

Lamin A (h): 293T Lysate: sc-177452

BACKGROUND

A unique family of cysteine proteases has been described that differs in sequence, structure and substrate specificity from any previously described protease family. This family, termed CED-3/ICE, is comprised of ICE, CPP32, ICH-1/Nedd-2, Tx, Mch2, Mch3 (ICE-LAP3 or CMH-1), Mch4 and ICE-LAP6. CED-3/ICE family members function as key components of the apoptotic machinery and act to destroy specific target proteins which are critical to cellular longevity. Nuclear lamins are critical to maintaining the integrity of the nuclear envelope and cellular morphology. The nuclear Lamin A is cleaved by Mch2, but not CPP32. Nuclear Lamin B is fragmented as a consequence of apoptosis by an unidentified member of the ICE family. Lamin C is a splice variant of Lamin A, differing only at the carboxy-terminus. Lamins A and C are identical for the first 566 amino acids, with Lamin C differing only in six unique carboxy-terminal amino acids.

REFERENCES

- McKeon, F.D., et al. 1986. Homologies in both primary and secondary structure between nuclear envelope and intermediate filament proteins. *Nature* 319: 463-468.
- Fisher, D.Z., et al. 1986. cDNA sequencing of nuclear Lamins A and C reveals primary and secondary structure homology to intermediate filament proteins. *Proc. Natl. Acad. Sci. USA* 83: 6450-6454.
- Moir, R.D., et al. 1995. The dynamic properties and possible functions of nuclear lamins. *Int. Rev. Cytol.* 162B: 141-182.
- Duan, H., et al. 1996. ICE-LAP3, a novel mammalian homolog of the *Caenorhabditis elegans* cell death protein CED-3 is activated during FAS- and tumor necrosis factor-induced apoptosis. *J. Biol. Chem.* 271: 1621-1625.
- Duan, H., et al. 1996. ICE-LAP6, a novel member of the ICE/CED-3 gene family, is activated by the cytotoxic T cell protease granzyme B. *J. Biol. Chem.* 271: 16720-16724.
- Rao, L., et al. 1996. Lamin proteolysis facilitates nuclear events during apoptosis. *J. Cell Biol.* 135: 1441-1455.
- Fernandes-Alnemri, T.F., et al. 1996. *In vitro* activation of CPP32 and Mch3 by Mch4, a novel human apoptotic cysteine protease containing two FADD-like domains. *Proc. Natl. Acad. Sci. USA* 93: 7464-7469.
- Takahashi, A., et al. 1996. Cleavage of Lamin A by Mch2 α but not CPP32: multiple interleukin 1 β -converting enzyme-related proteases with distinct substrate recognition properties are active in apoptosis. *Proc. Natl. Acad. Sci. USA* 93: 8395-8400.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CHROMOSOMAL LOCATION

Genetic locus: LMNA (human) mapping to 1q22.

PRODUCT

Lamin A (h): 293T Lysate represents a lysate of human Lamin A transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

Lamin A (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive Lamin A antibodies. Recommended use: 10-20 μ l per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

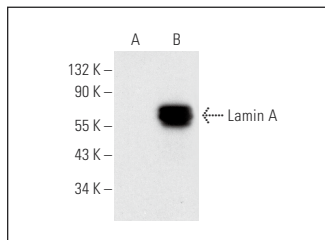
Lamin A/C (A-5): sc-398927 is recommended as a positive control antibody for Western Blot analysis of enhanced human Lamin A expression in Lamin A transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

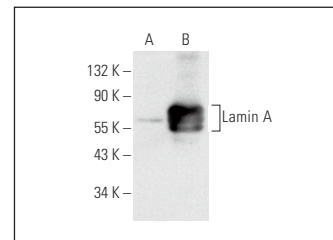
To ensure optimal results, the following support reagents are recommended:

1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



Lamin A/C (A-5): sc-398927. Western blot analysis of Lamin A expression in non-transfected: sc-117752 (A) and human Lamin A transfected: sc-177452 (B) 293T whole cell lysates.



Lamin A/C (E-1): sc-376248. Western blot analysis of Lamin A expression in non-transfected: sc-117752 (A) and human Lamin A transfected: sc-177452 (B) 293T whole cell lysates.

RESEARCH USE

For research use only, not for use in diagnostic procedures.