SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin D2 (DCS-3): sc-56305

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The proliferation of eukaryotic cells is controlled at specific points in the cell cycle, particularly at the G_1 to S and the G_2 to M transitions. It is well established that the Cdc2 p34-cyclin B protein kinase plays a critical role in the G_2 to M transition, while cyclin A associates with Cdk2 p33 and functions in S phase. Considerable effort directed towards the identification of G_1 cyclins has led to the isolation of cyclin D, cyclin C and cyclin E. Of these, cyclin D corresponds to a putative human oncogene, designated PRAD1, which maps at the site of the Bcl-1 rearrangement in certain lymphomas and leukemias. Two additional human type D cyclins, as well as their mouse homologs, have been identified. Evidence has established that members of the cyclin D family function to regulate phosphorylation of the retinoblastoma gene product, thereby activating E2F transcription factors.

CHROMOSOMAL LOCATION

Genetic locus: CCND2 (human) mapping to 12p13.32; Ccnd2 (mouse) mapping to 6 F3.

SOURCE

cyclin D2 (DCS-3) is a mouse monoclonal antibody raised against full length cyclin D2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

cyclin D2 (DCS-3) is available conjugated to agarose (sc-56305 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-56305 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56305 PE), fluorescein (sc-56305 FITC), Alexa Fluor® 488 (sc-56305 AF488), Alexa Fluor® 546 (sc-56305 AF546), Alexa Fluor® 594 (sc-56305 AF594) or Alexa Fluor® 647 (sc-56305 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56305 AF680) or Alexa Fluor® 790 (sc-56305 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

APPLICATIONS

cyclin D2 (DCS-3) is recommended for detection of cyclin D2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 cyclin D2 siRNA (h): sc-35134, cyclin D2 siRNA (m): sc-35135, cyclin D2 shRNA Plasmid (h): sc-35134-SH, cyclin D2 shRNA Plasmid (m): sc-35135-SH, cyclin D2 shRNA (h) Lentiviral Particles: sc-35134-V and cyclin D2 shRNA (m) Lentiviral Particles: sc-35135-V.

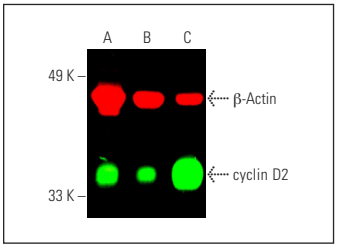
Molecular Weight of cyclin D2: 34 kDa.

Positive Controls: SP2/0 whole cell lysate: sc-364795, EOC 20 whole cell lysate: sc-364187 or NIH/3T3 whole cell lysate: sc-2210.

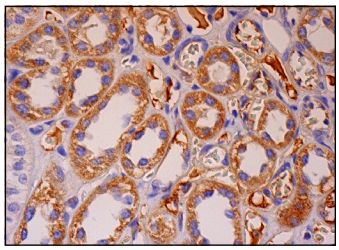
STORAGE

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

DATA



Simultaneous direct near-infrared western blot analysis of cyclin D2 expression, detected with cyclin D2 (DCS-3) Alexa Fluor® 680: sc-56305 AF680 and β-Actin expression, detected with β-Actin (C4) Alexa Fluor® 790: sc-47778 AF790 in NIH/3T3 (**A**), EOC 20 (**B**) and SP2/0 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



cyclin D2 (DCS-3): sc-56305. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules.

SELECT PRODUCT CITATIONS

1. Drayton, S., et al. 2003. Tumor suppressor $p16^{INK4a}$ determines sensitivity of human cells to transformation by cooperating cellular oncogenes. Cancer Cell 4: 301-310.
2. Liu, Y., et al. 2010. Rosiglitazone inhibits cell proliferation by inducing G_1 cell cycle arrest and apoptosis in ADPKD cyst-lining epithelia cells. Basic Clin. Pharmacol. Toxicol. 106: 523-530.
3. Chell, V., et al. 2013. Tumour cell responses to new fibroblast growth factor receptor tyrosine kinase inhibitors and identification of a gatekeeper mutation in FGFR3 as a mechanism of acquired resistance. Oncogene 32: 3059-3070.
4. Mirzaa, G.M., et al. 2014. *De novo* CCND2 mutations leading to stabilization of cyclin D2 cause megalencephaly-polymicrogyria-polydactyly-hydrocephalus syndrome. Nat. Genet. 46: 510-515.
5. Carson, C.C., et al. 2015. IL2 inducible T-cell kinase, a novel therapeutic target in melanoma. Clin. Cancer Res. 21: 2167-2176.
6. Hua, M., et al. 2019. MiR-145 suppresses ovarian cancer progression via modulation of cell growth and invasion by targeting CCND2 and E2F3. Mol. Med. Rep. 19: 3575-3583.
7. Simoneschi, D., et al. 2021. CRL4AMBRA1 is a master regulator of D-type cyclins. Nature 592: 789-793.
8. Banerjee, A., et al. 2022. Rotavirus-mediated suppression of miRNA-192 family and miRNA-181a activates Wnt/β-catenin signaling pathway: an *in vitro* study. Viruses 14: 558.
9. Saha, A., et al. 2024. A necessary role for cyclin D2 induction during colon cancer progression mediated by L1. Cells 13: 1810.

RESEARCH USE

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