SANTA CRUZ BIOTECHNOLOGY, INC.

HELB (E-14): sc-132709

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

HELB (helicase B), also known as hDHB (human DNA helicase B), is a 1,087 amino acid ATPase and 5'-3' DNA helicase. Due to a preference for ATP and dATP as substrates, HELB binds strongly to single-stranded DNA only in the absence of ATP. HELB has been shown to bind to RPA 70 kDa subunit and at least 2 subunits of the polymerase α-primase complex during DNA replication. Upon DNA damage, HELB is thought to be phosphorylated by either Atm or ATR. When a dominant-negative mutant of the HELB protein was injected into the nucleus of early G_1 phase cells, DNA synthesis was halted, suggesting that HELB is necessary for cell cycle progression. HELB is expressed highly in thymus and testis and is present at lower levels in kidney, spleen, brain and liver.

REFERENCES

1. Seki, M., et al. 1995. Characterization of DNA synthesis and DNA-dependent ATPase activity at a restrictive temperature in temperature-sensitive tsFT848 cells with thermolabile DNA helicase B. Mol. Cell. Biol. 15: 165-172.
2. Saitoh, A., et al. 1995. Stimulation of mouse DNA primase-catalyzed oligoribonucleotide synthesis by mouse DNA helicase B. Nucleic Acids Res. 23: 2014-2018.
3. Tada, S., et al. 2001. Molecular cloning of a cDNA encoding mouse DNA helicase B, which has homology to *Escherichia coli* RecD protein, and identification of a mutation in the DNA helicase B from tsFT848 temperature-sensitive DNA replication mutant cells. Nucleic Acids Res. 29: 3835-3840.
4. Singleton, M.R., et al. 2002. Modularity and specialization in superfamily 1 and 2 helicases. J. Bacteriol. 184: 1819-1826.
5. Taneja, P., et al. 2002. A dominant-negative mutant of human DNA helicase B blocks the onset of chromosomal DNA replication. J. Biol. Chem. 277: 40853-40861.
6. Muzi-Falconi, M., et al. 2003. The DNA polymerase α-primase complex: multiple functions and interactions. ScientificWorldJournal 3: 21-33.
7. Matsuoka, S., et al. 2007. Atm and ATR substrate analysis reveals extensive protein networks responsive to DNA damage. Science 316: 1160-1166.

CHROMOSOMAL LOCATION

Genetic locus: HELB (human) mapping to 12q14.3; Helb (mouse) mapping to 10 D2.

SOURCE

HELB (E-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of HELB 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-132709 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

HELB (E-14) is recommended for detection of HELB isoforms 1 and 2 of mouse, rat and human 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).

Suitable for use as control antibody for HELB siRNA (h): sc-95729, HELB siRNA (m): sc-145933, HELB shRNA Plasmid (h): sc-95729-SH, HELB shRNA Plasmid (m): sc-145933-SH, HELB shRNA (h) Lentiviral Particles: sc-95729-V and HELB shRNA (m) Lentiviral Particles: sc-145933-V.

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™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ 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™ 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 or our catalog for detailed protocols and support products.