SANTA CRUZ BIOTECHNOLOGY, INC.

ODC (G-10): sc-390366

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Ornithine decarboxylase (ODC) is an enzyme that performs the first step in polyamine biosynthesis by converting ornithine to putrescine and CO_2. ODC plays an important role in diverse biological processes, including cell growth, differentiation, transformation and apoptosis. The Sp1, c-Myc and c-Fos genes function as transactivators and ZBP-89 as a transrepressor of the ODC promoter. Overexpression of ODC gene plays important roles in cell proliferation and the development of cancer. High levels of protein binding in the ODC promoter are implicated to the elevated constitutive expression of this gene. Elevated polyamine levels lead to downregulation of ODC activity by enhancing the translation of antizyme mRNA, resulting in subsequent binding of antizyme to ODC monomers to target ODC for proteolysis by the 26S Proteosome. DFMO (DL-a-difluoromethylornithine) is an irreversible inhibitor of ODC, which can induce apoptosis and inhibits cell growth. ODC is also associated with angiogenesis, and ODC-overexpressing cells exhibit suppressed expression of Type XVIII Collagen and endostatin, suggesting that overexpression of ODC facilitates endothelial proliferation by suppressing endostatin expression. The ODC gene maps to human chromosme 2p25.1.

CHROMOSOMAL LOCATION

Genetic locus: ODC1 (human) mapping to 2p25.1; Odc1 (mouse) mapping to 12 A1.1.

SOURCE

ODC (G-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 351-385 within an internal region of ODC 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.

Blocking peptide available for competition studies, sc-390366 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

ODC (G-10) is recommended for detection of ODC of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (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 ODC siRNA (h): sc-43982, ODC siRNA (m): sc-44573, ODC shRNA Plasmid (h): sc-43982-SH, ODC shRNA Plasmid (m): sc-44573-SH, ODC shRNA (h) Lentiviral Particles: sc-43982-V and ODC shRNA (m) Lentiviral Particles: sc-44573-V.

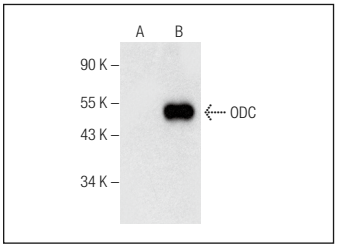
Molecular Weight of ODC: 53 kDa.

Positive Controls: ODC (h): 293T Lysate: sc-170296.

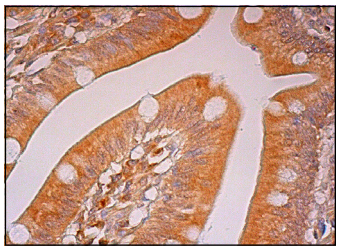
STORAGE

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

DATA



ODC (G-10): sc-390366. Western blot analysis of ODC expression in non-transfected: sc-117752 (**A**) and human ODC transfected: sc-170296 (**B**) 293T whole cell lysates.



ODC (G-10): sc-390366. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Cigliano, A., et al. 2017. Deregulated c-Myc requires a functional HSF1 for experimental and human hepatocarcinogenesis. Oncotarget 8: 90638-90650.
2. He, W., et al. 2017. Targeting ornithine decarboxylase (ODC) inhibits esophageal squamous cell carcinoma progression. NPJ Precis. Oncol. 1: 13.
3. Liu, Y.C., et al. 2020. Baicalein, 7,8-dihydroxyflavone and myricetin as potent inhibitors of human ornithine decarboxylase. Nutrients 12: 3867.
4. Yang, Y.F., et al. 2021. Regulation of polyamine homeostasis through an antizyme citrullination pathway. J. Cell. Physiol. 236: 5646-5663.
5. Han, W., et al. 2022. Targeting myocardial mitochondria-STING-polyamine axis prevents cardiac hypertrophy in chronic kidney disease. JACC Basic Transl. Sci. 7: 820-840.
6. Sun, J., et al. 2023. Exogenous spermidine alleviates diabetic cardiomyopathy via suppressing reactive oxygen species, endoplasmic reticulum stress, and Pannexin-1-mediated ferroptosis. Biomol. Biomed. 23: 825-837.

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.