



MONOCLONAL ANTIBODY

For research use only. Not for clinical diagnosis

Catalog No. PRPG-AG-M03

Anti- Aggrecan [ACAN/CSPG1] (5G2)

BACKGROUND

Aggrecan is the major proteoglycan of cartilaginous ECMs, in particular the articular cartilage one, is a primary component of perineuronal nets of the CNS and is present in tendon, sclera and bone. While the precise function of *aggrecan* surrounding CNS neurons remains obscure, in articular cartilage it contributes to the creation of the hydrated gel structure of the ECM via its interaction with hyaluronan, link protein, CMPs, COMP and collagen type IX. Deletion of the *aggrecan* gene leads to early disturbances in chondrogenesis and brain formation.. *

Product type	Primary antibodies
Immunogen	Intact aggrecan isolated from human normal articular cartilage (MW >2,400 kDa)
Rased in	Mouse
Myeloma	-
Clone number	5G2
Isotype	IgG1
Host	-
Source	Hybridoma cell culture
Purification	-
Form	Liquid
Storage buffer	Supernatant supplemented with 0.05% NaN3
Concentration	ND
Volume	2 mL
Label	Unlabeled
Specificity	Aggrecan (ACAN/CSPG1); the epitope resides within the G3 lectin-binding domain
Cross reactivity	Human (not bovine, rat, chick or shark; other species not assayed) Other species have not been tested.
Storage	Store at 4°C for short-term storage and -20°C for prolonged storage Aliquot to avoid cycles of freeze / thaw.
Other	Data Link : UniProtKB/Swiss-Prot P16112 (PGCA_HUMAN)

Application notes	WB, IP, IHC(P), ELISA
Recommended dilutions	<ul style="list-style-type: none"> • Western blotting, 1/10 - 1/30 (Distinct band at 260 kD) Expected banding pattern is >2,000 kDa when aggrecan is resolved in its intact form after SDS-agarose (0.5%) gel electrophoresis under reducing conditions; >950 kDa after extensive chondroitinase ABC digestion and similar electrophoresis procedures; 280-300 kDa after SDS-PAGE under reducing conditions following combined digestion with chondroitinase ABC and keratanases. • Immunoprecipitation, 1/5 - 1/10 • Immunohistochemistry, 1/5 - 1/50 (paraffin-embedded) * • ELISA, 1/10 - 1/150 <p>*<Staining Pattern> Antibody 5G2 detects highly glycosylated aggrecan isoforms enriched around chondrocytes of territorial layers of articular cartilage, but scarcely present in perineuronal nets of the human adult brain cortex and entirely absent in the ECM and nerve fibers of the CNS. Other applications have not been tested. Optimal dilutions/concentrations should be determined by the end user.</p>

References	Virgintino D, <i>et all.</i> , (2009) Aggrecan isoforms of perineuronal nets identify subsets of parvalbumin and calbindin neurons differentially distributed in cortical layers II-VI of human adult cortex. <i>J. Cell. Mol. Medicine</i> 13, 3151-3173.
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ANTIBODY CHARACTERIZATION

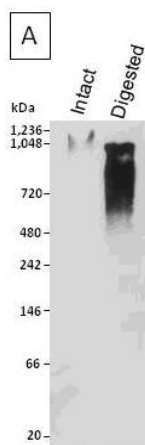


Fig.1 Immunoblotting of a human articular cartilage aggrecan preparation following SDS-PAGE on 3-8% linear gradient gels under reducing conditions, prior to (Intact) and after combined chondroitinase ABC and keratanase II digestion (Digested)

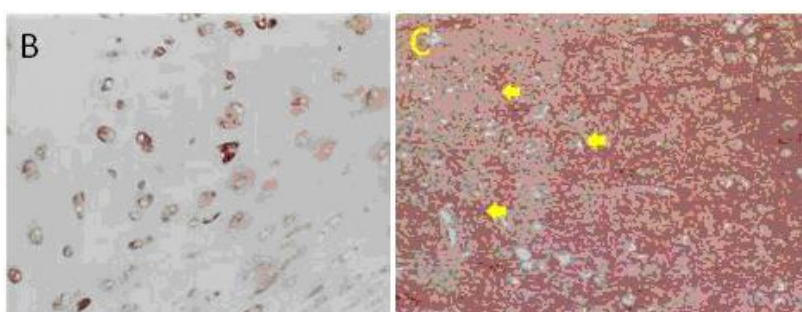


Fig.2 Immunostaining for aggrecan in human articular cartilage. (B) and aggrecan in human adult cerebral cortex (arrows point to neurons and perineuronal nets) (C)

