



S-100 α/β chain (4B3): sc-52205

BACKGROUND

The family of EF-hand type Ca^{2+} -binding proteins includes calbindin (previously designated vitamin D-dependent Ca^{2+} -binding protein), S-100 α and β , calgranulins A (also designated MRP8), B (also designated MRP14) and C (S-100 like proteins), and the parvalbumin family members, including parvalbumin α and parvalbumin β (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 Ca^{2+} induced 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 α chain and S-100 β chain. Three S-100 dimeric forms have been characterized, differing in their subunit composition of either two α chains, two β chains or one α and one β 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 α and β are present in a variety of other tissues, and calbindin is present in intestine and kidney.

REFERENCES

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2. Heizmann, C.W. 1988. Calcium-binding proteins of the EF-type. *J. Cardiovasc. Pharmacol.* 5: S30-S37.
3. Kagi, U., et al. 1988. Developmental appearance of the 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., et al. 1991. Isolation of a rat S-100 α 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.
6. Wang, Y.Z. and Christakos, S. 1995. Retinoic acid regulates the expression of the calcium binding protein, Calbindin D28K. *Mol. Endocrinol.* 9: 1510-1521.
7. Muntener, M., et al. 1995. Increase of skeletal muscle relaxation speed by direct injection of parvalbumin cDNA. *Proc. Natl. Acad. Sci. USA* 92: 6504-6508.
8. Hitomi, J., et al. 1996. A novel calcium-binding protein in amniotic fluid. CAAF1: its molecular cloning and tissue distribution. *J. Cell Sci.* 109: 805-815.
9. Beaudoux, J., et al. 1999. Pathophysiologic aspects of S-100 β protein: a new biological marker of brain pathology. *Ann. Biol. Clin.* 57: 261-272.

CHROMOSOMAL LOCATION

Genetic locus: S100B (human) mapping to 21q22.3, S100A1 (human) mapping to 1q21.3; S100b (mouse) mapping to 10 C1, S100a1 (mouse) mapping to 3 F1.

SOURCE

S-100 α/β chain (4B3) is a mouse monoclonal antibody raised against S-100 protein of human origin.

PRODUCT

Each vial contains 100 μg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

S-100 α/β chain (4B3) is recommended for detection of S-100 $\beta\beta$ and S100 $\alpha\beta$ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

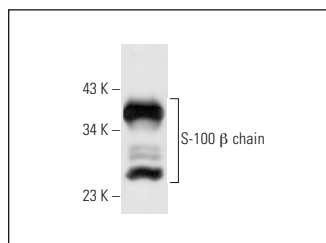
Molecular Weight of S-100 α chain: 11 kDa.

Molecular Weight of S-100 $\alpha\beta$ chain dimer: 21 kDa.

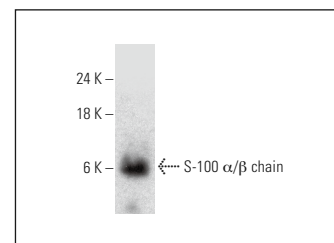
Molecular Weight of S-100 β chain: 10 kDa.

Positive Controls: human cerebellum extract: sc-516706.

DATA



S-100 α/β chain (4B3): sc-52205. Western blot analysis of human recombinant S-100 β .



S-100 α/β chain (4B3): sc-52205. Western blot analysis of S-100 α/β chain expression in human cerebellum tissue extract.

SELECT PRODUCT CITATIONS

1. Wu, M., et al. 2020. A large-scale collection of giant congenital melanocytic nevi: clinical and histopathological characteristics. *Exp. Ther. Med.* 19: 313-318.

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.



See **S-100 β chain (C-3): sc-393919** for S-100 β chain antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.