# SANTA CRUZ BIOTECHNOLOGY, INC.

# NCB5OR (D-2): sc-390569



#### BACKGROUND

NCB5OR, also referred to as CYB5R4 (cytochrome b5 reductase 4), is a flavohemoprotein that contains cytochrome b5 and chrome b5 reductase cytodomains. A member of the flavoprotein pyridine nucleotide cytochrome reductase family, NCB50R is widely expressed and colocalizes with calreticulin to the endoplasmic reticulum (ER). NCB50R has a cytochrome b5 heme-binding domain as well as one CS domain, two FAD and two iron binding motifs. NCB5OR reduces cytochrome c, methemoglobin, ferricyanide and molecular oxygen in vitro. NCB50R is involved in the ER stress response pathway and plays a critical role in protecting pancreatic  $\beta$ -cells against oxidative stress by preventing excess buildup of reactive oxygen species (ROS). The absence of NCB5OR may cause Insulin-deficient diabetes.

#### REFERENCES

- 1. Andersen, G., et al. 2004. Variation in NCB5OR: studies of relationships to type 2 diabetes, maturity-onset diabetes of the young, and gestational diabetes mellitus. Diabetes 53: 2992-2997.
- 2. Zhu, H., et al. 2004. NCB5OR is a novel soluble NAD(P)H reductase localized in the endoplasmic reticulum. J. Biol. Chem. 279: 30316-30325.
- 3. Kurian, J.R., et al. 2004. NADH cytochrome b5 reductase and cytochrome b5 catalyze the microsomal reduction of xenobiotic hydroxylamines and amidoximes in humans. J. Pharmacol. Exp. Ther. 311: 1171-1178.
- 4. Xie, J., et al. 2004. Absence of a reductase, NCB50R, causes Insulindeficient diabetes. Proc. Natl. Acad. Sci. USA 101: 10750-10755.
- 5. Larade, K. and Bunn, H.F. 2006. Promoter characterization and transcriptional regulation of NCB5OR, a novel reductase necessary for pancreatic β-cell maintenance. Biochim. Biophys. Acta 1759: 257-262.
- 6. Larade, K., et al. 2007. The reductase NCB50R is responsive to the redox status in  $\beta$ -cells and is not involved in the ER stress response. Biochem. J. 404: 467-476.

## **CHROMOSOMAL LOCATION**

Genetic locus: CYB5R4 (human) mapping to 6q14.2.

#### SOURCE

NCB5OR (D-2) is a mouse monoclonal antibody raised against amino acids 331-521 mapping at the C-terminus of NCB50R of human origin.

#### **PRODUCT**

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NCB50R (D-2) is available conjugated to agarose (sc-390569 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-390569 HRP), 200 µg/ml, for WB. IHC(P) and ELISA: to either phycoerythrin (sc-390569 PE), fluorescein (sc-390569 FITC), Alexa Fluor® 488 (sc-390569 AF488), Alexa Fluor® 546 (sc-390569 AF546), Alexa Fluor® 594 (sc-390569 AF594) or Alexa Fluor® 647 (sc-390569 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390569 AF680) or Alexa Fluor® 790 (sc-390569 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

#### **APPLICATIONS**

NCB5OR (D-2) is recommended for detection of NCB5OR of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for NCB5OR siRNA (h): sc-75883, NCB5OR shRNA Plasmid (h): sc-75883-SH and NCB5OR shRNA (h) Lentiviral Particles: sc-75883-V.

Molecular Weight of NCB50R: 59 kDa.

Positive Controls: NCB5OR (h2): 293T Lysate: sc-173674, Jurkat whole cell lysate: sc-2204 or HL-60 whole cell lysate: sc-2209.

#### **RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-lgG  $\kappa$  BP-HRP: sc-516102 or m-lgG  $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGk BP-FITC: sc-516140 or m-IgGk BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

#### DATA





NCB50R (D-2): sc-390569. Western blot analysis of NCB50R expression in Jurkat (A) and HL-60 (B) whole cell lysates

NCB50R (D-2): sc-390569. Western blot analysis of NCB50R expression in non-transfected: sc-117752 (A) and human NCB5OR transfected: sc-173674 (B) 293T whole cell lysates

## **STORAGE**

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

## **RESEARCH USE**

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

#### PROTOCOLS

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

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