

PIF1 (F-10): sc-48377



The Power to Question

BACKGROUND

PIF1 is a single-stranded (ss) DNA-dependent ATPase as well as a DNA helicase that unwinds DNA in a 5' to 3' direction with respect to the DNA strand on which it binds first. This protein is critical to DNA replication and telomere length maintenance in *Saccharomyces cerevisiae*. The PIF1 gene is highly conserved from yeast to humans. Mutations in the gene that encodes for PIF1 cause all telomeres to lengthen, suggesting that the PIF1 functions as a catalytic inhibitor of both new telomere formation and telomere elongation. Human PIF1 preferentially binds telomeric DNA where it inhibits telomerase activity. PIF1 specifically counteracts the RecQ homolog Sgs1 helicase activity, and degradation of PIF1 is mediated by the ubiquitin-26S Proteasome pathway.

CHROMOSOMAL LOCATION

Genetic locus: PIF1 (human) mapping to 15q22.31; Pif1 (mouse) mapping to 9 C.

SOURCE

PIF1 (F-10) is a mouse monoclonal antibody raised against full length PIF1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain 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-48377 X, 200 µg/0.1 ml.

PIF1 (F-10) is available conjugated to agarose (sc-48377 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-48377 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-48377 PE), fluorescein (sc-48377 FITC), Alexa Fluor® 488 (sc-48377 AF488), Alexa Fluor® 546 (sc-48377 AF546), Alexa Fluor® 594 (sc-48377 AF594) or Alexa Fluor® 647 (sc-48377 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-48377 AF680) or Alexa Fluor® 790 (sc-48377 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

PIF1 (F-10) is recommended for detection of PIF1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (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 PIF1 siRNA (h): sc-76134, PIF1 siRNA (m): sc-76135, PIF1 shRNA Plasmid (h): sc-76134-SH, PIF1 shRNA Plasmid (m): sc-76135-SH, PIF1 shRNA (h) Lentiviral Particles: sc-76134-V and PIF1 shRNA (m) Lentiviral Particles: sc-76135-V.

PIF1 (F-10) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

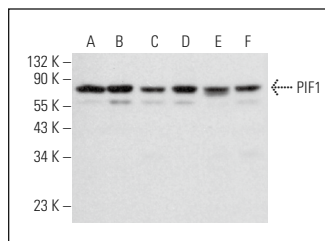
Molecular Weight of PIF1: 81 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

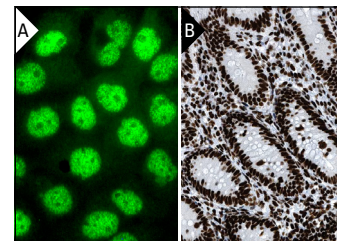
STORAGE

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

DATA



PIF1 (F-10): sc-48377. Western blot analysis of PIF1 expression in HeLa (A), Jurkat (B), COLO 205 (C), F9 (D), WEHI-231 (E) and PC-12 (F) whole cell lysates.



PIF1 (F-10): sc-48377. Immunofluorescence staining of formalin-fixed A-431 cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing nuclear staining of glandular and lymphoid cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program (B).

SELECT PRODUCT CITATIONS

- Henry, R.A., et al. 2010. Components of the secondary pathway stimulate the primary pathway of eukaryotic Okazaki fragment processing. *J. Biol. Chem.* 285: 28496-28505.
- Jimeno, S., et al. 2018. The helicase PIF1 facilitates resection over sequences prone to forming G₄ structures. *Cell Rep.* 24: 3262-3273.e4.
- Bhowmick, R., et al. 2022. Rad51 protects human cells from transcription-replication conflicts. *Mol. Cell* 82: 3366-3381.e9.
- Zhou, X., et al. 2022. Tideglusib inhibits Pif1 helicase of *Bacteroides* sp. via an irreversible and Cys-380-dependent mechanism. *ACS Omega* 7: 31289-31298.
- Hattori, E.Y., et al. 2022. A RUNX-targeted gene switch-off approach modulates the BIRC5/PIF1-p21 pathway and reduces glioblastoma growth in mice. *Commun. Biol.* 5: 939.
- Zhao, Y., et al. 2023. PIF1 promotes autophagy to inhibit chronic hypoxia induced apoptosis of pulmonary artery endothelial cells. *Int. J. Chron. Obstruct. Pulmon. Dis.* 18: 1319-1332.
- Showman, S., et al. 2024. Expansion of human centromeric arrays in cells undergoing break-induced replication. *Cell Rep.* 43: 113851.

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.