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ProductInformation

MONOCLONAL ANTI-S-100 (α-SUBUNIT)
CLONE SH-A1
Mouse Ascites Fluid

Product No. **S 2407**

Product Description

Monoclonal Anti-S-100 (α-subunit) (mouse IgG1 isotype) is derived from the SH-A1 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Purified bovine brain S-100a 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 (α-subunit) recognizes an epitope located on the α-chain (i.e., in S-100ao and S-100a), but not on the β-chain of S-100 (i.e., S-100b). In ELISA, recognition of S-100 α-subunit is independent of Ca^{2+} ion. The antibody is reactive in dot blot using denatured-reduced preparations, and in immunohistochemical staining. Cross-reactivity has been observed with S-100 from human and bovine. 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 (α-subunit) may be used for the detection and localization of S-100a and S-100ao using ELISA (indirect and competitive), immunoblotting and dot blotting.

S-100[1] is a set of small, thermolabile, highly acidic dimer proteins of approximately 20 kD which are widely distributed in different tissues. Dimeric combinations of two chains, the α-chain (93 a.a., 10.4 kD) and the β-chain (91 a.a., 10.5 kD), form the three known subtypes of S-100: S-100ao (αα), S-100a (αβ) and S-100b (ββ). The S-100 molecule has a markedly conserved 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 cellular membrane permeability to cations under physiologic conditions, stimulating nucleolar RNA polymerase activity and acting as a carrier of proteins and free fatty acids in adipocytes. Antibodies that react specifically with the α-subunit of S-100 can be used to detect and quantify S-100ao, which is released into the blood stream of patients with acute myocardial infarction.[4,5]

Reagents

The product is provided as ascites fluid containing 0.1% 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.

Product Profile

A minimum working dilution of 1:1,000 was determined by indirect ELISA using 10 μg/ml of purified bovine brain S-100a preparation for coating.

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

Storage

For continuous use, store at 2-8 °C. 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.

References

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4. Kato, K., et al., Biomed. Res., **8**, 119 (1987).
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Pcs8/01