SANTA CRUZ BIOTECHNOLOGY, INC.

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 Ca^{2+}/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. and Eastman, A. 1998. The cloning and expression of human deoxyribonuclease II. A possible role in apoptosis. J. Biol. Chem. 273: 30909-30914.

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 IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DNase I (B-4) is available conjugated to agarose (sc-376207 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376207 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376207 PE), fluorescein (sc-376207 FITC), Alexa Fluor® 488 (sc-376207 AF488), Alexa Fluor® 546 (sc-376207 AF546), Alexa Fluor® 594 (sc-376207 AF594) or Alexa Fluor® 647 (sc-376207 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376207 AF680) or Alexa Fluor® 790 (sc-376207 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

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).

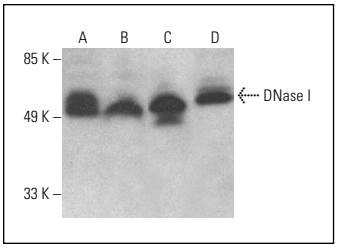
Suitable for use as control antibody for DNase I siRNA (h): sc-41505, DNase I siRNA (m): sc-41506, DNase I shRNA Plasmid (h): sc-41505-SH, DNase I shRNA Plasmid (m): sc-41506-SH, DNase I shRNA (h) Lentiviral Particles: sc-41505-V and DNase I shRNA (m) Lentiviral Particles: sc-41506-V.

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

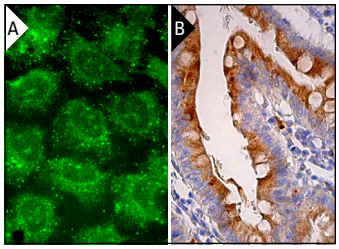
Molecular Weight (observed) of DNase I: 44-60 kDa.

Positive Controls: F9 cell lysate: sc-2245, C6 whole cell lysate: sc-364373 or SH-SY5Y cell lysate: sc-3812.

DATA



DNase I (B-4) HRP: sc-376207 HRP. Direct western blot analysis of DNase I expression in F9 (**A**), NIH/3T3 (**B**), C6 (**C**) and SH-SY5Y (**D**) 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**).

SELECT PRODUCT CITATIONS

1. Pedersen, H.L., et al. 2018. Lupus nephritis: low urinary DNase I levels reflect loss of renal DNase I and may be utilized as a biomarker of disease progression. J. Pathol. Clin. Res. 4: 193-203.
2. Vaibhav, K., et al. 2020. Neutrophil extracellular traps exacerbate neurological deficits after traumatic brain injury. Sci. Adv. 6: eaax8847.
3. Jarrahi, A., et al. 2023. Recombinant human DNase-I improves acute respiratory distress syndrome via neutrophil extracellular trap degradation. J. Thromb. Haemost. 21: 2473-2484.

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.