



Prohibitin (6K2D1): sc-53996

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.
5. Jupe, E.R., et al. 1996. Prohibitin in breast cancer cell lines: loss of antiproliferative 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.
8. Woodlock, T.J., et al. 2001. Prohibitin expression is increased in phorbol ester-treated chronic leukemic B lymphocytes. *Blood Cells Mol. Dis.* 27: 27-34.

CHROMOSOMAL LOCATION

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

SOURCE

Prohibitin (6K2D1) is a mouse monoclonal antibody raised by antigen presentation of Prohibitin via the chaperone properties of apoptin, a protein of chicken viral origin.

PRODUCT

Each vial contains 200 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Prohibitin (6K2D1) is recommended for detection of Prohibitin of human origin by immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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

Molecular Weight of Prohibitin: 30-32 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, Ramos cell lysate: sc-2216 or F9 cell lysate: sc-2245.

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.

PROTOCOLS

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