

Prohibitin (C-13): sc-18198

BACKGROUND

Prohibitin is an evolutionarily conserved protein that has antiproliferative activity. The gene encoding human Prohibitin maps to chromosome 17q21.33 and is ubiquitously expressed. Prohibitin is a post-synthetically modified protein that is localized in the inner membrane of mitochondria, where it regulates the cell cycle by blocking the transition between the G₁ and S phases, and on the plasma membrane of B cells, where it mediates B cell maturation. Prohibitin mRNA and protein levels are high in G₁, decline during the S phase, rise again in G₂ and decline in M phase, which suggests that Prohibitin controls the cell cycle by using both transcriptional and post-translational mechanisms. Prohibitin is also a potential tumor suppressor protein that binds to retinoblastoma (Rb) and subsequently inhibits the activity of E2F family members in response to specific signaling cascades. Prohibitin 2 is a repressor of estrogen receptor activity, and is required for somatic and germline differentiation in the larval gonad during embryonic development. Mutations in the Prohibitin genes are correlated with breast cancer development and/or progression in more than 80% of the cell lines analyzed.

REFERENCES

1. Sato, T., et al. 1992. The human Prohibitin gene located on chromosome 17q21 is mutated in sporadic breast cancer. *Cancer Res.* 52: 1643-1646.
2. Roskams, A.J., et al. 1993. Cell cycle activity and expression of Prohibitin mRNA. *J. Cell. Physiol.* 157: 289-295.
3. McClung, J.K., et al. 1995. Prohibitin: potential role in senescence, development, and tumor suppression. *Exp. Gerontol.* 30: 99-124.
4. Dell'Orco, R.T., et al. 1996. Prohibitin and the senescent phenotype. *Exp. Gerontol.* 31: 245-252.
5. Jupe, E.R., et al. 1996. Prohibitin in breast cancer cell lines: loss of anti-proliferative activity is linked to 3' untranslated region mutations. *Cell Growth Differ.* 7: 871-888.
6. Wang, S., et al. 1999. Rb and Prohibitin target distinct regions of E2F1 for repression and respond to different upstream signals. *Mol. Cell. Biol.* 19: 7447-7460.
7. Wang, S., et al. 1999. Prohibitin, a potential tumor suppressor, interacts with RB and regulates E2F function. *Oncogene* 18: 3501-3510.

CHROMOSOMAL LOCATION

Genetic locus: PHB (human) mapping to 17q21.33; Phb (mouse) mapping to 11 D.

SOURCE

Prohibitin (C-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Prohibitin of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-18198 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Prohibitin (C-13) is recommended for detection of Prohibitin 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

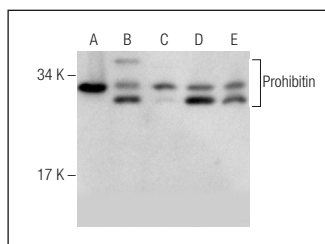
Prohibitin (C-13) is also recommended for detection of Prohibitin in additional species, including porcine.

Suitable for use as control antibody for Prohibitin siRNA (h): sc-37629, Prohibitin siRNA (m): sc-37630, Prohibitin shRNA Plasmid (h): sc-37629-SH, Prohibitin shRNA Plasmid (m): sc-37630-SH, Prohibitin shRNA (h) Lentiviral Particles: sc-37629-V and Prohibitin shRNA (m) Lentiviral Particles: sc-37630-V.

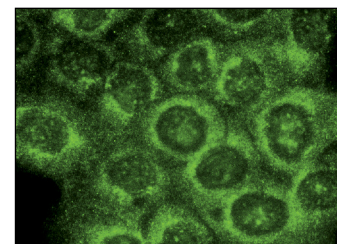
Molecular Weight of Prohibitin: 30-32 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, RAW 264.7 whole cell lysate: sc-2211 or F9 cell lysate: sc-2245.

DATA



Prohibitin (C-13): sc-18198. Western blot analysis of Prohibitin expression in F9 (A), NIH/3T3 (B), A-10 (C), RAW 264.7 (D) and PC-12 (E) whole cell lysates.



Prohibitin (C-13): sc-18198. Immunofluorescence staining of methanol-fixed A-431 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Ge, J., et al. 2012. Ugi reaction-assisted rapid assembly of affinity-based probes against potential protein tyrosine phosphatases. *Chem. Commun.* 48: 4453-4455.

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.



Try **Prohibitin (E-5): sc-377037** or **Prohibitin (6K2D1): sc-53996**, our highly recommended monoclonal alternatives to Prohibitin (C-13). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **Prohibitin (E-5): sc-377037**.