

## Product Information

### Anti-SynCAM

Developed in Rabbit, Affinity Isolated Antibody

Product Number **S 4945**

#### Product Description

Anti-SynCAM is developed in rabbit using a synthetic peptide corresponding to amino acids 431-445 located at the C-terminus of mouse SynCAM1 conjugated to KLH as immunogen. This sequence is identical in human SynCAM1, highly conserved (90%) in the splice variant SynCAM2, and shows limited homology (55%) to the splice variant SynCAM3. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-SynCAM specifically recognizes SynCAM (48 kDa, and multiple bands 60-75 kDa). Applications include immunoblotting and immunofluorescence. Staining of the SynCAM band in immunoblotting is specifically inhibited with the SynCAM1 immunizing peptide (mouse, amino acids 431-445).

Cell-cell adhesion molecules play an important role in the organization of a variety of cell-cell junctions, such as tight junctions (TJs) and adherens junctions (AJs) in epithelial cells and synaptic junctions in neurons.<sup>1</sup> Synaptic junctions are formed by the coordinated assembly and tight attachment of specialized structures both in the presynaptic plasma active zone, where synaptic vesicles undergo exocytosis to release neurotransmitters in the synaptic cleft, and in the postsynaptic density (PSD), which contains receptors and signaling molecules that transduce the neurotransmitter signal into a postsynaptic response.<sup>1,2</sup> SynCAM (synaptic cell adhesion molecule), (417-456 amino acids, depending on the splice variants SynCAMs 1-4), is a brain-specific, immunoglobulin domain-containing protein that binds to intracellular PDZ-domain protein and functions as a homophilic cell adhesion molecule at the synapse.<sup>2,3</sup> SynCAMs have also been called nectin-like molecules (Necls).<sup>4</sup> SynCAM1 is also known as Necl-2/ IGSF4/ RA175/ SgIGSF/ TSLC1.<sup>5,6</sup> SynCAM contains an N-terminal signal peptide, three extracellular Ig domains, a single transmembrane region and a short C-terminal cytoplasmic domain. It is expressed only in brain and is

localized to synapses.<sup>3</sup> SynCAM (48 kDa) undergoes a complex N-glycosylation, resulting in multiple bands of extensively glycosylated species of 60-75 kDa. The level and N-glycosylation pattern of SynCAM change during development among brain regions, suggesting that both are regionally regulated. SynCAM is not detectable in rat brain at birth but its expression increases in the postnatal period, coinciding with the major period of synaptogenesis. SynCAM is believed to interact with PDZ-domain synaptic proteins CASK and syntenin via its cytoplasmic tail. SynCAM is highly enriched in the synaptic plasma membrane, with the CASK and neuroligin, and has been shown to recruit CASK from the cytosol to the plasma membrane. Expression of SynCAM in non-neuronal cells induces synaptic formation, and affects synaptic function in hippocampal neurons.

#### Reagent

The product is provided as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: Approx. 1.5 mg/ml

#### 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 hazardous and safe handling practices.

#### Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze 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 the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

### Product Profile

A working concentration of 0.5-1.0 µg/ml is determined by immunoblotting, using a mouse brain and rat brain extract (S1 fraction).

A working concentration of 5-10 µg/ml is determined by immunofluorescence staining of frozen sections of rat cerebellum.

**Note:** In order to obtain best results and assay sensitivity in different techniques and preparations we recommend determining optimal working concentrations by titration test.

### References

1. Tsukita, S., et al., Multifunctional strands in tight junctions., *Nat. Rev. Mol. Cell Biol.*, **2**, 285-293 (2001).
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3. Biederer, T., et al., SynCAM, a synaptic adhesion molecule that drives synapse assembly., *Science*, **297**, 1525-1531 (2002).
4. Ikeda, W., et al., TAGE4/Nectin-like molecule-5 heterophilically trans-interacts with cell adhesion molecule Nectin-3 and enhances cell migration., *J. Biol. Chem.*, **278**, 28167-28172 (2003).
5. Shingai, T., et al., Implications of nectin-like molecule-2/IGSF4/RA175/SgIGSF/TSLC1/SynCAM1 in cell-cell adhesion and transmembrane protein localization in epithelial cells., *J. Biol. Chem.*, **278**, 35421-35427 (2003).
6. Watabe, K., et al., IGSF4: a new intercellular adhesion molecule that is called by three names, TSLC1, SgIGSF and SynCAM, by virtue of its diverse function., *Histol. Histopathol.*, **18**, 1321-1329 (2003).

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