

ORC3 (1D6): sc-23888

BACKGROUND

The initiation of DNA replication is a multi-step process that depends on the formation of pre-replication complexes, which trigger initiation. Among the proteins required for establishing these complexes are the origin recognition complex (ORC) proteins. ORC proteins bind specifically to origins of replication where they serve as scaffold for the assembly of additional initiation factors. Human ORC subunits 1-6 are expressed in the nucleus of proliferating cells and tissues, such as the testis. ORC1 and ORC2 are both expressed at equivalent concentrations throughout the cell cycle; however, only ORC2 remains stably bound to chromatin. ORC4 and ORC6 are also expressed constantly throughout the cell cycle. ORC2, ORC3, ORC4 and ORC5 form a core complex upon which ORC6 and ORC1 assemble. The formation of this core complex suggests that ORC proteins play a crucial role in the G₁-S transition in mammalian cells.

CHROMOSOMAL LOCATION

Genetic locus: ORC3L (human) mapping to 6q15.

SOURCE

ORC3 (1D6) is a rat monoclonal antibody raised against partially purified His-tagged bacterially expressed fusion protein corresponding to human ORC3.

PRODUCT

Each vial contains 200 µg IgG_{2b} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-23888 X, 200 µg/0.1 ml.

ORC3 (1D6) is available conjugated to agarose (sc-23888 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-23888 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-23888 PE), fluorescein (sc-23888 FITC), Alexa Fluor® 488 (sc-23888 AF488), Alexa Fluor® 546 (sc-23888 AF546), Alexa Fluor® 594 (sc-23888 AF594) or Alexa Fluor® 647 (sc-23888 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-23888 AF680) or Alexa Fluor® 790 (sc-23888 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

ORC3 (1D6) is recommended for detection of ORC3 of 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for ORC3 siRNA (h): sc-38155, ORC3 shRNA Plasmid (h): sc-38155-SH and ORC3 shRNA (h) Lentiviral Particles: sc-38155-V.

ORC3 (1D6) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

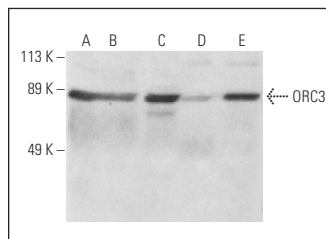
Molecular Weight of ORC3: 80 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or A549 cell lysate: sc-2413.

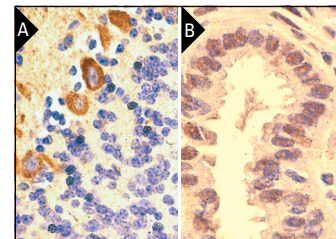
STORAGE

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

DATA



ORC3 (1D6): sc-23888. Western blot analysis of ORC3 expression in HeLa (A), Raji (B), Jurkat (C), WI 38 (D) and A549 (E) whole cell lysates.



ORC3 (1D6): sc-23888. Immunoperoxidase staining of formalin fixed, paraffin-embedded human ovary tissue showing nuclear localization (A,B).

SELECT PRODUCT CITATIONS

1. Braden, W.A., et al. 2006. Distinct action of the retinoblastoma pathway on the DNA replication machinery defines specific roles for cyclin-dependent kinase complexes in prereplication complex assembly and sphase progression. *Mol. Cell. Biol.* 26: 7667-7681.
2. Tatsumi, Y., et al. 2008. Involvement of human ORC and TRF2 in pre-replication complex assembly at telomeres. *Genes Cells* 13: 1045-1059.
3. Di Paola, D., et al. 2010. Increased origin activity in transformed versus normal cells: identification of novel protein players involved in DNA replication and cellular transformation. *Nucleic Acids Res.* 38: 2314-2331.
4. Di Paola, D., et al. 2012. Comparative analysis of pre-replication complex proteins in transformed and normal cells. *J. Cell. Biochem.* 113: 1333-1347.
5. Booher, K., et al. 2012. Downregulation of Cdc6 and pre-replication complexes in response to methionine stress in breast cancer cells. *Cell Cycle* 11: 4414-4423.
6. Ho, T.L., et al. 2016. The KRAB zinc finger protein Roma/Zfp157 is a critical regulator of cell-cycle progression and genomic stability. *Cell Rep.* 15: 724-734.
7. Higa, M., et al. 2017. TRF2 recruits ORC through TRFH domain dimerization. *Biochim. Biophys. Acta Mol. Cell Res.* 1864: 191-201.
8. Chirackal Manavalan, A.P., et al. 2019. CDK12 controls G₁/S progression by regulating RNAPII processivity at core DNA replication genes. *EMBO Rep.* 20: e47592.
9. Shibata, E. and Dutta, A. 2020. A human cancer cell line initiates DNA replication normally in the absence of ORC5 and ORC2 proteins. *J. Biol. Chem.* 295: 16949-16959.
10. Higa, M., et al. 2021. TRF2-mediated ORC recruitment underlies telomere stability upon DNA replication stress. *Nucleic Acids Res.* 49: 12234-12251.

RESEARCH USE

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