

ORC1 (R-15): sc-13232

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. Human ORC subunits, ORC1, ORC2 and ORC3, are expressed in the nucleus of proliferating cells and tissues, such as the testis. ORC2 and ORC3 are also expressed in non-proliferating cells such as cardiac myocytes, adrenal cortical cells and neurons, suggesting an additional role for these proteins in differentiating cells. ORC1, which is selectively phosphorylated in mitosis, and ORC2, which is consistently phosphorylated throughout all stages of the cell cycle, are both expressed at equivalent concentrations throughout the cell cycle; however, only ORC2 remains stably bound to chromatin. The recruitment of ORC1 into an inactive form of chromatin during part of the cell cycle allows ORC1 to suppress the transcriptional activity of c-Myc. The change in ORC stability suggests a mechanism that prevents the re-replication of already replicated chromatin in the metazoan cell cycle.

REFERENCES

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- Dhar, S.K. and Dutta, A. 2000. Identification and characterization of the human ORC6 homolog. *J. Biol. Chem.* 275: 34983-34988.
- Thome, K.C., et al. 2000. Subsets of human origin recognition complex (ORC) subunits are expressed in non-proliferating cells and associate with non-ORC proteins. *J. Biol. Chem.* 275: 35233-35241.
- Kreitz, S., et al. 2000. The human origin-recognition-complex protein 1 dissociates from chromatin during S phase in HeLa cells. *J. Biol. Chem.* 276: 6337-6342.
- Natale, D.A., et al. 2000. Selective instability of ORC1 protein accounts for the absence of functional origin recognition complexes during the M-G₁ transition in mammals. *EMBO J.* 19: 2728-2738.
- Takayama, M.A., et al. 2000. ORC1 interacts with c-Myc to inhibit E-box-dependent transcription by abrogating c-Myc-SNF5/INI1 interaction. *Genes Cells* 5: 481-490.

CHROMOSOMAL LOCATION

Genetic locus: ORC1L (human) mapping to 1p32; Orc1l (mouse) mapping to 4 D.

SOURCE

ORC1 (R-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of ORC1 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG 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-13232 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-13232 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

ORC1 (R-15) is recommended for detection of ORC1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 ORC1 siRNA (h): sc-38151, ORC1 siRNA (m): sc-38152, ORC1 shRNA Plasmid (h): sc-38151-SH, ORC1 shRNA Plasmid (m): sc-38152-SH, ORC1 shRNA (h) Lentiviral Particles: sc-38151-V and ORC1 shRNA (m) Lentiviral Particles: sc-38152-V.

ORC1 (R-15) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of ORC1: 120 kDa.

Positive Controls: Ramos nuclear extract: sc-2153.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Kinoshita, Y., et al. 2004. Site-specific loading of an MCM protein complex in a DNA replication initiation zone upstream of the c-MYC gene in the HeLa cell cycle. *J. Biol. Chem.* 279: 35879-35889.

RESEARCH USE

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



Try **ORC1 (F-10): sc-398734** or **ORC1 (7A7): sc-23887**, our highly recommended monoclonal alternatives to ORC1 (R-15).