

Mouse Anti-S-100 (beta-subunit)

CatNo **K063**

monoclonal

BatchNo: See Label
Expiration Date: See Label
Storage: 2-8°C for 1 month
-20°C for longer

Background:

S-100¹, is a set of small, thermolabile, highly acidic dimer proteins of approximately 20 kDa which are widely distributed in different tissues. Dimeric combinations of two chains, the α -chain (93 a.a., 10.4 kDa) and the β -chain (91 a.a., 10.5 kDa), form the three known subtypes of S-100: S-100ao ($\alpha\alpha$), S-100a ($\alpha\beta$) and S-100b ($\beta\beta$). The S-100 molecule is markedly conserved in the amino acid sequence although there is a slight variation of the primary structure in different species. The protein extracted from different organs of the same species is identical. The α - and β -chains are 58% homologous (54 a.a.). Both have divalent-cation binding sites situated toward the carboxy terminus and apparently have similar functional features. S-100 can be grouped with other calcium binding proteins such as calmodulin, parvalbumin, intestinal calcium-binding protein, myosin light chain and troponin-C. It shows a significant sequence homology with these proteins, particularly around the calcium-binding domain. Hence, S-100 is a calcium-modulated protein² that binds calcium and zinc ions reversibly at physiologic pH and ionic strength, followed by a conformational change in the molecule.³ S-100 is considered to be a cell-growth regulator, but other functions have been suggested, e.g., increasing the membrane permeability to cations under physiologic conditions, stimulation of nucleolar RNA polymerase activity and as a carrier of proteins and free fatty acids in adipocytes. Human S-100-containing cells are subdivided to three groups: S-100b-containing cells, such as Schwann cells, pituicytes of the neurohypophysis, Langerhans' cells and interdigitating cells; S-100a-containing cells such as glial cells and melanocytes; and S-100ao-containing cells such as neurons, ganglion cells, slow muscle cells, cardiac cells, monocytes and some macrophages.⁴ Although the tissue distribution of S-100 is known to be too broad to conform to a single histologic pattern, it is nonetheless sufficiently restricted that the localization of this protein is useful in the differential diagnosis of neoplasms and proliferative processes. Monoclonal antibody reacting specifically against the β -subunit of S-100 is a useful tool in distinguishing malignant melanoma from undifferentiated carcinoma or lymphoma, and in distinguishing gliomyomas and schwannomas and their counterparts in the gastrointestinal tract.^{1,4,5}

Clone Number:

SH-B1

Volume/Quantity:

0.1 ml

Product Form:

Ascites - liquid

Preparation:

Purified IgG

Preservatives Stabilisers:

0.09% Sodium Azide (NaN₃)

Immunogen:

Purified bovine brain S-100b

Isotype:

IgG1 (Mouse)

Specificity:

Monoclonal Anti-S-100 (β -subunit) recognizes an epitope located on the β -chain (i.e., in S-100a and S-100b), but not on the α -chain of S-100 (i.e., in S-100a and S-100ao). In ELISA, recognition of S-100 β -subunit is independent of Ca⁺⁺ ion. It is also reactive in dot blot using denatured-reduced preparations, and in immunohistochemical staining. The product does not react with other members of the EF-hand family such as calmodulin, parvalbumin, intestinal calcium-binding protein, and myosin light chain. Monoclonal Anti-S-100 (β -subunit) may be used for the detection and localization of S-100a and S-100b. The product may be used in immunohistochemical staining of normal and neoplastic S-100 β -subunit containing cells (e.g., glial cells, Schwann cells, interdigitating cells, Langerhans' cells, adipocytes, chondrocytes, melanocytes, melan-otic tumors and schwannomas) in protease-digested, formalin-fixed, paraffin-embedded tissues.

Species Cross Reactivity:

Human, bovine, porcine, rabbit, cat and rat

K063 230109-1/2

Manufacturer

BIOZOL
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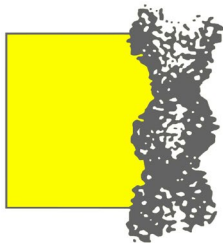
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Applications:

Suggested Working Dilution

FlowCytometry	Not tested	
Immunohistology-frozen	Yes	1/1000
Immunohistology-paraffin	Yes	1/1000
Immunohistology-resin	Not tested	
ELISA	Yes	
Immunoprecipitation	Not tested	
Western Blotting	Yes	
Radioimmunoassay	Not tested	

Where this antibody has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the antibody for use in their own system using appropriate negative/positive controls.

Immunohistology

Pre-treatment:	This product requires antigen retrieval using protease digestion of paraffin sections with 0.1% Pronase. (LINARIS CatNo E110).
Recommended Secondary Reagents:	F(ab') ₂ rabbit anti-mouse IgG HRP conjugate - (LINARIS CatNo LST0013B) Vectastain [®] ABC Mouse IgG (Vector CatNo AK-5002) and Substrate-Kit e.g. Vector [®] Red (Vector CatNo SK-5100). Vectastain [®] ABC-Elite Mouse IgG (Vector CatNo PK-6102) and Peroxidase Substrate-Kit e.g. DAB (LINARIS CatNo E108) or HistoGreen (LINARIS CatNo E109).
Recommended Negative Controls:	Mouse IgG1 Negative Control (LINARIS CatNo ITC0928)

References

1. Barwick, K., in: Atlas of Diagnostic Immunohistopathology, True, L.D. (ed.), Chapter 12, J.B. Lippincott Comp., Philadelphia (1990).
2. Baudier, J., et al., J. Biol. Chem., 261, 8192 (1986).
3. Mani, R., et al., Biochemistry, 21, 2607 (1982).
4. Takahashi, K., et al., Virchows Arch. (Cell Pathol.), 45, 385 (1984).
5. Kan-Mitchell, J., et al., Invest. Ophthalm. Vis. Sci., 31, 1492 (1990).

Storage Conditions:	Store at 2-8°C for one month or at -20°C for longer! Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use.
Shelf Life:	12 months from date of despatch.
Health and Safety Information:	(A full Health and Safety assessment is available upon request) This product contains sodium azide: a POISONOUS and HAZARDOUS SUBSTANCE which should be handled by trained staff only.

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For Research purposes only. Not for therapeutic or diagnostic use.

