SANTA CRUZ BIOTECHNOLOGY, INC.

# Prohibitin (II-14-10): sc-56346

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## 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, where it regulates the cell cycle by blocking the transition between the $G_1$ 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 $G_1$, decline during the S phase, rise again in $G_2$ 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 progressionin 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.


## CHROMOSOMAL LOCATION

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

## SOURCE

Prohibitin (II-14-10) is a mouse monoclonal antibody raised against purified recombinant Prohibitin of rat origin.

## PRODUCT

Each vial contains $IgG_1$ in 250 µl of PBS with < 0.1% sodium azide.

## 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.

## APPLICATIONS

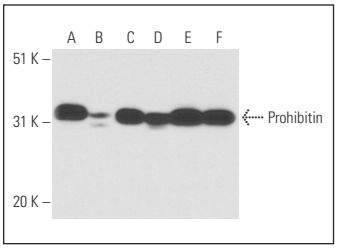
Prohibitin (II-14-10) is recommended for detection of Prohibitin of mouse, rat and porcine origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:1000), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (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: A-10 cell lysate: sc-3806, RAW 264.7 whole cell lysate: sc-2211 or NIH/3T3 whole cell lysate: sc-2210.

## DATA




Prohibitin (II-14-10): sc-56346. 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. Bahk, Y.Y., et al. 2010. An analysis of an interactome for apoptosis factor, Ei24/PIG8, using the inducible expression system and shotgun proteomics. J. Proteome Res. 9: 5270-5283.
2. Sunaga, D., et al. 2014. Accelerated recovery of mitochondrial membrane potential by GSK-3β inactivation affords cardiomyocytes protection from oxidant-induced necrosis. PLoS ONE 9: e112529.
3. Tanno, M., et al. 2014. Translocation of glycogen synthase kinase-3β (GSK-3 ), a trigger of permeability transition, is kinase activity-dependent and mediated by interaction with voltage-dependent anion channel 2 (VDAC2). J. Biol. Chem. 289: 29285-29296.
4. Ohwada, W., et al. 2020. Distinct intra-mitochondrial localizations of pro-survival kinases and regulation of their functions by DUSP5 and PHLPP-1. Biochim. Biophys. Acta Mol. Basis Dis. E-published.


CONJUGATES

See **Prohibitin (E-5): sc-377037** for Prohibitin antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.