MONOCLONAL ANTI-S-100 (β-SUBUNIT)
Clone SH-B1
Mouse Ascites fluid

Product Number **S 2532**

ProductInformation

Product Description

Monoclonal Anti-S-100 (β-subunit) (mouse IgG1 isotype) is derived from the SH-B1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Purified bovine brain S-100b preparation was used as the immunogen. The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

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. Cross-reactivity has been observed with S-100 from human, bovine, porcine, rabbit, cat and rat. 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.

S-100[1], 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 (αα), S-100a (αβ) and S-100b (ββ). 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 protein[2] 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 gliamyomas and schwannomas and their counterparts in the gastrointestinal tract.[1,4,5]

Monoclonal Anti-S-100 (β-subunit) may be used for the detection and localization of S-100a and S-100b using ELISA, immunoblotting, dot blotting and immunohistochemistry. 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.

Reagents

The product is provided as ascites fluid containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer
Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability
For continuous use, store at 2-8 °C for up to one month. For extended storage, solution may be frozen in working aliquots. Repeated freezing and thawing is **not** recommended. Storage in "frost-free" freezers is **not** recommended. If slight turbidity occurs upon prolonged storage, clarify by centrifugation before use.

Product Profile
A minimum working dilution of 1:1,000 is determined by indirect immunoperoxidase labeling of protease-digested, formalin-fixed, paraffin-embedded sections of human tongue.

In order to obtain best results, it is recommended that each individual user determine their working dilution by titration assay.

References

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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. Ophthal. Vis. Sci., **31**, 1492 (1990).

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