SANTA CRUZ BIOTECHNOLOGY, INC.

ATE1 (E-6): sc-271220

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Arginyl-tRNA-protein transferase (ATE1), also designated arginyltransferase 1, belongs to the R-transferase family of proteins. In order for a protein to be degraded via the ubiquitin pathway, arginylation of the protein is required. ATE1 plays an important role in this process, as it is important for the post-translational conjugation of arginine to the N-terminal aspartate-, glutamate- and possibly cystine-contaning substrates. ATE1 is a 518 amino acid protein. Alternative splicing results in two distinct isoforms. ATE1, which is found as a monomer, can localize to the cytoplasm and/or the nucleus.

REFERENCES

1. Kwon, Y.T., et al. 1999. Alternative splicing results in differential expression, activity, and localization of the two forms of arginyl-tRNA-protein transferase, a component of the N-end rule pathway. Mol. Cell. Biol. 19: 182-193.
2. Kwon, Y.T., et al. 2002. An essential role of N-terminal arginylation in cardiovascular development. Science 297: 96-99.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, M.D. MIM Number: 607103. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Hu, R.G., et al. 2005. The N-end rule pathway as a nitric oxide sensor controlling the levels of multiple regulators. Nature 437: 981-986.
5. Rai, R. and Kashina, A. 2005. Identification of mammalian arginyltransferases that modify a specific subset of protein substrates. Proc. Natl. Acad. Sci. USA 102: 10123-10128.
6. Lee, M.J., et al. 2005. RGS4 and RGS5 are *in vivo* substrates of the N-end rule pathway. Proc. Natl. Acad. Sci. USA 102: 15030-15035.

CHROMOSOMAL LOCATION

Genetic locus: ATE1 (human) mapping to 10q26.13.

SOURCE

ATE1 (E-6) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of ATE1 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.

STORAGE

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

PROTOCOLS

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

APPLICATIONS

ATE1 (E-6) is recommended for detection of ATE1 isoforms 1 and 2 of 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 ATE1 siRNA (h): sc-60220, ATE1 shRNA Plasmid (h): sc-60220-SH and ATE1 shRNA (h) Lentiviral Particles: sc-60220-V.

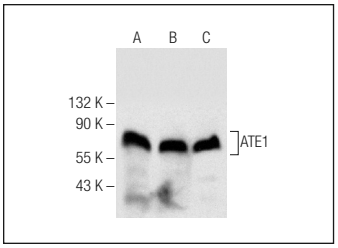
Molecular Weight of ATE1: 59 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, MDA-MB-231 cell lysate: sc-2232 or Jurkat whole cell lysate: sc-2204.

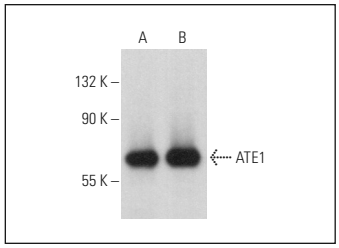
RECOMMENDED SUPPORT REAGENTS

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



ATE1 (E-6): sc-271220. Western blot analysis of ATE1 expression in Hep G2 (**A**), MDA-MB-231 (**B**) and Jurkat (**C**) whole cell lysates.



ATE1 (E-6): sc-271220. Western blot analysis of ATE1 expression in MDA-MB-231 (**A**) and HT-29 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Cha-Molstad, H., et al. 2015. Amino-terminal arginylation targets endoplasmic reticulum chaperone BiP for autophagy through p62 binding. Nat. Cell Biol. 17: 917-929.
2. Kim, H.J., et al. 2021. Crosstalk between HSPA5 arginylation and sequential ubiquitination leads to Akt degradation through autophagy flux. Autophagy 17: 961-979.
3. Seo, T., et al. 2021. R-catcher, a potent molecular tool to unveil the arginylome. Cell. Mol. Life Sci. 78: 3725-3741.

RESEARCH USE

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