

P4HA1 Antibody / Prolyl 4-hydroxylase subunit alpha 1 (FY13116)

Catalog No.	Formulation	Size
FY13116	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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Availability	1-2 days
Species Reactivity	Human
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 Na ₂ HPO ₄ .
UniProt	P13674
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Immunofluorescence : 5ug/ml
Limitations	This P4HA1 antibody is available for research use only.

Description

P4HA1 antibody detects Prolyl 4-hydroxylase subunit alpha 1, an enzyme that catalyzes hydroxylation of proline residues in collagen. The UniProt recommended name is Prolyl 4-hydroxylase subunit alpha 1 (P4HA1). This enzyme is essential for collagen triple-helix stabilization, extracellular matrix formation, and connective tissue integrity.

Functionally, P4HA1 antibody identifies a 534-amino-acid enzyme localized to the endoplasmic reticulum lumen, where it associates with prolyl 4-hydroxylase beta subunits to form the active tetrameric enzyme. P4HA1 catalyzes the post-translational modification of proline to 4-hydroxyproline, a critical step in collagen maturation that stabilizes the helical structure.

The P4HA1 gene is located on chromosome 10q22.1 and is expressed in fibroblasts, chondrocytes, and osteoblasts. Its expression increases during wound healing, tissue remodeling, and hypoxia. P4HA1 activity is co-regulated with other collagen synthesis enzymes and is sensitive to oxygen and ascorbate availability.

Pathologically, overexpression of P4HA1 has been linked to fibrosis, tumor progression, and hypoxia-induced extracellular matrix remodeling. Elevated P4HA1 enhances collagen deposition and stiffening of the tumor

microenvironment, promoting invasion and metastasis. Conversely, inhibition of P4HA1 suppresses collagen accumulation and fibrotic scarring. Research using P4HA1 antibody aids studies in extracellular matrix biology, collagen synthesis, and disease-associated fibrosis.

P4HA1 antibody is validated for use in western blotting, immunohistochemistry, and immunofluorescence to detect collagen-modifying enzymes. NSJ Bioreagents offers P4HA1 antibody reagents optimized for studies in connective tissue biology, tumor microenvironment, and molecular pathology.

Structurally, Prolyl 4-hydroxylase subunit alpha 1 contains a catalytic dioxygenase domain that requires Fe²⁺ and ascorbate as cofactors for hydroxylation. This antibody enables characterization of P4HA1's role in collagen maturation, ECM formation, and disease progression.

Application Notes

Optimal dilution of the P4HA1 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence in the middle region of human P4HA1 was used as the immunogen for the P4HA1 antibody.

Storage

After reconstitution, the P4HA1 antibody can be stored for up to one month at 4°C. For long-term, aliquot and store at -20°C. Avoid repeated freezing and thawing.