Revision 1

Store at -20C

#4125

TLK1 Antibody

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB, IF-IC	H M R	Endogenous	86	Rabbit	#Q9UKI8-2	9874

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunofluorescence (Immunocytochemistry)	1:100

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

TLK1 Antibody detects endogenous levels of total TLK1. The antibody may cross-react with TLK2.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues adjacent to Ser183 of human TLK1. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Tousled-like kinases (TLK1 and TLK2) are nuclear serine/threonine kinases named for their homology to the Tousled gene from Arabidopsis thaliana, essential for flower development (1). The kinase activities of the TLKs are cell cycle regulated, with maximal activity during S phase (1). TLK appears to play a role in chromatin assembly and DNA damage checkpoint regulation (1,2). In C. elegans, TLK1 is essential for appropriate transcription during embryonic development (3). Substrates for TLK include the human chromatin assembly factor Asf, which functions in DNA replication- and repair-coupled chromatin assembly (2). DNA damage during S phase, when TLK is maximally active, leads to inhibition of TLK activity (1). This inhibition requires ataxia mutated kinase (ATM) and Chk1 (4,5). ATM and the related kinase ATR are activited by DNA damage during S phase, phosphorylate Chk1/Chk2, and block the transition into mitosis (6). Chk1 phosphorylates TLK1 on Ser743 in vitro and in vivo, leading to inhibition of TLK1 activity (4). This process likely provides a mechanism to slow the chromatin assembly processes controlled by TLK in the event of DNA damage.

Background References

1. Silljé, H.H. et al. (1999) *EMBO J* 18, 5691-702.
2. Silljé, H.H. and Nigg, E.A. (2001) *Curr Biol* 11, 1068-73.
3. Han, Z. et al. (2003) *Curr Biol* 13, 1921-9.
4. Groth, A. et al. (2003) *EMBO J* 22, 1676-87.
5. Krause, D.R. et al. (2003) *Oncogene* 22, 5927-37.
6. Kastan, M.B. and Lim, D.S. (2000) *Nat Rev Mol Cell Biol* 1, 179-86.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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