

# PUS4 (K-15): sc-165321

## BACKGROUND

Pseudouridine is an abundant component of rRNAs and tRNAs and is enzymatically generated by isomerization of uridine by pseudouridine synthase. PUS4, also known as TRUB1 (probable tRNA pseudouridine synthase 1), is a 349 amino acid protein that belongs to the pseudouridine synthase truB family and contains one TruB domain. While highly expressed in heart, skeletal muscle and liver, PUS4 is expressed at lower levels in lung, small intestine, kidney and spleen. It has been suggested that PUS4 may be responsible for synthesis of pseudouridine from uracil in transfer RNAs. Phylogenetic analysis showed that PUS4 and TRUB2 group together with the original eubacterial tRNA synthases, distinct from DKC1. Additionally, PUS4 shares 30% identity and 45% similarity with TRUB2. Consisting of eight exons spanning approximately 40 kb, the PUS4 gene is conserved in chimpanzee, canine, mouse, rat, chicken and zebrafish, and maps to human chromosome 10q25.3.

## REFERENCES

1. Becker, H.F., et al. 1997. The yeast gene YNL292w encodes a pseudouridine synthase (Pus4) catalyzing the formation of psi55 in both mitochondrial and cytoplasmic tRNAs. *Nucleic Acids Res.* 25: 4493-4499.
2. Grosshans, H., et al. 2001. Pus1p-dependent tRNA pseudouridylation becomes essential when tRNA biogenesis is compromised in yeast. *J. Biol. Chem.* 276: 46333-46339.
3. Zucchini, C., et al. 2003. The human TruB family of pseudouridine synthase genes, including the Dyskeratosis Congenita 1 gene and the novel member TRUB1. *Int. J. Mol. Med.* 11: 697-704.
4. Deloukas, P., et al. 2004. The DNA sequence and comparative analysis of human chromosome 10. *Nature* 429: 375-381.
5. Grupe, A., et al. 2006. A scan of chromosome 10 identifies a novel locus showing strong association with late-onset Alzheimer disease. *Am. J. Hum. Genet.* 78: 78-88.
6. Roovers, M., et al. 2006. Formation of the conserved pseudouridine at position 55 in archaeal tRNA. *Nucleic Acids Res.* 34: 4293-4301.
7. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 610726. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: TRUB1 (human) mapping to 10q25.3; Trub1 (mouse) mapping to 19 D2.

## SOURCE

PUS4 (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of PUS4 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-165321 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

PUS4 (K-15) is recommended for detection of PUS4 of human origin and TRUB1 of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other PUS family members.

PUS4 (K-15) is also recommended for detection of PUS4 in additional species, including equine, canine and porcine.

Suitable for use as control antibody for PUS4 siRNA (h): sc-90381, TRUB1 siRNA (m): sc-154699, PUS4 shRNA Plasmid (h): sc-90381-SH, TRUB1 shRNA Plasmid (m): sc-154699-SH, PUS4 shRNA (h) Lentiviral Particles: sc-90381-V and TRUB1 shRNA (m) Lentiviral Particles: sc-154699-V.

Molecular Weight of PUS4: 37 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

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