

Recombinant Human Aggrecan, Interglobular Domain, His-tagged

Cat. No. ACAN-2888H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	The polypeptide connecting human aggrecan globular domains 1 and 2 (T331 - G458) is expressed in E. coli with a C-terminal His-tag. The recombinant protein contains cleavage sites for aggrecanases (E373 - A374 in human aggrecan) and matrix metalloproteinases (N341 - F342 in human aggrecan). The calculated Mr of the His-tagged protein is 15 493 Da.
Species	Human
Source	E.coli
ProteinLength	331-458 a.a.
Description	Aggrecan is a large aggregating proteoglycan of articular cartilage. It is also found in aorta, discs and tendons. The aggrecan core protein consists of 2317 amino acids. Up to 130 glucosaminoglycan chains are attached to the core protein and the total molecular mass can reach 2.2 - 3.0 x 10 ⁶ Daltons. Within the aggrecan molecule 3 globular domains G1, G2 and G3 can be distinguished. Domains G1 and G2 are connected by a rod-shaped polypeptide called interglobular domain (IGD), while the sequence between domains G2 and G3 contains attachment regions for keratan sulfate and chondroitin sulfate chains. Aggrecan interacts via the G1 domain with hyaluronan and link protein to form large aggregates.
Sequences Of Amino Acids	T A E D F V D I P E N F F G V G G E E D I T V Q T V T W P D M E L P L P R N I T E

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GEARGSVILTVKPIFEVSPSPLEPEEPFTFAPEIGATAFAE
VENETGEATRPWGFPTPGLGPATAFTSEDLVVQVTAVPG
QPHLP GG (His-tag)

Form	The protein is solubilized in 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 5 mM CaCl ₂ .
Purity	The recombinant aggrecan interglobular domain appears as a major band at about 21 kDa in SDS-PAGE. It represents more than 90 % of total protein in the preparation.
Applications	Aggrecan interglobular domain is used as substrate for aggrecanases and matrix metalloproteinases. For proteinase activity measurements, the protein is incubated with proteinase for various time intervals. Thereafter, aliquots of the incubation mixture are analyzed by SDS-PAGE or by ELISA. Upon cleavage with aggrecanases the apparent Mr of aggrecan interglobular domain in SDS-PAGE is reduced from 21 kDa to about 13 kDa. Quantitative measurement of aggrecanase cleavage requires a neoepitop antibody with specificity for the N-terminus A R G S V I L T . . . appearing upon hydrolysis. The fragment with the newly formed N-terminus is fixed by the neoepitop antibody to a microplate and quantified with an anti-His-tag antibody. In analogy, cleavage by matrix metalloproteinases can be measured with antibodies to neoepitopes appearing upon action of these enzymes.
Storage And Stability	Aggrecan interglobular domain is stable until the expiry date given on the label when stored at -70°C. The protein can be kept at -20°C for several weeks and on ice for several days. Repeated freezing and thawing should be avoided.

GENE INFORMATION

Gene Name	ACAN aggrecan [Homo sapiens]
Synonyms	ACAN; aggrecan; AGC1; SEDK; AGCAN; CSPG1; MSK16; CSPGCP; aggrecan core

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	protein; large aggregating proteoglycan; cartilage-specific proteoglycan core protein; chondroitin sulfate proteoglycan core protein 1; aggrecan 1; aggrecan proteoglyca; Aggrecan core protein 2
Gene ID	176
mRNA Refseq	NM_001135
Protein Refseq	NP_001126
MIM	155760
UniProt ID	P16112
Chromosome Location	15q26.1
Function	extracellular matrix structural constituent; hyaluronic acid binding; protein binding; sugar binding