

# Keratan sulfate (4B3/D10): sc-73518

## BACKGROUND

During the developmental stage in higher eukaryotes, cell-cell interactions and the formation of tissue structures are controlled by the surrounding environment, including neighboring cells and the extracellular matrix. Proteoglycans (such as Keratan, Lumican and mimecan) are glycoproteins that carry elongated glycosaminoglycan chains and are abundant in the extracellular matrix, where they play a role in maintaining the function and controlling the development of newly formed tissue structures. The type of glycosaminoglycan attached to the proteoglycan determines its tissue specificity and overall function. Keratan sulfate proteoglycans are major components of brain, cartilage and cornea and are characterized by multiple Keratan sulfate glycosaminoglycan chains attached to a core protein. Specifically, Keratan sulfate proteoglycans are secreted into synovial fluid and serum during tissue repair in response to joint or inflammatory diseases and may, thus, be a potential marker for early degenerative cartilage and joint breakdown.

## REFERENCES

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2. Zhang, Y., et al. 2006. Keratan sulfate and chondroitin/dermatan sulfate in maximally recovered hypocoelular stromal interface scars of postmortem human LASIK corneas. *Invest. Ophthalmol. Vis. Sci.* 47: 2390-2396.
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4. Eshchenko, T.Y., et al. 2007. Expression of different proteoglycans in human breast tumors. *Biochemistry* 72: 1016-1020.
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6. Souza, A.R., et al. 2007. Chondroitin sulfate and Keratan sulfate are the major glycosaminoglycans present in the adult zebrafish *Danio rerio* (Chordata-Cyprinidae). *Glycoconj. J.* 24: 521-530.
7. Young, R.D., et al. 2007. Keratan sulfate glycosaminoglycan and the association with collagen fibrils in rudimentary lamellae in the developing avian cornea. *Invest. Ophthalmol. Vis. Sci.* 48: 3083-3088.
8. Kitayama, K., et al. 2007. Enzymes responsible for synthesis of corneal Keratan sulfate glycosaminoglycans. *J. Biol. Chem.* 282: 30085-30096.
9. Wakitani, S., et al. 2007. Serum Keratan sulfate is a promising marker of early articular cartilage breakdown. *Rheumatology* 46: 1652-1656.

## SOURCE

Keratan sulfate (4B3/D10) is a mouse monoclonal antibody raised against purified aggrecan of human origin.

## PRODUCT

Each vial contains 50 µg IgG<sub>1</sub> in 500 µl TBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Keratan sulfate (4B3/D10) is recommended for detection of Keratan sulfate glycosaminoglycan chains of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

## SELECT PRODUCT CITATIONS

1. Markaryan, A., et al. 2011. Dual immunofluorescence staining of proteoglycans in human temporal bones. *Laryngoscope* 121: 1525-1531.
2. Nelson, E.G. and Hinojosa, R. 2014. Analysis of the hyalinization reaction in otosclerosis. *JAMA Otolaryngol. Head Neck Surg.* 140: 555-559.
3. Ryu, Y.A., et al. 2017. Histological, physical studies after xenograft of porcine ear cartilage. *Arch. Craniofac. Surg.* 18: 155-161.
4. Ghezzi, C.E., et al. 2017. 3D functional corneal stromal tissue equivalent based on corneal stromal stem cells and multi-layered silk film architecture. *PLoS ONE* 12: e0169504.
5. Vela-Anero, Á., et al. 2017. Long-term effects of hydrogen sulfide on the anabolic-catabolic balance of articular cartilage *in vitro*. *Nitric Oxide* 70: 42-50.
6. Gosselin, E.A., et al. 2018. Multi-layered silk film coculture system for human corneal epithelial and stromal stem cells. *J. Tissue Eng. Regen. Med.* 12: 285-295.
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8. Simanca Escorcia, V., et al. 2020. Lack of FAM20A, ectopic gingival mineralization and chondro/osteogenic modifications in enamel renal syndrome. *Front. Cell Dev. Biol.* 8: 605084.
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## STORAGE

Store at 4° 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](http://www.scbt.com) for detailed protocols and support products.