S100-A1 monoclonal antibody

Catalog: MB66102 Host: Mouse Reactivity: Human

BackGround:

Despite their relatively small size (8-12 kDa) and uncomplicated architecture, S100 proteins regulate a variety of cellular processes, such as cell growth and motility, cell cycle progression, transcription, and differentiation. To date, 25 members have been identified, including S100A1-S100A18, trichohyalin, filaggrin, repetin, S100P, and S100Z, making it the largest group in the EF-hand, calcium-binding protein family. Interestingly, 14 S100 genes are clustered on human chromosome 1q21, a region of genomic instability. Research studies have demonstrated that significant correlation exists between aberrant S100 protein expression and cancer progression. S100 proteins primarily mediate immune responses in various tissue types but are also involved in neuronal development.

Each S100 monomer bears two EF-hand motifs and can bind up to two molecules of calcium (or other divalent cation in some instances). Structural evidence shows that S100 proteins form antiparallel homo- or heterodimers that coordinate binding partner proximity in a calcium-dependent (and sometimes calcium-independent) manner. Although structurally and functionally similar, individual members show restricted tissue distribution, are localized in specific cellular compartments, and display unique protein binding partners, which suggests that each plays a specific role in various signaling pathways. In addition to an intracellular role, some S100 proteins have been shown to act as receptors for extracellular ligands or are secreted and exhibit cytokine-like activities.

S100A1 is abundantly expressed in cardiac and skeletal muscle where it plays a major role in regulating calcium-dependent contractility. S100A1 and calmodulin bind and differentially regulate ryanodine receptors (RyRs), thereby modulating skeletal and cardiac muscle function. In addition to RyRs (RyR1 and RyR2), S100A1 has also been shown to interact with other components of the calcium-dependent cardiac signaling cascade, including SERCA2a and phospholamban. Studies in animal models strongly suggest that S100A1 plays a significant role in the development of heart failure. In non-cardiac tissues, S100A1 has been shown to regulate cytoskeletal signaling, neurotransmitter release, enzymatic activity, transcription factors, and other calcium-binding proteins via direct interaction or via regulation of scaffolding and signaling components in each pathway.

Product:

Mouse IgG1. Liquid in PBS containing 50% glycerol, 0.2% BSA and 0.01% sodium azide.

Molecular Weight:

~ 10 kDa

Swiss-Prot:

P23297

Purification&Purity:

The antibody was affinity-purified from mouse antiserum by affinity-chromatography using epitope-specific immunogen and the purity is > 95% (by SDS-PAGE).

Applications:

IHC (1/100 - 1/300)

Storage&Stability:

Store at 4℃ short term. Aliquot and store at -20℃ long term. Avoid freeze-thaw cycles.

Specificity:

Recognizes endogenous levels of S100-A1 protein.

DATA:

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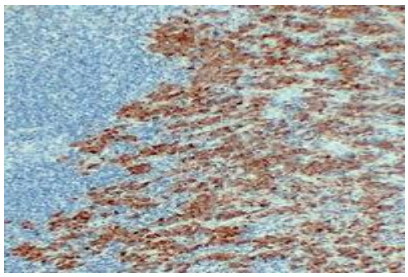
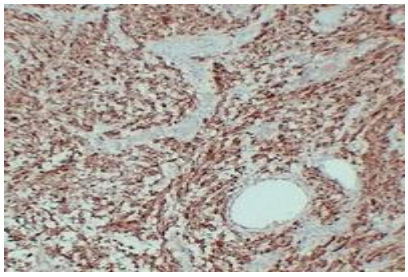


Immunohistochemical analysis of S100-A1 staining in human malignant melanoma formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunohistochemical analysis of S100-A1 staining in human schwannoma formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

Note:

For research use only, not for use in diagnostic procedure.

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