfer from NADPH to oxygen. Through this mechanism, NOXA1 regulates ROS-dependent signaling pathways that influence gene expression, cytoskeletal dynamics, and cellular adaptation to stress. Its activation is stimulated by inflammatory cytokines, mechanical stress, and growth factors, integrating redox regulation with cell signaling networks.

Structurally, NOXA1 contains an N-terminal tetratricopeptide repeat (TPR) domain that interacts with NOXO1, a central proline-rich region for SH3 domain binding, and a C-terminal PB1 domain that mediates heterodimerization with NOX enzymes. These modular features allow NOXA1 to coordinate assembly of the active oxidase complex at the plasma

membrane or endosomal compartments. NOXA1 is classified within the NADPH oxidase activator family, alongside NOXA2 (p67phox) and NOXO1, which share conserved interaction motifs.

Functionally, NOXA1 contributes to host defense and redox signaling rather than direct microbial killing, as its activity produces low levels of ROS for signaling purposes. It regulates processes such as vascular tone, cell migration, and epithelial barrier function. NOXA1 also modulates oxidative stress responses and participates in MAPK and NF-kappaB signaling cascades triggered by ROS intermediates. Co-localization studies show that NOXA1 associates with NOX1 at the plasma membrane and with cytoskeletal scaffolds in migrating cells.

Dysregulation of NOXA1 is associated with hypertension, inflammatory bowel disease, and cancer. Overexpression can enhance oxidative stress and contribute to tumor progression, while deficiency impairs epithelial defense and wound repair. Pathway involvement includes ROS-mediated signaling, PI3K-AKT, and TGF-beta pathways. Developmentally, NOXA1 expression increases during epithelial differentiation and vascular remodeling, reflecting its adaptive redox control functions.

Immunohistochemical staining using NOXA1 antibody demonstrates cytoplasmic and membrane-associated localization in epithelial and smooth muscle cells. The NOXA1 antibody from NSJ Bioreagents is a useful reagent for investigating ROS signaling, NOX complex activation, and redox-regulated cellular processes.

Application Notes

Optimal dilution of the NOXA1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human NOXA1 recombinant protein (Position: A38-Q434) was used as the immunogen for the NOXA1 antibody.

Storage

After reconstitution, the NOXA1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.