



Recombinant Human NOX4

Catalog Number: GR119060

Background

NADPH oxidase 4 (NOX4) is an enzyme that in humans is encoded by the NOX4 gene, and is a member of the NOX family.^[1] Oxygen sensing is essential for homeostasis in all aerobic organisms. A phagocyte-type oxidase, similar to that responsible for the production of large amounts of reactive oxygen species (ROS) in neutrophil granulocytes, with resultant antimicrobial activity, has been postulated to function in the kidney as an oxygen sensor that regulates the synthesis of erythropoietin in the renal cortex. Nox4 protects the vasculature against inflammatory stress.^[2] Nox-dependent reactive oxygen species modulation by amino endoperoxides can induce apoptosis in high Nox4-expressing cancer cells.^[3] cytoplasmic NOX2 and nuclear NOX4 expression is upregulated during hepatocellular carcinoma development. In particular, NOX4 translocation into the nucleus may affect the development and progression of hepatocellular carcinoma.^[4] Tubular NOX4 expression decreases in chronic kidney disease but does not modify fibrosis evolution.^[5] hypoxia induces HK-2 cell apoptosis through a signaling pathway involving TGF-beta1 via Smad pathway induction of Nox4-dependent reactive oxygen species generation.^[6] NOX4 showed an anti-inflammatory role for Nox4 in macrophages and Nox4 deficiency results in less M(IL4+IL13) polarization and suppression of NFkappaB activity in monocytes.^[7] The activated p38 pathway is at least partially mediated by NOX-4 in diabetic nephropathy in humans and in a rat model.^[8]

References

1. Cheng G et al. (2001) *Gene* 269 (1-2), 131-140.
2. Schröder K, et al. (2012). *Circ. Res.* 110 (9): 1217–25.
3. Zhu P, et al. (2013). *Cell Death Dis.* 4 (3): e552. doi:10.1038/cddis.2013.68.
4. Eun HS, et al. (2019) *Pathology* 51 (6), 579-585.
5. Rajaram RD, et al. (2019) *Redox Biol* 26, 101234.
6. Cho S, et al. (2019) *PLoS ONE* 14 (7), e0219483.
7. Helfinger V, (2019) *Oxid Med Cell Longev* 2019, 3264858 (2019).
8. Cui FQ, et al. (2019) *J Diabetes Res* 2019, 2981705 (2019).



Recombinant Human NOX4

Catalog Number: GR119060

Description

Size: 5 µg

Sources: Expressed in *E. coli*.

Composition: Ser401-Ser538

Accession #: NP_001137308.2

Molecular weight: 31 kDa (including his tags and partial plasmid vector sequences)

Activity: Not tested.

Endotoxin level: Not tested.

Purity: > 98%, by SDS-PAGE under reducing conditions and visualized by silver staining.

Formulation: Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein.

Reconstitution: Reconstitute at 50-200 µg/ml in sterile PBS and store at -20 °C ~ -70 °C for up to 3 months.

Shipping and storage: The product is shipped at ambient temperature or with ice pad. Upon receipt, store it immediately at -20 °C to avoid loss of activity and use it in 6 months.

DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMAN AND ANIMALS.

FOR RESEARCH USE ONLY
NOT FOR USE IN HUMANS AND ANIMALS