RELATED PRODUCTS:

Product Name	Maker	Cat#
Anti Aggrecan (6F4) Monoclonal Antibody	CAC	PRPG-AG-M01
Anti Aggrecan (5D3) Monoclonal Antibody	CAC	PRPG-AG-M02
Anti Aggrecan (5G2) Monoclonal Antibody	CAC	PRPG-AG-M03
Anti Aggrecan (7B7) Monoclonal Antibody	CAC	PRPG-AG-M04
Anti Versican/CSPG2 (5C12) Monoclonal Antibody	CAC	PRPG-VS-M01
Anti Versican/CSPG2 (4C5) Monoclonal Antibody	CAC	PRPG-VS-M02
Anti NG2 / CSPG4 (2164H5) Monoclonal Antibody	CAC	PRPG-NG-M01
Anti COMP (484D1) Monoclonal Antibody	CAC	PRPG-CP-M01
Anti COMP (490D11) Monoclonal Antibody	CAC	PRPG-CP-M02
Anti Keratan sulfate (373E1) Monoclonal Antibody	CAC	PRPG-KS-M01
Anti Decorin (889C7) Monoclonal Antibody	CAC	PRPG-DC-M01
Anti Fibromodulin (636B12) Monoclonal Antibody	CAC	PRPG-FBM-M01
Anti Biglycan (905A7) Monoclonal Antibody	CAC	PRPG-BG-M01
Anti XTP1 (2191H1) Monoclonal Antibody	CAC	PRPG-XTP-M01
Anti SDP35 (2200D12) Monoclonal Antibody	CAC	PRPG-SDP-M01
Anti Laminin α 4 (652C4) Monoclonal Antibody	CAC	PRPG-LA4-M01
Anti Collagen 12 (378D5) Monoclonal Antibody	CAC	PRPG-CO12-M01

* < BACKGROUND : Aggrecan (ACAN/CSPG1) >

Aggrecan is the major proteoglycan of cartilaginous ECMs, in particular the articular cartilage one, is a primary component of perineuronal nets of the CNS and is present in tendon, sclera and bone. While the precise function of *aggrecan* surrounding CNS neurons remains obscure, in articular cartilage it contributes to the creation of the hydrated gel structure of the ECM via its interaction with hyaluronan, link protein, CMPs, COMP and collagen type IX. Deletion of the *aggrecan* gene leads to early disturbances in chondrogenesis and brain formation. The *aggrecan* core protein is a multimodular molecule composed of three globular domains denoted G1, G2, and G3, a large extended region spanning the portion of the molecule between the globular domains G1 and G2 and containing the majority of the GAG attachment sites, and a second GAG-bearing inter-globular domain (IGD) interposed between the G2 and G3 globules. The GAG attachment domain between G1 and G2 contains predominantly chondroitin sulphate chains (up to 40) and some keratan sulfate chains. Conversely, the inter-globular G2-G3 domain carries exclusively keratan sulphate chains. The corresponding core protein region of sclera and brain *aggrecan* do not seem to be substituted with keratan sulphates.

The G1 amino-terminal domain of the *aggrecan* core protein has the same structural motif as link proteins and is responsible for the binding of the proteoglycan to hyaluronan and to the link proteins themselves. The G2 globular domain is homologous to the tandem repeats of G1 and of link proteins and is crucial for the synthesis and cellular secretion of *aggrecan*. The G3 globular domain is multi-modular and makes up the carboxyl terminus of the core protein. It is similarly responsible for the post-translational processing of the proteoglycan and its secretion and participates in the molecular interactions of *aggrecan* with other cartilage ECM components. Fully glycosylated/glycanated *aggrecan* of articular cartilage has typically an average size of 2,400-2,500 kDa, but its *Mr* may vary with age and the conditions of the cartilage tissue. *Aggrecons* of other cartilage tissues, sclera, tendon and bone may carry fewer chains (e.g. sclera *aggrecan* virtually lack keratan sulfate chains) and have smaller masses. The non-glycosylated/non-glycanated *aggrecan* core protein has an approximate *Mr* of 240-250 kDa.

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