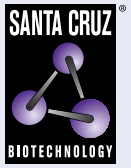
SANTA CRUZ BIOTECHNOLOGY, INC.

PRODH (A-11): sc-376401



The Power to Question

BACKGROUND

PRODH (proline dehydrogenase), also known as proline oxidase 2 (POX2), is a 516 amino acid protein belonging to the proline oxidase family. Induced during p53-induced apoptosis, PRODH catalyzes the first step in proline degradation by converting proline to δ-1-pyrroline-5-carboxylate. Defects in PRODH are the cause of hyperprolinemia type 1, a disorder characterized by elevated serum proline levels. Defects in PRODH may also be involved in the psychiatric and behavioral phenotypes associated with DiGeorge syndrome. Localized to the mitochondrion matrix, PRODH is expressed at higher levels in lung, brain and skeletal muscle and expressed at lower levels in heart, liver, kidney and pancreas. PRODH exists as two isoforms produced by alternative splicing.

CHROMOSOMAL LOCATION

Genetic locus: PRODH (human) mapping to 22q11.21.

SOURCE

PRODH (A-11) is a mouse monoclonal antibody raised against amino acids 13-312 mapping near the N-terminus of PRODH of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PRODH (A-11) is available conjugated to agarose (sc-376401 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376401 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376401 PE), fluorescein (sc-376401 FITC), Alexa Fluor® 488 (sc-376401 AF488), Alexa Fluor® 546 (sc-376401 AF546), Alexa Fluor® 594 (sc-376401 AF594) or Alexa Fluor® 647 (sc-376401 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376401 AF680) or Alexa Fluor® 790 (sc-376401 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

PRODH (A-11) is recommended for detection of PRODH 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 PRODH siRNA (h): sc-76252, PRODH shRNA Plasmid (h): sc-76252-SH and PRODH shRNA (h) Lentiviral Particles: sc-76252-V.

Molecular Weight of PRODH: 68 kDa.

Positive Controls: U-251-MG whole cell lysate: sc-364176, HEK293 whole cell lysate: sc-45136 or A549 cell lysate: sc-2413.

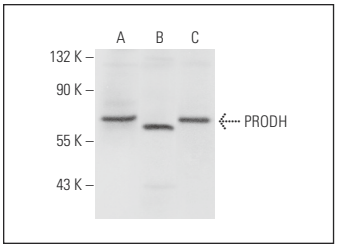
STORAGE

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

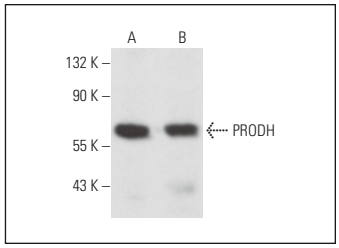
RESEARCH USE

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

DATA



PRODH (A-11): sc-376401. Western blot analysis of PRODH expression in HEK293 (**A**), U-251-MG (**B**) and A549 (**C**) whole cell lysates.



PRODH (A-11): sc-376401. Western blot analysis of PRODH expression in U-251-MG (**A**) and c4 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Goncalves, R.L., et al. 2014. Sources of superoxide/H_2O_2 during mitochondrial proline oxidation. Redox Biol. 2: 901-909.
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3. Szoka, L., et al. 2017. Exogenous proline stimulates type I collagen and HIF-1α expression and the process is attenuated by glutamine in human skin fibroblasts. Mol. Cell. Biochem. 435: 197-206.
4. Nagano, T., et al. 2017. Proline dehydrogenase promotes senescence through the generation of reactive oxygen species. J. Cell Sci. 130: 1413-1420.
5. Scott, G.K., et al. 2019. Targeting mitochondrial proline dehydrogenase with a suicide inhibitor to exploit synthetic lethal interactions with p53 upregulation and glutaminase inhibition. Mol. Cancer Ther. 18: 1374-1385.
6. Scott, G.K., et al. 2021. N-propargylglycine: a unique suicide inhibitor of proline dehydrogenase with anticancer activity and brain-enhancing mitohormesis properties. Amino Acids 53: 1927-1939.
7. Hsu, K.S., et al. 2022. Cancer cell survival depends on collagen uptake into tumor-associated stroma. Nat. Commun. 13: 7078.
8. Ivanova, O.N., et al. 2023. Transcriptome analysis of redox systems and polyamine metabolic pathway in hepatoma and non-tumor hepatocyte-like cells. Biomolecules 13: 714.
9. Pilley, S.E., et al. 2023. Loss of attachment promotes proline accumulation and excretion in cancer cells. Sci. Adv. 9: eadh2023.
10. Lee, J.U., et al. 2024. Role of lung ornithine aminotransferase in idiopathic pulmonary fibrosis: regulation of mitochondrial ROS generation and TGF-β1 activity. Exp. Mol. Med. 56: 478-490.

PROTOCOLS

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