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ProductInformation

Monoclonal Anti-Connexin-43
Clone CXN-6
Mouse Ascites Fluid

Catalog Number **C8093**

Product Description

Monoclonal Anti-Connexin-43 (mouse IgM isotype) is derived from the CXN-6 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. A synthetic connexin-43 peptide (amino acids 362-381), conjugated to KLH was used as the immunogen. The isotype is determined using Sigma ImmunoType™ Kit, Catalog No. ISO1, and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog No. ISO2.

Monoclonal Anti-Connexin-43 reacts specifically with connexin-43. Reactivity has been observed with human, bovine, hamster, rat, and mouse connexin-43. The antibody may be used for the localization of connexin-43 using various immunochemical assays such as ELISA, immunocytochemistry, immunoblotting (43 kDa, and additional weaker bands), and immunohistochemistry (frozen and formalin-fixed, paraffin-embedded tissues).

Gap junctions[1] are aggregations of intercellular channels that directly connect the cytoplasm of adjacent cells. Gap junctions coordinate cellular and organ function in tissues and are involved in metabolic cooperation between cells, synchronization of cellular physiological activities, growth control, and developmental regulation. The gap junction channels allow intercellular exchange of ions, nucleotides, and small molecules between adjacent cells. Unlike other membrane channels, intercellular channels span two plasma membranes and require the contribution of hemi-channels, called connexons, from both participating cells. These channels accommodate molecules as large as 1 kDa. They have been detected in virtually every cell type in mammals, except mature skeletal muscle, spermatozoa, and erythrocytes.[2] Two connexons interact in the extracellular space to form the complete intercellular channel. Each connexon is composed of six similar or identical proteins, which have been termed connexins. Connexins (Cx) are a multi-gene family of highly related proteins with molecular weights between 26 and 70 kDa. At least a dozen distinct connexin genes have been identified; many of them expressed in a tissue-specific manner.[2] Two distinct lineages have been identified in mammals. One termed class I or β group consists of Cx26, Cx30, Cx31, Cx31.1, and Cx32. The other, termed class II or α group, is represented by Cx33, Cx37, Cx40, Cx43 and Cx46.[2] All of the connexins share a common membrane topology but differ in their conductance and channel gating properties.[3-5] The structure of connexin molecules includes a cytoplasmic N-terminal region, four transmembrane domains, two extracellular loops, and a C-terminal cytoplasmic tail of varying length. The various connexins are highly conserved in the transmembrane and extracellular regions, but they differ in their cytoplasmic domain. The 43 kDa connexin protein (connexin-43, Cx43) belongs to the α-type (group II) subfamily of connexin proteins. It is expressed in most tissues, even though the pattern of expression may differ in various cell types. For example, in the brain it is found in astrocytes, ependyma and leptomeninges but not in neurons, oligodendrocytes and pinealocytes; in the liver it is present in Ito cells but not hepatocytes. Gap junction protein levels change in response to disruption of tissue architecture.[6] For instance, an increased expression of Cx43 was found in early stages of atherosclerosis.[7] Changes in the levels or types of connexin expressed in a given cell type have been found to correlate with tumor progression and metastasis. However, glioma cells transfected with the oncogene *neu* (*c-erb*-B2) have been shown to exhibit a major reduction in intercellular communication with no decrease in overall expression of Cx43.[2] Monoclonal antibodies reacting specifically with Cx43 may be applied in diverse cellular and molecular approaches to study gap junctions and their properties. They can also be used to correlate their expression pattern with physiological functions or pathological conditions.

Reagent

Supplied as ascites fluid with 15 mM sodium azide as a preservative.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet 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 freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile
Immunoblotting: a working dilution of 1:8,000-1:16,000 is recommended using mouse whole brain extract.

Note: In order to obtain best results in various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

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3. Bennett, M. V. L., et al., *Neuron*, **6**, 305 (1991).
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5. Dermietzel, R., et al., *Anat. Embryol*., **182**, 517 (1990).
6. Musil, L.S., and Goodenough, D. A., *Curr. Opin. Cell Biol.*, **2**, 875 (1990).
7. Blackburn, J. P., et al., *Arterioscler. Thromb. Vasc. Biol*., **15**, 1219 (1995).

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