

S-100A3 (h): 293 Lysate: sc-113084

BACKGROUND

The S-100 protein family consists of a group of calcium-binding proteins that are exclusively expressed in vertebrates and exhibit cell and tissue-specific expression. The expression levels of its members differ in various pathological conditions. The extracellular functions of the S-100 family may include the ability to enhance neurite outgrowth, involvement in inflammation and motility of tumor cells. S-100A3 (S100 calcium binding protein A3), also known as S100E, is a 101 amino acid cysteine-rich protein that belongs to the S-100 family of proteins. Expressed specifically at the inner endocuticle of hair fibers, S-100A3 contains two EF-hand domains and exists as a multimer. S-100A3 binds calcium with low affinity and zinc with high affinity and is believed to play a role in the calcium-dependent differentiation of cuticle cells and in the formation of hair shafts.

REFERENCES

- Engelkamp, D., et al. 1993. Six S100 genes are clustered on human chromosome 1q21: identification of two genes coding for the two previously unreported calcium-binding proteins S100D and S100E. *Proc. Natl. Acad. Sci. USA* 90: 6547-6551.
- Schäfer, B.W., et al. 1995. Isolation of a YAC clone covering a cluster of nine S100 genes on human chromosome 1q21: rationale for a new nomenclature of the S100 calcium-binding protein family. *Genomics* 25: 638-643.
- Mittl, P.R., et al. 2002. Metal-free MIRAS phasing: structure of apo-S-100A3. *Acta Crystallogr. D, Biol. Crystallogr.* 58: 1255-1261.
- Kizawa, K., et al. 2002. Characterization of the cysteine-rich calcium-binding S-100A3 protein from human hair cuticles. *Biochem. Biophys. Res. Commun.* 299: 857-862.
- Fritz, G., et al. 2002. The crystal structure of metal-free human EF-hand protein S-100A3 at 1.7-Å resolution. *J. Biol. Chem.* 277: 33092-33098.
- Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 176992. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Kizawa, K., et al. 2005. Dissimilar effect of perming and bleaching treatments on cuticles: advanced hair damage model based on elution and oxidation of S-100A3 protein. *J. Cosmet. Sci.* 56: 219-226.
- Heizmann, C.W., et al. 2007. Pathologies involving the S-100 proteins and RAGE. *Subcell. Biochem.* 45: 93-138.
- Kizawa, K., et al. 2008. Specific citrullination causes assembly of a globular S-100A3 homotetramer: a putative Ca²⁺ modulator matures human hair cuticle. *J. Biol. Chem.* 283: 5004-5013.

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: S100A3 (human) mapping to 1q21.3.

PRODUCT

S-100A3 (h): 293 Lysate represents a lysate of human S-100A3 transfected 293 cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

S-100A3 (h): 293 Lysate is suitable as a Western Blotting positive control for human reactive S-100A3 antibodies. Recommended use: 10-20 µl per lane.

Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

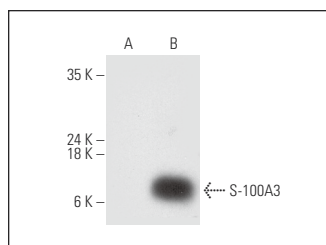
S-100A3 (A-11): sc-514339 is recommended as a positive control antibody for Western Blot analysis of enhanced human S-100A3 expression in S-100A3 transfected 293 cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

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

1) Western Blotting: use m-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.

DATA



S-100A3 (A-11): sc-514339. Western blot analysis of S-100A3 expression in non-transfected: sc-110760 (A) and human S-100A3 transfected: sc-113084 (B) 293 whole cell lysates.

RESEARCH USE

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