

# TLK1 (S-32): sc-100345

## BACKGROUND

The Tousled-like kinases (TLK1 and TLK2, also designated PKU- $\beta$  and PKU- $\alpha$ , respectively) are the human homologs of the tousled gene from *Arabidopsis thaliana*, which encodes a serine/threonine kinase that is necessary for proper organ morphogenesis. Both TLKs contain a nuclear localization signal and a predicted coiled-coil region in the N-terminal domain. TLK is ubiquitously expressed, and is prevalent in mouse testis, especially in pachytene spermatocytes and round spermatids. It displays a propensity to dimerize through an interaction between its coiled-coil structure and is able to auto-phosphorylate, as well as phosphorylate exogenous substrates. TLK1 and TLK2 are regulated by the cell cycle, showing maximum activity during S phase. Subsequently, they are thought to regulate the development of multicellular organisms, including playing a key role in spermatogenesis, through a series of phosphorylations.

## REFERENCES

1. Roe, J.L., et al. 1993. The Tousled gene in *A. thaliana* encodes a protein kinase homolog that is required for leaf and flower development. *Cell* 75: 939-950.
2. Yamakawa, A., et al. 1997. cDNA cloning and chromosomal mapping of genes encoding novel protein kinases termed PKU- $\alpha$  and PKU- $\beta$ , which have nuclear localization signal. *Gene* 202: 193-201.
3. Roe, J.L., et al. 1997. TOUSLED is a nuclear serine/threonine protein kinase that requires a coiled-coil region for oligomerization and catalytic activity. *J. Biol. Chem.* 171: 5838-5845.
4. Roe, J.L., et al. 1997. Tousled participates in apical tissue formation during gynoecium development in *Arabidopsis*. *Plant Cell* 9: 335-353.
5. Sillje, H.H., et al. 1999. Mammalian homologues of the plant tousled gene code for cell-cycle-regulated kinases with maximal activities linked to ongoing DNA replication. *EMBO J.* 18: 5691-5702.
6. Shalom, S. and Don, J. 1999. Tlk, a novel evolutionarily conserved murine serine threonine kinase, encodes multiple testis transcripts. *Mol. Reprod. Dev.* 52: 392-405.

## CHROMOSOMAL LOCATION

Genetic locus: TLK1 (human) mapping to 2q31.1; Tlk1 (mouse) mapping to 2 C2.

## SOURCE

TLK1 (S-32) is a mouse monoclonal antibody raised against recombinant TLK1 of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG $_3$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

TLK1 (S-32) is recommended for detection of TLK1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 TLK1 siRNA (h): sc-45973, TLK1 siRNA (m): sc-45974, TLK1 shRNA Plasmid (h): sc-45973-SH, TLK1 shRNA Plasmid (m): sc-45974-SH, TLK1 shRNA (h) Lentiviral Particles: sc-45973-V and TLK1 shRNA (m) Lentiviral Particles: sc-45974-V.

Molecular Weight of TLK1: 90 kDa.

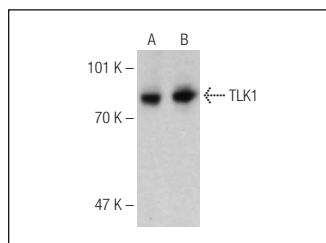
Positive Controls: HeLa whole cell lysate: sc-2200, RAW 264.7 whole cell lysate: sc-2211 or C6 whole cell lysate: sc-364373.

## RECOMMENDED SUPPORT REAGENTS

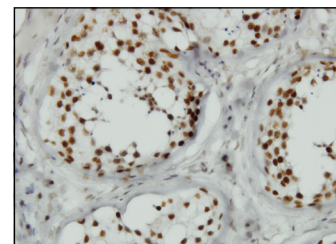
To ensure optimal results, the following support reagents are recommended:

- 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.
- 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.
- 4) Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



TLK1 (S-32): sc-100345. Western blot analysis of TLK1 expression in C6 (A) and RAW 264.7 (B) whole cell lysates.



TLK1 (S-32): sc-100345. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human testis tissue showing nuclear localization.

## SELECT PRODUCT CITATIONS

1. Ibrahim, K., et al. 2020. Knockdown of tousled-like kinase 1 inhibits survival of glioblastoma multiforme cells. *Int. J. Mol. Med.* 46: 685-699.

## RESEARCH USE

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