BACKGROUND

The family of EF-hand type Ca\[^{2+}\]-binding proteins includes calbindin (previously designated vitamin D-dependent Ca\[^{2+}\]-binding protein), S-100 \(\alpha\) and \(\beta\), calgranulins A (also designated MRP8), B (also designated MRP14) and C (S-100 like proteins), and the parvalbumin family members, including parvalbumin \(\alpha\) and parvalbumin \(\beta\) (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 \(\alpha\) mediated phosphorylation. Two S-100 subunits, sharing 60\% sequence identity, have been described as S-100 \(\alpha\) chain and S-100 \(\beta\) chain. Three S-100 dimeric forms have been characterized, differing in their subunit composition of either two \(\alpha\) chains, two \(\beta\) chains or one \(\alpha\) and one \(\beta\) chain. S-100 localizes to the cytoplasm and nuclei of astrocytes, Schwann’s cells, ependymomas and astrogliomas. 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 \(\alpha\) and \(\beta\) are present in a variety of other tissues, and calbindin is present in intestine and kidney.

REFERENCES


CHROMOSOMAL LOCATION

Genetic locus: S100A1 (human) mapping to 1q21.3; S100a1 (mouse) mapping to 3 F1.

SOURCE

S-100 \(\alpha\) chain (4c4.9) is a mouse monoclonal antibody raised against purified S-100 \(\alpha\) chain from brain tissue homogenate of bovine origin.

PRODUCT

Each vial contains 50 \(\mu\)g IgG\(\alpha\) in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

S-100 \(\alpha\) chain (4c4.9) is recommended for detection of S-100 \(\alpha\) chain of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 \(\mu\)g per 100-500 \(\mu\)g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500), flow cytometry (1 \(\mu\)g per 1 x 10\(^6\) cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

S-100 \(\alpha\) chain (4c4.9) is also recommended for detection of S-100 \(\alpha\) chain in additional species, including bovine.

Suitable for use as control antibody for S-100 \(\alpha\) chain siRNA (h): sc-43354, S-100 \(\alpha\) chain siRNA (m): sc-43355, S-100 \(\alpha\) chain shRNA Plasmid (h): sc-43354-SH, S-100 \(\alpha\) chain shRNA Plasmid (m): sc-43355-SH, S-100 \(\alpha\) chain shRNA (h) Lentiviral Particles: sc-43354-V and S-100 \(\alpha\) chain shRNA (m) Lentiviral Particles: sc-43355-V.

Molecular Weight of S-100 \(\alpha\) chain: 11 kDa.

DATA

S-100 \(\alpha\) chain (4c4.9): sc-58837. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human melanoma tissue showing cytoplasmic localization.

SELECT PRODUCT CITATIONS


STORAGE

Store at 4\(^\circ\)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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.