SANTA CRUZ BIOTECHNOLOGY, INC.

ODC (E-6): sc-398116

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-α-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 (E-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 243-272 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.

ODC (E-6) is available conjugated to agarose (sc-398116 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398116 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398116 PE), fluorescein (sc-398116 FITC), Alexa Fluor® 488 (sc-398116 AF488), Alexa Fluor® 546 (sc-398116 AF546), Alexa Fluor® 594 (sc-398116 AF594) or Alexa Fluor® 647 (sc-398116 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398116 AF680) or Alexa Fluor® 790 (sc-398116 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-398116 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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.

APPLICATIONS

ODC (E-6) 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

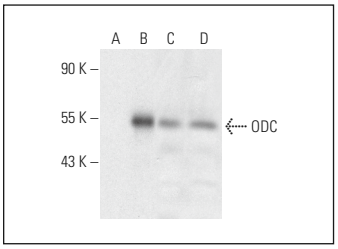
ODC (E-6) is also recommended for detection of ODC in additional species, including porcine.

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.

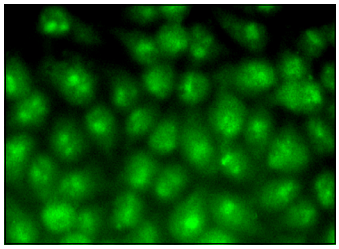
Molecular Weight of ODC: 53 kDa.

Positive Controls: ODC (h): 293T Lysate: sc-170296, C32 whole cell lysate: sc-2205 or SK-MEL-28 cell lysate: sc-2236.

DATA



ODC (E-6): sc-398116. Western blot analysis of ODC expression in non-transfected 293T: sc-117752 (**A**), human ODC transfected 293T: sc-170296 (**B**), C32 (**C**) and SK-MEL-28 (**D**) whole cell lysates.



ODC (E-6): sc-398116. Immunofluorescence staining of formalin-fixed HeLa cells showing diffused nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Amara, S., et al. 2017. Critical role of SIK3 in mediating high salt and IL-17 synergy leading to breast cancer cell proliferation. PLoS ONE 12: e0180097.
2. Díaz-López, I., et al. 2019. An mRNA-binding channel in the ES6S region of the translation 48S-PIC promotes RNA unwinding and scanning. Elife 8: e48246.
3. Mao, B., et al. 2020. Difluoromethylornithine, a decarboxylase 1 inhibitor, suppresses hepatitis B virus replication by reducing HBc protein levels. Front. Cell. Infect. Microbiol. 10: 158.
4. Akinyele, O. and Wallace, H.M. 2021. Characterising the response of human breast cancer cells to polyamine modulation. Biomolecules 11: 743.
5. Akinyele, O. and Wallace, H.M. 2022. Understanding the polyamine and mTOR pathway interaction in breast cancer cell growth. Med. Sci. 10: 51.

PROTOCOLS

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