COL2A1 Antibody / Collagen alpha-1(II) chain (FY13255)

Catalog No.	Formulation	Size
FY13255	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P02458
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This COL2A1 antibody is available for research use only.

Description

COL2A1 antibody detects Collagen alpha-1(II) chain, a structural protein that forms the major component of type II collagen found in cartilage, vitreous humor, and intervertebral discs. The UniProt recommended name is Collagen alpha-1(II) chain (COL2A1). This fibrillar collagen provides tensile strength and elasticity to cartilaginous tissues, enabling load-bearing and mechanical resilience in joints and skeletal structures.

Functionally, COL2A1 antibody identifies a 1,484-amino-acid extracellular matrix protein synthesized as a procollagen precursor containing N- and C-terminal propeptides. Following secretion, these propeptides are cleaved to form mature triple-helical type II collagen fibrils composed of three identical alpha-1(II) chains. COL2A1 plays a critical role in chondrocyte differentiation, cartilage development, and matrix maintenance. It also interacts with proteoglycans such as aggrecan to form a hydrated matrix that supports compressive resistance.

The COL2A1 gene is located on chromosome 12q13.11 and is highly expressed in cartilage, eye, and intervertebral disc tissues. Expression is regulated by transcription factors SOX9, RUNX2, and NFATC1, ensuring precise control during skeletal development and repair. COL2A1 is a key marker for chondrogenic lineage commitment in mesenchymal stem cells and serves as a diagnostic biomarker for cartilage integrity.

Pathologically, mutations in COL2A1 cause a spectrum of disorders collectively known as type II collagenopathies, including Stickler syndrome, spondyloepiphyseal dysplasia congenita, and achondrogenesis type II. These conditions are characterized by skeletal malformations, joint defects, and ocular abnormalities. Degradation or reduced expression of COL2A1 contributes to osteoarthritis and intervertebral disc degeneration. Research using COL2A1 antibody supports studies in cartilage biology, skeletal development, and connective tissue disease.

COL2A1 antibody is validated for western blotting, immunohistochemistry, and ELISA to detect extracellular matrix proteins. NSJ Bioreagents provides COL2A1 antibody reagents optimized for studies in cartilage formation, matrix remodeling, and musculoskeletal research.

Structurally, Collagen alpha-1(II) chain contains a repeating Gly-X-Y motif that forms the characteristic triple-helical structure of fibrillar collagens. The C-terminal propeptide directs trimer assembly, while extensive post-translational modifications including hydroxylation and glycosylation stabilize fibril formation. This antibody facilitates investigation of COL2A1's role in cartilage architecture, skeletal morphogenesis, and connective tissue health.

Application Notes

Optimal dilution of the COL2A1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human Collagen Type II/COL2A1 recombinant protein (Position: G1217-A1241) was used as the immunogen for the COL2A1 antibody.

Storage

After reconstitution, the COL2A1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Copyright © NSJ Bioreagents. All rights reserved.