

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Aggrecan in direct ELISAs and Western blots.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant human Aggrecan Val20-Arg675 Accession # NP_037359
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 µm filtered solution in PBS.

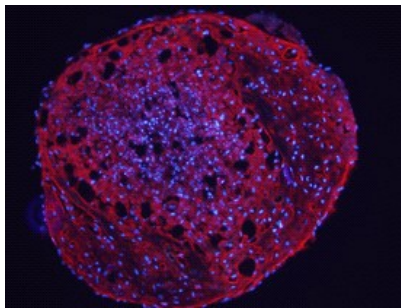
APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Western Blot	0.1 µg/mL	Recombinant Human Aggrecan G1-IGD-G2 Domains (Catalog # 1220-PG)
Immunocytochemistry	5-15 µg/mL	See Below
Immunohistochemistry	5-15 µg/mL	See Below

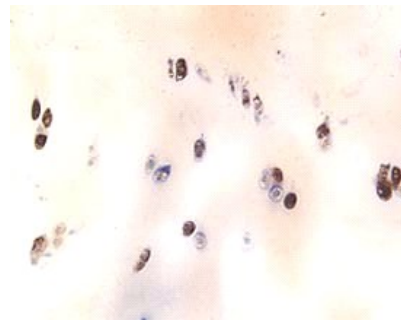
DATA

Immunocytochemistry



Aggrecan in Rat Mesenchymal Stem Cells. Aggrecan was detected in immersion fixed rat mesenchymal stem cells differentiated to chondrocytes using Goat Anti-Human Aggrecan G1-IGD-G2 Domains Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1220) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

Immunohistochemistry



Aggrecan in Human Cartilage. Aggrecan was detected in immersion fixed paraffin-embedded sections of human cartilage using 15 µg/mL Goat Anti-Human Aggrecan G1-IGD-G2 Domains Antigen Affinity-purified Polyclonal Antibody (Catalog # AF1220) overnight at 4 °C. Tissue was stained with the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for [Chromogenic IHC Staining of Paraffin-embedded Tissue Sections](#).

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Aggrecan, also known as aggrecan 1, chondroitin sulfate proteoglycan, and large aggregating proteoglycan, is encoded by the AGC1 gene with gene aliases of SEDK; CSPG1; MSK16; CSPGCP. As the key component of the cartilage extracellular matrix, aggrecan hydrates the collagen network and provides cartilage with its properties of compressibility and elasticity. Maintenance of aggrecan content is therefore critical to the function of the tissue and aggrecan degradation is an important factor in the erosion of articular cartilage in arthritic diseases (2). The deduced amino acid sequence of human aggrecan core protein consists of 2415 residues and predicts a signal peptide and domains of G1, IGD, G2, KS, CS-1, CS-2, and G3 (3). Two globular domains, G1 and G2, comprise the N-terminus of the proteoglycan and also contain link domains. The third globular domain, G3, corresponds to the C-terminus. The keratan sulfate (KS) and the chondroitin sulfate (CS) attachment domains are between G2 and G3. With KS and CS attached to the 250 kDa core protein, aggrecan monomers exist as a 1,000-2,000 kDa molecule. In addition, aggrecan monomers interact with hyaluronan through their G1 domain, resulting in larger aggregates containing 10-100 aggrecan monomers on a hyaluronan backbone (2).

Aggrecan can be cleaved by MMPs and ADAMTSs at the Asn360-Phe361 and Glu392-Ala393 bond in the IGD (residues are numbered based on Accession # NP_037359), respectively (2). Inhibition of ADAMTS4 and ADAMTS5 cleavage prevents aggrecan degradation in osteoarthritic cartilage, while mice with aggrecan resistant to MMP cleavage do not accumulate aggrecan and develop normally (2, 4). Consisting of the G1, IGD and G2 domains, rhAggrecan can be used as a protein substrate for MMPs and ADAMTSs and in binding assays involving hyaluronan.

References:

1. Doege, K.J. *et al.* (1991) *J. Biol. Chem.* **266**:894.
2. Malfait, A-M. *et al.* (2002) *J. Biol. Chem.* **277**:22201.
3. Caterson, B. *et al.* (2000) *Matrix Biol.* **19**:333.
4. Little, C.B. *et al.* (2005) *Mol. Cel. Biol.* **25**:3388.