

# S-100 $\alpha$ chain (4c4.9): sc-58837

## BACKGROUND

The family of EF-hand type  $\text{Ca}^{2+}$ -binding proteins includes calbindin (previously designated vitamin D-dependent  $\text{Ca}^{2+}$ -binding protein), S-100  $\alpha$  and  $\beta$ , calgranulins A (also designated MRP8), B (also designated MRP14) and C (S-100 like proteins), and the parvalbumin family members, including parvalbumin  $\alpha$  and parvalbumin  $\beta$  (also designated oncomodulin). The S-100 protein is involved in the regulation of cellular processes such as cell cycle progression and differentiation. Research also indicates that the S-100 protein may function in the activation of  $\text{Ca}^{2+}$  induced  $\text{Ca}^{2+}$  release, inhibition of microtubule assembly and inhibition of protein kinase C mediated phosphorylation. Two S-100 subunits, sharing 60% sequence identity, have been described as S-100  $\alpha$  chain and S-100  $\beta$  chain. Three S-100 dimeric forms have been characterized, differing in their subunit composition of either two  $\alpha$  chains, two  $\beta$  chains or one  $\alpha$  and one  $\beta$  chain. S-100 localizes to the cytoplasm and nuclei of astrocytes, Schwann's cells, ependymomas and astroglomas. S-100 is also detected in almost all benign naevi, malignant melanocytic tumours and in Langerhans cells in the skin. Calbindin, S-100 proteins and parvalbumin proteins are each expressed in neural tissues. In addition, S-100  $\alpha$  and  $\beta$  are present in a variety of other tissues, and calbindin is present in intestine and kidney.

## REFERENCES

1. Pfyffer, G.E., Faivre-Bauman, A., Tixier-Vidal, A., Norman, A.W. and Heizmann, C.W. 1987. Developmental and functional studies of parvalbumin and calbindin D28K in hypothalamic neurons grown in serum-free medium. *J. Neurochem.* 49: 442-451.
2. Heizmann, C.W. 1988. Calcium-binding proteins of the EF-type. *J. Cardiovasc. Pharmacol.* 5: S30-S37.
3. Kagi, U., Chafouleas, J.G., Norman, A.W. and Heizmann, C.W. 1988. Developmental appearance of the  $\text{Ca}^{2+}$ -binding proteins parvalbumin, calbindin D28K, S-100 proteins and calmodulin during testicular development in the rat. *Cell Tissue Res.* 252: 359-365.
4. Zimmer, D.B., Song, W. and Zimmer, W.E. 1991. Isolation of a rat S-100  $\alpha$  cDNA and distribution of its mRNA in rat tissues. *Brain Res. Bull.* 27: 157-162.
5. Rickmann, M. and Wolff, J.R. 1995. S-100 protein expression in subpopulations of neurons of rat brain. *Neuroscience* 67: 977-991.

## CHROMOSOMAL LOCATION

Genetic locus: S100A1 (human) mapping to 1q21.3; S100a1 (mouse) mapping to 3 F1.

## SOURCE

S-100  $\alpha$  chain (4c4.9) is a mouse monoclonal antibody raised against purified S-100  $\alpha$  chain from brain tissue homogenate of bovine origin.

## PRODUCT

Each vial contains 50  $\mu\text{g}$  IgG<sub>2a</sub> in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

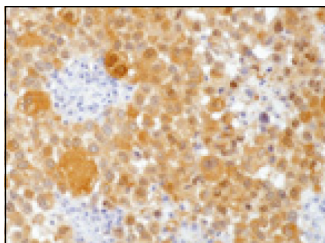
S-100  $\alpha$  chain (4c4.9) is recommended for detection of S-100  $\alpha$  chain of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  of total protein (1 ml of cell lysate)], 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), flow cytometry (1  $\mu\text{g}$  per  $1 \times 10^6$  cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

S-100  $\alpha$  chain (4c4.9) is also recommended for detection of S-100  $\alpha$  chain in additional species, including bovine.

Suitable for use as control antibody for S-100  $\alpha$  chain siRNA (h): sc-43354, S-100  $\alpha$  chain siRNA (m): sc-43355, S-100  $\alpha$  chain shRNA Plasmid (h): sc-43354-SH, S-100  $\alpha$  chain shRNA Plasmid (m): sc-43355-SH, S-100  $\alpha$  chain shRNA (h) Lentiviral Particles: sc-43354-V and S-100  $\alpha$  chain shRNA (m) Lentiviral Particles: sc-43355-V.

Molecular Weight of S-100  $\alpha$  chain: 11 kDa.

## DATA



S-100  $\alpha$  chain (4c4.9): sc-58837. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human melanoma tissue showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Chen, S., Xia, S., Sun, Y., Li, M., Song, X., Li, G., Zheng, H. and Chen, D. 2015. Expression of purinergic receptor P2Y4 in Schwann cell following nerve regeneration. *Int. J. Clin. Exp. Med.* 8: 13203-13210.

## 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](http://www.scbt.com) for detailed protocols and support products.