

Recombinant Human NOX2

Catalog Number: GR119034

Background

NADPH oxidase 2 (Nox2), also known as cytochrome b(558) subunit beta or Cytochrome b-245 heavy chain, is a protein that in humans is encoded by the NOX2 gene (also called CYBB gene).^[1] The protein is a super-oxide generating enzyme which forms reactive oxygen species (ROS). Nox2 is composed of cytochrome b alpha (CYBA) and beta (CYBB) chain and contains an N-terminal transmembrane domain that binds two heme groups, and a C-terminal domain that is able to bind to FAD and NADPH.^[2] Nox2 is the catalytic, membrane-bound subunit of NADPH oxidase. It is inactive until it binds to the membrane-anchored p22phox, forming the heterodimer known as flavocytochrome b558.^[3] After activation, the regulatory subunits p67phox, p47phox, p40phox and a GTPase, typically Rac, are recruited to the complex to form NADPH oxidase on the plasma membrane or phagosomal membrane.^[4] Nox2 may play an important role in atherosclerotic lesion development in the aortic arch, thoracic, and abdominal aorta.^{[5][6]} Nox2 may play a role in determining the size of a myocardial infarction due to its connection to ROS, which play a role in myocardial reperfusion injury. This was a result of the relation between Nox2 and signaling necessary for neutrophil recruitment.^[7] Furthermore, it increases global post-reperfusion oxidative stress, likely due to decreased STAT3 and Erk phosphorylation.^[7] In addition, it appears that hippocampal oxidative stress is increased in septic animals due to the actions of Nox2.^[8] Nox2 may also play an important role in angiotensin II-mediated inward remodelling in cerebral arterioles due to the emittance of superoxides from Nox2-containing NADPH oxidases.^[9] CYBB transcript levels are upregulated in the lung parenchyma of smokers.^[10]

References

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4. Kawahara T, Lambeth JD (2007). *BMC Evolutionary Biology*. 7: 178.
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6. Chaubey, S; et al. (2013). *PLOS ONE*. 8 (2): e54869. doi:10.1371/journal.pone.0054869.
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Description

Size: 5 µg

Sources: Expressed in *E. coli*.

Composition: Ser475-Phe570

Accession #: NP_000388.2

Molecular weight: 26 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 HUMANS AND ANIMALS.

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