

Recombinant Rat DUOX1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52548

Size: 10ug, 100ug

Protein Name: Dual oxidase 1 (EC 1.-.-) (EC 1.11.1.-) (EC 1.6.3.1)

Synonym: Duox1

UniProt ID: Q8CIY2

UniProt Link: www.uniprot.org/uniprotkb/Q8CIY2/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1551 AA

Molecular Weight: 177 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MAVYSAVAWILLFGVLASLGAQNPVSWEVQRFDGWYNNLMEHRWGSKGSRQLQRLVPASYADGVY
QPLREPYLPNPRHLSNRVMRGPAGQPSLRNRTVLGVFFGYHVLSDLVSVETPGCPAEFLNIYIPRGD
PVFDPDKRGNVLPFQSRWRDSTGQSPSNPRDLTNQVTGWLDGSAIYGSSHSWSDTLRSFSGG
QLASGPDPAPFRNSQNSLLMWMAPDPATGQGGPQGLYAFGAQRGNREPFLQALGLLWFRYHNLC
AKRLAQEHHPHWGDEELFQHARKRVIATYQNIAMYEWLPSFLKQTPPEYPGYHPFLDPSISPEFVVAS
EQFLSTMVPPGVYMRNASCHFQGIANRNSSVSGALRVCNSYWSRENPKLQRAEDVDALLGMASQ
IAEREDHLVVEDVQDFWPGPLKFSRTDYLASCLQRGRDLGLPSYTKAREALGLPPVSHWQDINPAL
SRSNGTVLEATAALYNQDLRLELLAGGLLESHGDPGPLFSAIVLDQFVRLRDGDYWFENNRNGL
FSKEEIAEIRNTSLRDILVAVTNVDPSALQPSVFFWLADGPCQPSQLSTQGLPACAPLFVRDYFKGS
GFGFGLTIGTLCCFPLVSLLSAWIVARLRMRNFKRLQRQDRQSIMCEKLVGGEALEWQGRKEPCR
PVLVHLQPGQIRVVDGRLTVLRTIQLRPPQQVNLISSNRGRRTLLLKIPKEYDLVLLFNMEERQALV
ENIRAALKENGLSFQEWELREQELMRAAVTRQQRGHLLTFFRHLFSQVLDINQADAGTLPLDSSTK
VREALTCELSRAEFADSLGLKPQDMFVESMFSLADKDGNGYLSFREFLDILVVFMMKGSPEEKSRMLF
RMYDFDGNGLISKDEFIRMLRSFIEISNNCLSKDQLAEVVESMFRESGFQDKEELTWEDFHFMRLRDH
DSDLRFTQLCVKGVEVPEVIKNCRRASYISQEKICPSPRMSAHCARNNTKTASSPQRLQCPVDTDP
PQEIRRRFVGKVTSTFQPLLFTAHREKFQSRRRHQTQVQFKRFIENYRRHIGCVAVFYTITGALFLER
AYYYAFAAHHSGITDTRVGILSRGTAASISFMFSYILLTMCRLITFLRETFLNRYIPFDAAVDFHRFI
ASTAIIITVLHSAGHVNVYLFSSISPLSVLSCLFPDLFDDGSEFPQKYYWWFFQTVPGLTGVLLLLAL
AIMYVFASHHFRRRSFRGFWLTHHLYIFLYILLIHGSFALIQMPPRFHIFFLVPAIIYVGDKLVLSRKKVE



ISVVKAELLPSGVTHLRFQRPQGFEYKSGQWVRIACLALGTTEYHPFTLTSAPHEDTLSLHIRAAGPW
TTRLREIYSPPTGDTCCARYPKLYLDGPFGEHGEWHKFEVSVLVGAGIGVTPFASILKDLVFKSSVSC
QVFCKKIYFIWVTRTQRQFEWLADIIREVEENDSRDLVSVHIYITQLAEKFDLRTTMLYICERHFQKVL
NRSFLTGLRSVTHFGRPPFEFFNSLQEVHPQVRKIGVFSCGPPGMTKNVEKACQLINKQDRTHFS
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) 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:17643428). Plays a role in thyroid hormone synthesis (By similarity). Also required for lactoperoxidase-mediated antimicrobial defense at the surface of mucosa (By similarity). 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 (By similarity). 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 (By similarity). Synthesizes NAADP from its reduced NAADPH form which promotes Ca(2+) signaling during T cell activation (By similarity). In addition to its oxidase activity, has also been shown to have peroxidase activity through its N-terminal peroxidase-like domain (By similarity). However, another study showed that the isolated peroxidase-like domain does not bind heme and has no intrinsic peroxidase activity (By similarity).

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.