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Product Information

Anti-Collagen, Type X antibody, Mouse monoclonal
Clone COL-10, purified from hybridoma cell culture

Product Number **SAB4200800**

Product Description

Monoclonal Anti-Collagen, Type X (mouse IgM isotype) is derived from the COL-10 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from a BALB/c mouse immunized with porcine collagen type X. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2. The antibody is purified from culture supernatant of hybridoma cells.

Monoclonal Anti-Collagen, Type X specifically recognizes native and denatured collagen type X. It does not recognize collagen types I, II, III, V, IX, and XI. Reactivity has been observed with human, deer, and porcine collagen type X. The antibody is recommended to use in various immunological techniques, including immunoblotting[1] (~60 kDa in denatured-reduced preparation), immunofluorescence, and immunohistochemistry[2].

The extracellular matrix (ECM) found in the extracellular environment of all tissues and organs provides the physical microenvironment for cells and a substrate for cell anchorage. It serves as a tissue scaffold and is a dynamic structure whose organization and composition modulate various cellular processes including cell proliferation, attachment, migration, differentiation, and survival. The composition of the extracellular framework of all vertebrates is dominated by a collagen protein family, each member with unique features suited for its function and location.[3-4]

Type X collagen, also known as Collagen alpha-1(X) chain (COL10A1), is a product of hypertrophic chondrocytes.[5-8] It shares a similar domain structure with type VIII collagen.[9] In addition, both collagen types represent major components of hexagonal lattice structure, in which the collagen molecules link together by interactions involving the non-triple-helical end regions.

Despite these similarities, a distinct tissue distribution has been found for these two molecules: type VIII collagen is distributed in various tissues, whereas type X is restricted to normal fetal hypertrophic cartilage in the growth zones of long bones, vertebrae, and ribs and in adult (>21 yr) thyroid cartilage.[3] It is also found in bone fracture callus, osteoarthritic cartilage, and chondrogenic neoplasms, and may be involved in cartilage mineralization. Type X collagen is non-fibrillar, but forms fine pericellular filaments in association with cartilage collagen. It interacts with matrix proteins, such as connexin V, chondrocalcein, collagen II, and proteoglycans, as well as with Ca^{2+}. Mutations in this gene are associated with Schmid metaphyseal chondroplasia (MCDS).[5]

The development of antibodies against collagens has provided a powerful method for examining the distribution of these connective tissue proteins and for investigation of epithelial-mesenchymal interactions, tumorigenesis, and basement membrane biology in ontogeny and epithelial differentiation.[8] Antibodies that react specifically with collagen type X are useful for the study of specific differential tissue expression and the localization of collagen type X.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the 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 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

Immunofluorescence: a working concentration of 5–10 μg/mL is recommended using human osteosarcoma SaOS-2 cells.

Note: In order to obtain best results in different techniques and preparations, it is recommended to determine optimal working concentration by titration test.

References

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