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# PIF1 (m): 293T Lysate: sc-122568

## 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.

## REFERENCES

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- Huang, Y., Zhang, D.H. and Zhou, J.Q. 2006. Characterization of ATPase activity of recombinant human PIF1. *Acta Biochim. Biophys. Sin.* 38: 335-341.
- Wagner, M., Price, G. and Rothstein, R. 2006. The absence of Top3 reveals an interaction between the Sgs1 and PIF1 DNA helicases in *Saccharomyces cerevisiae*. *Genetics* 174: 555-573.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## CHROMOSOMAL LOCATION

Genetic locus: Pif1 (mouse) mapping to 9 C.

## PRODUCT

PIF1 (m): 293T Lysate represents a lysate of mouse PIF1 transfected 293T cells and is provided as 100  $\mu$ g protein in 200  $\mu$ l SDS-PAGE buffer.

## APPLICATIONS

PIF1 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive PIF1 antibodies. Recommended use: 10-20  $\mu$ l per lane.

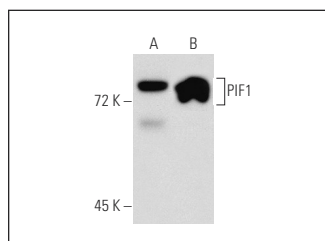
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PIF1 (F-10): sc-48377 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse PIF1 expression in PIF1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

## DATA



PIF1 (F-10): sc-48377. Western blot analysis of PIF1 expression in non-transfected: sc-117752 (A) and mouse PIF1 transfected: sc-122568 (B) 293T whole cell lysates.

## RESEARCH USE

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