SANTA CRUZ BIOTECHNOLOGY, INC.

ICAD (H-10): sc-393886

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The CED/ICE family of cysteine proteases plays a pivotal role in mediating apoptosis through the proteolysis of specific targets. Among the targets are poly (ADP-ribose) polymerase (PARP), Gelsolin, DFF-45/ICAD and the nuclear lamins. PARP is a nuclear protein that is specifically cleaved by CPP32 and Mch2, but not by ICE, into a signature apoptotic fragment. Gelsolin is cleaved by CPP32 to an active form that severs Actin filaments in a Ca^{2+}-independent manner. In addition to binding Actin, gelsolin can form complexes with Fibronectin, which may be important for localizing gelsolin to inflammatory sites. DFF-45/ICAD, the subunit of DNA fragmentation factor, is cleaved by CPP32 to generate an active factor that induces DNA fragmentation. 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.

REFERENCES

1. Lind, S.E., et al. 1984. Human plasma gelsolin binds to Fibronectin. J. Biol. Chem. 259: 13262-13266.
2. Takahashi, A., et al. 1996. Cleavage of lamin A by Mch2α but not CPP32: multiple interleukin 1β-converting enzyme-related proteases with distinct substrate recognition properties are active in apoptosis. Proc. Natl. Acad. Sci. USA 93: 8395-8400.
3. Salvesen, G.S., et al. 1997. Caspases: intracellular signaling by proteolysis. Cell 91: 443-446.
4. Eckhart, L., et al. 2007. Phylogenomics of caspase-activated DNA fragmentation factor. Biochem. Biophys. Res. Commun. 356: 293-299.
5. Karmakar, S., et al. 2007. Garlic compounds induced calpain and intrinsic caspase cascade for apoptosis in human malignant neuroblastoma SH-SY5Y cells. Apoptosis 12: 671-684.
6. Shiokawa, D., et al. 2007. Stage-specific expression of DNaseγ during B-cell development and its role in B-cell receptor-mediated apoptosis in WEHI-231 cells. Cell Death Differ. 14: 992-1000.
7. Cullen, S.P., et al. 2007. Human and murine granzyme B exhibit divergent substrate preferences. J. Cell Biol. 176: 435-444.

CHROMOSOMAL LOCATION

Genetic locus: DFFA (human) mapping to 1p36.22; Dffa (mouse) mapping to 4 E2.

SOURCE

ICAD (H-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 308-331 at the C-terminus of ICAD of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} 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-393886 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

ICAD (H-10) is recommended for detection of ICAD 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ICAD siRNA (h): sc-35624, ICAD siRNA (m): sc-35625, ICAD shRNA Plasmid (h): sc-35624-SH, ICAD shRNA Plasmid (m): sc-35625-SH, ICAD shRNA (h) Lentiviral Particles: sc-35624-V and ICAD shRNA (m) Lentiviral Particles: sc-35625-V.

Molecular Weight of ICAD DFF-45 splice variant: 45 kDa.

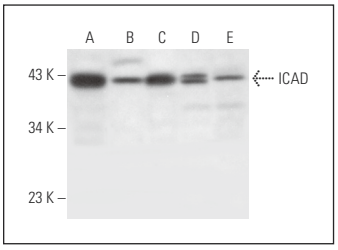
Molecular Weight of ICAD DFF-35 splice variant: 35 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

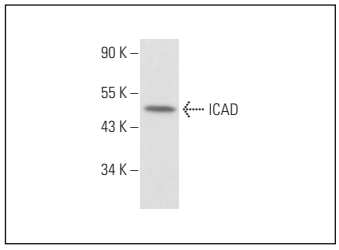
RECOMMENDED SUPPORT REAGENTS

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, UltraCruz® Blocking Reagent: sc-516214 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



ICAD (H-10): sc-393886. Western blot analysis of ICAD expression in K-562 (**A**), U-937 (**B**), Jurkat (**C**), HT-1080 (**D**) and A-431 (**E**) whole cell lysates.



ICAD (H-10): sc-393886. Western blot analysis of ICAD expression in Sol8 whole cell lysate.

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.