

DNase I (B-4): sc-376207

BACKGROUND

Internucleosomal DNA fragmentation following the activation of endonucleases is the common end point of apoptosis. DNase I, a $\text{Ca}^{2+}/\text{Mg}^{2+}$ -dependent endonuclease ubiquitously expressed in mammalian tissues, has been implicated to mediate internucleosomal DNA degradation in human cells undergoing apoptosis. DNase I is highly polymorphic, and at least six alleles of DNase I are known. DNase II, the ubiquitously expressed acidic deoxyribonuclease, acts downstream of caspase activation and may also induce DNA digestion during apoptosis. DNase I cleaves DNA to 5'-phosphodinucleotide and 5'-phospho-oligonucleotide end-products, whereas DNase II cleaves DNA to 3'-phosphomononucleotide and 3'-phosphooligonucleotide end-products. The mechanism by which DNase II cuts DNA is similar to DNase I, which produces nicks rather than double-strand cuts. DNase II is usually present in cytoplasm of epithelial cells, but it appears concentrated in the nuclei of lens fibers. In contrast, DNase I is always concentrated in nuclei of epithelial and fiber cells. The gene encoding DNase II maps to human chromosome 19.

REFERENCES

1. Torriglia, A., et al. 1995. Involvement of DNase II in nuclear degeneration during lens cell differentiation. *J. Biol. Chem.* 270: 28579-28585.
2. Yasuda, T., et al. 1998. Molecular cloning of the cDNA encoding human deoxyribonuclease II. *J. Biol. Chem.* 273: 2610-2616.
3. Krieser, R.J., et al. 1998. The cloning and expression of human deoxyribonuclease II. A possible role in apoptosis. *J. Biol. Chem.* 273: 30909-30914.
4. Baker, K.P., et al. 1998. Molecular cloning and characterization of human and murine DNase II. *Gene* 215: 281-289.
5. Yasuda, T., et al. 1999. A new allele, DNASE1*6, of human deoxyribonuclease I polymorphism encodes an Arg to Cys substitution responsible for its instability. *Biochem. Biophys. Res. Commun.* 260: 280-283.
6. Oliveri, M., et al. 2001. DNase I mediates internucleosomal DNA degradation in human cells undergoing drug-induced apoptosis. *Eur. J. Immunol.* 31: 743-751.

CHROMOSOMAL LOCATION

Genetic locus: DNASE1 (human) mapping to 16p13.3; Dnase1 (mouse) mapping to 16 A1.

SOURCE

DNase I (B-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 63-101 within an internal region of DNase I of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376207 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

DNase I (B-4) is recommended for detection of DNase I of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 DNase I siRNA (h): sc-41505, DNase I siRNA (m): sc-41506, DNase I shRNA Plasmid (h): sc-41505-SH, DNase I shRNA Plasmid (m): sc-41506-SH, DNase I shRNA (h) Lentiviral Particles: sc-41505-V and DNase I shRNA (m) Lentiviral Particles: sc-41506-V.

Molecular Weight (predicted) of DNase I: 31 kDa.

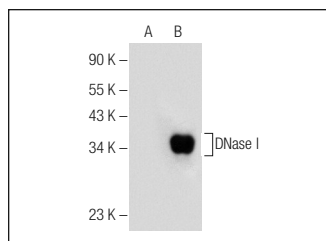
Molecular Weight (observed) of DNase I: 47-60 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or DNase I (m): 293T Lysate: sc-119807.

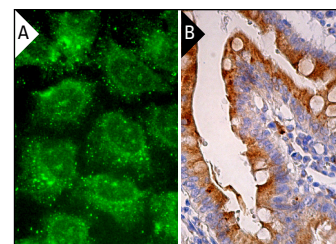
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



DNase I (B-4): sc-376207. Western blot analysis of DNase I expression in non-transfected: sc-117752 (A) and mouse DNase I transfected: sc-119807 (B) 293T whole cell lysates.



DNase I (B-4): sc-376207. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells (B).

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.