

Prohibitin (SPM311): sc-56467

BACKGROUND

Prohibitin is an evolutionarily conserved protein that has antiproliferative activity. The gene encoding human Prohibitin maps to chromosome 17q21 and is ubiquitously expressed. Prohibitin is a post-synthetically modified protein that is localized in the inner membrane of mitochondria and on the plasma membrane of B cells, where it regulates the cell cycle by blocking the transition between the G₁ and S phases and mediates B cell maturation, respectively. 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. Mutations in the Prohibitin gene, which has a chromosomal location associated with hereditary breast cancer, are correlated with breast cancer development and/or progression in over 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.

CHROMOSOMAL LOCATION

Genetic locus: Phb (mouse) mapping to 11 D.

SOURCE

Prohibitin (SPM311) is a mouse monoclonal antibody raised against purified recombinant Prohibitin of rat origin.

PRODUCT

Each vial contains IgG₁ in 250 µl of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

PROTOCOLS

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

APPLICATIONS

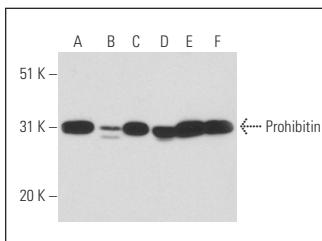
Prohibitin (SPM311) is recommended for detection of Prohibitin of mouse, rat and porcine origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:1000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:50-1:500).

Suitable for use as control antibody for Prohibitin siRNA (m): sc-37630, Prohibitin siRNA (r): sc-270448, Prohibitin shRNA Plasmid (m): sc-37630-SH, Prohibitin shRNA Plasmid (r): sc-270448-SH, Prohibitin shRNA (m) Lentiviral Particles: sc-37630-V and Prohibitin shRNA (r) Lentiviral Particles: sc-270448-V.

Molecular Weight of Prohibitin: 30-32 kDa.

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


DATA



Prohibitin (SPM311): sc-56467. Western blot analysis of Prohibitin expression in F9 (A), RAW 264.7 (B), A-10 (C) and NIH/3T3 (D) whole cell lysates and rat heart (E) and mouse liver (F) tissue extracts.

SELECT PRODUCT CITATIONS

1. Maity, S., et al. 2013. Hyperthyroidism causes cardiac dysfunction by mitochondrial impairment and energy depletion. *J. Endocrinol.* 217: 215-228.



See **Prohibitin (E-5): sc-377037** for Prohibitin antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.