

Recombinant Human DUOX1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50266

Size: 10ug, 100ug

Protein Name: Dual oxidase 1 (EC 1.-.-.) (EC 1.11.1.-) (EC 1.6.3.1) (Large NOX 1) (Long NOX 1) (NADPH thyroid oxidase 1) (Thyroid oxidase 1)

Synonym: DUOX1, DUOX, LNOX1, THOX1

UniProt ID: Q9NRD9

UniProt Link: www.uniprot.org/uniprotkb/Q9NRD9/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1551 AA

Molecular Weight: 177 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MGFCLALAWTLLVGAWTPLGAQNPISWEVQRFDGWYNNLMEHRWGSKGSRLQRLVPASYADGVY
QPLGEPHLPNPRDLSENTISRGPAGLASLRNRTVLGVFFGYHVLSDLVSVETPGCPAEFLNIRIPPGDP
MFDPDQQRGDVLPFQRSRWDPETGRSPSNRPDPANQVTGWLDGSAIYGSSHSWSDALRSFSRGQ
LASGPDPAFPRDSQNPLLMWAAPDPATGQNGPRGLYAFGAERGNREPFLQALGLLWFRYHNLWA
QRLARQHPDWEDEELFQHARKRVIATYQNIAYVEWLPSFLQKTLPEYTGYPFLDPSISSEFVAASE
QFLSTMVPPGVYMRNASCHFQGVINRNSSVSRLRVCNSYWSREHPSLQSAEDVDALLLGMASQIA
EREDHVLVEDVRDFWPGPLKFSRTDHLASCLQRGRDLGLPSYTKARAALGLSPITRWQDINPALSR
SNDTVLEATAALYNQDLSWLELLPGGLLESHRDPGLFSTIVLEQFVRLRDGDRYWFENTRNLFSK
KEIEEIRNTTLQDVLVAVINIDPSALQPNVFWHKGDPQPRQLSTEGLPACAPSVVRDYFEGSGF
GFGVTIGTLCCFPLVSLLSAWIVARLRMRNFKRLQGQDRQSIVSEKLVGGMEALEWQGHKEPCRPV
LVYLQPGQIRVVDGRLTVLRTIQLQPPQKVNFLSSNRGRRTLLLKIPKEYDLVLLFNLEEERQALVEN
LRGALKESGLSIQEWELREQELMRAAVTREQRRHLLTFFRHLFSQVLDINQADAGTLPDSSQKVR
EALTCELSRAEFAESLGLKPQDMFVESMFSLADKDGNGYLSFREFLDILVVFMMKGSPEEKSRLMFRM
YDFDGNGLISKDEFIRMLRSFIEISNNCLSKAQLAEVVESMFRESGFQDKEELTWEDFHFMRLDHNS
ELRFTQLCVKGVPEVPEVIKDLCCRASYISQDMICPSPRVSARCSRSDIETELTPQRLQCPMDTDPQ
EIRRRFGKKVTSFQPLLFTFAHREKFQRSCLHQTQQFKRFIENYRRHIGCVAVFYAIAGGLFLERAY
YYAFAAHTGITDTRVGILSRGTAASISFMFSYILLTMCRNLITFLRETFLNRYVPFDAAVDFHRLIAS
TAIVLTVLHSHVGHVNVYLFSSISPLSVLSCLFPGLFHDDGSELPQKYYWWFFQTVPGLTGVVLLILAI



MYVFASHHFRRRSFRGFWLTHHLYILLYVLLIIHGSFALIQLPRFHIFFLVPAIIYGGDKLVSLSRKKVEI
SVVKAELLPSGVTHLRFQRPQGFEYKSGQWVRIACALGTTEYHPFTLTSAHPEDTSLHIRAAGPW
TTRLREIYSAPTGDRCARYPKLYLDGPFGEQHWKFEVSVLVGGGIGVTPFASILKDLVFKSSVS
CQVFCKKIYFIWVTRTQRQFEWLADIIREVEENDHQDLVSVHIYITQLAEKFDLRTTMLYICERHFQKV
LNRSFTGLRSITHFGRPPFEPFFNSLQEVHPQVRKIGVFSCGPPGMTKNVEKACQLINRQDRTHFS
HHYENF

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Dual oxidase 1 (EC 1.-.-) (EC 1.11.1.-) (EC 1.6.3.1) (Large NOX 1) (Long NOX 1) (NADPH thyroid oxidase 1) (Thyroid oxidase 1) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Generates hydrogen peroxide (H₂O₂) which is required for the activity of thyroid peroxidase/TPO and lactoperoxidase/LPO (PubMed:10806195, PubMed:15972824). Plays a role in thyroid hormone synthesis (PubMed:10806195). Also required for lactoperoxidase-mediated antimicrobial defense at the surface of mucosa (PubMed:12824283). Antimicrobial agent hypothiocyanite (OSCN⁻), which is produced by LPO from DUOX1-derived H₂O₂, promotes influenza virus inactivation by reducing viral binding to and entry into host cells (PubMed:34168077). Promotes antiviral immunity by increasing airway cytokine levels, promoting innate immune cell recruitment and reducing airway epithelial cell apoptosis (By similarity). In response to bacterial stimuli, activated by ATP and promotes EGFR/ERK signaling, ADAM17 activation, and EGFR ligand shedding, leading to enhanced CXCL8/IL8 expression and secretion in airway epithelia (PubMed:19386603). Synthesizes NAADP from its reduced NAADPH form which promotes Ca²⁺ signaling during T cell activation (PubMed:34784249). In addition to its oxidase activity, has also been shown to have peroxidase activity through its N-terminal peroxidase-like domain (PubMed:11514595). However, another study showed that the isolated peroxidase-like domain does not bind heme and has no intrinsic peroxidase activity (PubMed:19460756).

Subcellular Localization: Apical cell membrane ; Multi-pass membrane protein . Note=Localizes to the apical membrane of epithelial cells.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial

manufacturing.