

DUOX2 (Y-15): sc-49939

BACKGROUND

Dual oxidase 1 (DUOX1), a homolog of glycoprotein p91phox, is expressed in airway epithelium and generates reactive oxygen species (ROS). Dual oxidase 2 (DUOX2), also designated NADPH thyroid oxidase 2, p138 thyroid oxidase or large NOX2, localizes to the apical membrane of epithelial cells. DUOX1, also designated NADPH thyroid oxidase or large NOX1, and DUOX2 are multi-pass membrane proteins predominantly expressed in thyrocytes, tracheal surface epithelial cells as well as thyroid, colon, duodenum, trachea and bronchium. DUOX1 and DUOX2 generate hydrogen peroxide, which is crucial for thyroid peroxidase and lactoperoxidase. In mucosa, DUOX proteins are involved in thyroid hormone biosynthesis and lactoperoxidase-mediated anti-microbial defense. Defects in the gene encoding for DUOX2 cause congenital hypothyroidism (CH), a disorder characterized by a defect in hydrogen peroxide production in the thyroid gland.

REFERENCES

- Geiszt, M., et al. 2003. Dual oxidases represent novel hydrogen peroxide sources supporting mucosal surface host defense. *FASEB J.* 17: 1502-1504.
- Wang, D., et al. 2005. Identification of a novel partner of DUOX: EFP1, a thioredoxin-related protein. *J. Biol. Chem.* 280: 3096-3103.
- Vigone, M.C., et al. 2005. Persistent mild hypothyroidism associated with novel sequence variants of the DUOX2 gene in two siblings. *Hum. Mutat.* 26: 395.
- Harper, R.W., et al. 2005. Differential regulation of dual NADPH oxidases/ peroxidases, DUOX1 and DUOX2, by Th1 and Th2 cytokines in respiratory tract epithelium. *FEBS Lett.* 579: 4911-4917.
- Ameziane-El-Hassani, R., et al. 2005. Dual oxidase-2 has an intrinsic Ca²⁺-dependent H₂O₂-generating activity. *J. Biol. Chem.* 280: 30046-30054.
- El Hassani, R.A., et al. 2005. Dual oxidase2 is expressed all along the digestive tract. *Am. J. Physiol. Gastrointest. Liver Physiol.* 288: G933-G942.

CHROMOSOMAL LOCATION

Genetic locus: DUOX2 (human) mapping to 15q21.1; Duox2 (mouse) mapping to 2 E5.

SOURCE

DUOX2 (Y-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of DUOX2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-49939 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

DUOX2 (Y-15) is recommended for detection of DUOX2 (dual oxidase 2) of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DUOX2 (Y-15) is also recommended for detection of DUOX2 (dual oxidase 2) in additional species, including bovine.

Suitable for use as control antibody for DUOX2 siRNA (h): sc-60552, DUOX2 siRNA (m): sc-60553, DUOX2 shRNA Plasmid (h): sc-60552-SH, DUOX2 shRNA Plasmid (m): sc-60553-SH, DUOX2 shRNA (h) Lentiviral Particles: sc-60552-V and DUOX2 shRNA (m) Lentiviral Particles: sc-60553-V.

Molecular Weight of DUOX2: 175 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Kaneko, K. et al. 2011. Gene expression profiling reveals upregulated UCA1 and BMF in gallbladder epithelia of children with pancreaticobiliary maljunction. *J. Pediatr. Gastroenterol. Nutr.* 52: 744-750.
- Yoshihara, A., et al. 2012. Regulation of dual oxidase expression and H₂O₂ production by thyroglobulin. *Thyroid* 22: 1054-1062.
- Li, H., et al. 2014. Alterations in the time course of expression of the Nox family in the brain in a rat experimental cerebral ischemia and reperfusion model: effects of melatonin. *J. Pineal Res.* 57: 110-119.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **DUOX2 (E-8): sc-398681**, our highly recommended monoclonal alternative to DUOX2 (Y-15).