SANTA CRUZ BIOTECHNOLOGY, INC.

HEL308 (2406C1a): sc-81095

BACKGROUND

HEL308, a DNA repair helicase, is a member of the helicase superfamily 2 and is conserved in eukaryotes and archaea. The human HEL308 gene encodes for a single stranded, 1,101 amino acid protein that acts as a DNA dependent ATPase. HEL308 is expressed in ovaries, heart, spleen, thymus, prostate, liver, kidney, and pancreas. It is highly expressed in the testis. During the early stages of DNA recombination, HEL308 plays a critical role in DNA cross-link repair following replication fork arrest. HEL308 is believed to aid in restarting DNA replication by displacing the lagging strand at the stalled replication forks. Human HEL308 shares homology with the HEL308 locus in *Mus musculus* and the mus308 locus in *Drosophila melanogaster*. In adult mice, HEL308 is only expressed in primary spermatocytes in seminiferous tubules of testis. The mus308 gene in *D. melanogaster* encodes a protein with structural characteristics of both DNA polymerases and helicases. The gene product may also be involved in the repair of lesions other than cross-links.

REFERENCES

1. Marini, F. and Wood, R.D. 2002. A human DNA helicase homologous to the DNA cross-link sensitivity protein mus308. J. Biol. Chem. 277: 8716-8723.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. John Hopkins University, Baltimore, MD. MIM Number: 606769. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Spivak, G., et al. 2003. Workshop on DNA repair and related DNA transactions, a conference report. DNA Repair 2: 235-242.
4. Marini, F., et al. 2003. POLN, a nuclear PolA family DNA polymerase homologous to the DNA cross-link sensitivity protein mus308. J. Biol. Chem. 278: 32014-32019.
5. Pang, M., et al. 2005. The *Drosophila* mus308 gene product, implicated in tolerance of DNA interstrand cross-links, is a nuclear protein found in both ovaries and embryos. DNA Repair 4: 971-982.
6. Kelman, Z. and White, M.F. 2005. Archaeal DNA replication and repair. Curr. Opin. Microbiol. 8: 669-676.
7. Woodman, I.L., et al. 2007. Archaeal Hel308 domain V couples DNA binding to ATP hydrolysis and positions DNA for unwinding over the helicase ratchet. J. Mol. Biol. 374: 1139-1144.
8. Büttner, K., et al. 2007. Structural basis for DNA duplex separation by a superfamily-2 helicase. Nat. Struct. Mol. Biol. 14: 647-652.
9. Richards, J.D., et al. 2007. Structure of the DNA repair helicase HEL308 reveals DNA binding and autoinhibitory domains. J. Biol. Chem. 283: 5118-5126.

CHROMOSOMAL LOCATION

Genetic locus: HELQ (human) mapping to 4q21.23.

SOURCE

HEL308 (2406C1a) is a mouse monoclonal antibody raised against a recombinant protein corresponding to an internal region of HEL308 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

APPLICATIONS

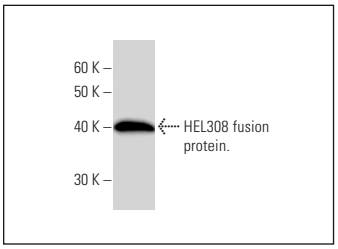
HEL308 (2406C1a) is recommended for detection of HEL308 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for HEL308 siRNA (h): sc-89305, HEL308 shRNA Plasmid (h): sc-89305-SH and HEL308 shRNA (h) Lentiviral Particles: sc-89305-V.

Molecular Weight of HEL308: 125 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

DATA



HEL308 (2406C1a): sc-81095. Western Blot analysis of human recombinant HEL308 fusion protein.

SELECT PRODUCT CITATIONS

1. Liu, D.N., et al. 2017. HELQ reverses the malignant phenotype of osteosarcoma cells via CHK1-RAD51 signaling pathway. Oncol. Rep. 37: 1107-1113.
2. Zhao, J., et al. 2021. Cell-fate transition and determination analysis of mouse male germ cells throughout development. Nat. Commun. 12: 6839.
3. Anand, R., et al. 2021. HELQ is a dual-function DSB repair enzyme modulated by RPA and RAD51. Nature. E-published.

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 for detailed protocols and support products.