

DNASE1L3 (W-13): sc-68310

BACKGROUND

DNASE1L3 (deoxyribonuclease I-like 3), also known as LSD (liver and spleen DNase), DHP2, DNase γ , DNase Y or DNAS1L3, is a member of the DNase I family of $\text{Ca}^{2+}/\text{Mg}^{2+}$ -dependent endonucleases. DNASE1L3 localizes to the nucleus and is expressed in liver, spleen, thymus, small intestine, kidney, bone marrow and lymph node. DNASE1L3 cleaves nuclear chromatin internucleosomally and is believed to play a role in DNA breakdown during apoptosis. DNASE1L3 cleaves single- and double-stranded DNA, producing 3'-OH/5'-P ends. The endonuclease activity of DNASE1L3 can be enhanced by association with α -actinin-4 and repressed by poly-ADP-ribosylation by PARP-1. PARP-1 activity can be inactivated in the execution phase of apoptosis by caspase-like proteases, thereby relieving the inhibition of DNASE1L3. DNASE1L3 may also be inhibited by zinc, but, in contrast with DNase I, it is not inhibited by monomeric actin.

REFERENCES

1. Yakovlev, A.G., et al. 1999. Role of DNAS1L3 in Ca^{2+} - and Mg^{2+} -dependent cleavage of DNA into oligonucleosomal and high molecular mass fragments. *Nucleic Acids Res.* 27: 1999-2005.
2. Liu, Q.Y., et al. 2000. Apoptosis-related functional features of the DNase I-like family of nucleases. *Ann. N.Y. Acad. Sci.* 887: 60-76.
3. Boulares, A.H., et al. 2002. Regulation of DNAS1L3 endonuclease activity by poly(ADP-ribosylation) during etoposide-induced apoptosis. Role of poly(ADP-ribose) polymerase-1 cleavage in endonuclease activation. *J. Biol. Chem.* 277: 372-378.
4. Boulares, A.H., et al. 2002. The poly(ADP-ribose) polymerase-1-regulated endonuclease DNAS1L3 is required for etoposide-induced internucleosomal DNA fragmentation and increases etoposide cytotoxicity in transfected osteosarcoma cells. *Cancer Res.* 62: 4439-4444.
5. Liu, Q.Y., et al. 2004. Regulation of DNase Y activity by actinin- α 4 during apoptosis. *Cell Death Differ.* 11: 645-654.
6. Boulares, A.H. and Ren, T. 2004. Mechanism of acetaminophen-induced apoptosis in cultured cells: roles of caspase-3, DNA fragmentation factor, and the Ca^{2+} and Mg^{2+} endonuclease DNAS1L3. *Basic Clin. Pharmacol. Toxicol.* 94: 19-29.
7. Napirei, M., et al. 2005. Comparative characterization of rat deoxyribonuclease 1 (DNase and murine deoxyribonuclease 1-like 3 (DNASE1L3)). *Biochem. J.* 389: 355-364.
8. Boulares, H., et al. 2006. Correlation between decreased sensitivity of the Daudi lymphoma cells to VP-16-induced apoptosis and deficiency in DNAS1L3 expression. *Biochem. Biophys. Res. Commun.* 341: 653-662.

CHROMOSOMAL LOCATION

Genetic locus: DNASE1L3 (human) mapping to 3p14.3; Dnase1l3 (mouse) mapping to 14 A1.

STORAGE

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

SOURCE

DNASE1L3 (W-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of DNASE1L3 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-68310 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-68310 X, 200 $\mu\text{g}/0.1$ ml.

APPLICATIONS

DNASE1L3 (W-13) is recommended for detection of DNASE1L3 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).

DNASE1L3 (W-13) is also recommended for detection of DNASE1L3 in additional species, including equine and canine.

Suitable for use as control antibody for DNASE1L3 siRNA (h): sc-77163, DNASE1L3 siRNA (m): sc-77164, DNASE1L3 shRNA Plasmid (h): sc-77163-SH, DNASE1L3 shRNA Plasmid (m): sc-77164-SH, DNASE1L3 shRNA (h) Lentiviral Particles: sc-77163-V and DNASE1L3 shRNA (m) Lentiviral Particles: sc-77164-V.

DNASE1L3 (W-13) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of DNASE1L3: 32 kDa.

Positive Controls: mouse liver extract: sc-2256.

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.

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.