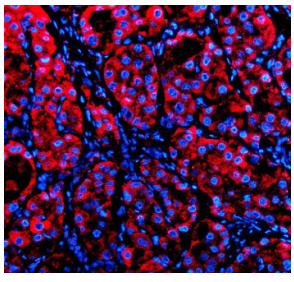
P4HA1 Antibody / Collagen Biosynthesis Enzyme Antibody (FY13116)

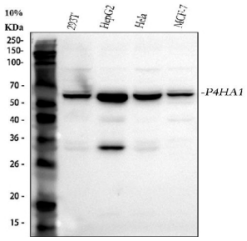
Catalog No.	Formulation	Size
FY13116	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

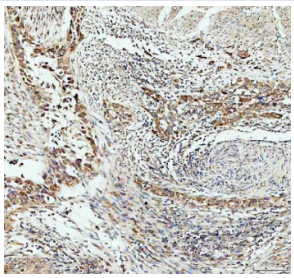
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P13674
Localization	Cytoplasm
Applications	Western Blot: 0.25-0.5ug/ml Immunohistochemistry: 2-5ug/ml Immunofluorescence: 5ug/ml
Limitations	This P4HA1 Antibody / Collagen Biosynthesis Enzyme Antibody is available for research use only.



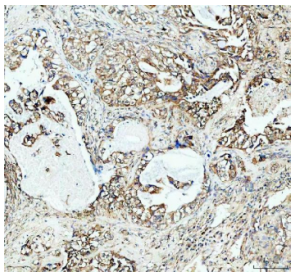
P4HA1 Antibody Human Liver Cancer IF. Immunofluorescence was performed on FFPE human liver cancer tissue using P4HA1 Antibody (red). Heat-induced epitope retrieval was carried out in pH 8 EDTA buffer prior to incubation with the primary antibody at 5 ug/ml. A Cy3-conjugated goat anti-rabbit IgG secondary antibody was used for detection, and nuclei were counterstained with DAPI (blue). Strong cytoplasmic staining is observed throughout the tumor cells, consistent with the endoplasmic reticulum localization of P4HA1 as a key enzyme involved in collagen biosynthesis and extracellular matrix remodeling. These results demonstrate that this Collagen Biosynthesis Enzyme Antibody is suitable for immunofluorescent detection of P4HA1 in formalin-fixed, paraffin-embedded human liver cancer tissue.



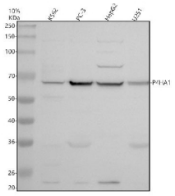
Western blot analysis of P4HA1 using anti-P4HA1 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human 293T whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human Hela whole cell lysates, Lane 4: human MCF-7 whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-P4HA1 antibody at 1:1000 overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A specific band was detected for P4HA1 at approximately 61 kDa. The expected molecular weight of P4HA1 is ~61 kDa.



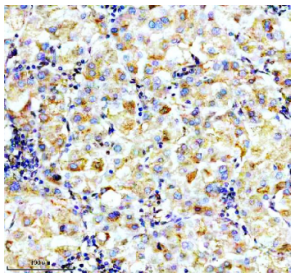
P4HA1 Antibody Human Bladder Cancer IHC. Immunohistochemistry was performed on FFPE human invasive urothelial carcinoma of the bladder with squamous differentiation using P4HA1 Antibody. Heat-induced epitope retrieval was carried out in pH 8 EDTA buffer prior to incubation with the primary antibody at a 1:100 dilution. Bound antibody was detected using an HRP-conjugated goat anti-rabbit IgG secondary antibody with DAB chromogen. Moderate to strong cytoplasmic staining is observed within the neoplastic cells, consistent with elevated P4HA1 expression associated with collagen biosynthesis, extracellular matrix remodeling, and tumor progression. These results demonstrate that this Collagen Biosynthesis Enzyme Antibody is suitable for immunohistochemical detection of P4HA1 in formalin-fixed, paraffin-embedded human bladder carcinoma tissue.



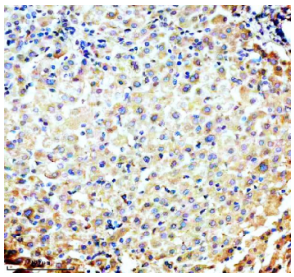
P4HA1 Antibody Human Lung Cancer IHC. Immunohistochemistry was performed on FFPE human lung cancer tissue using P4HA1 Antibody. Heat-induced epitope retrieval was carried out in pH 8 EDTA buffer prior to incubation with the primary antibody at a 1:100 dilution. Bound antibody was detected using an HRP-conjugated goat anti-rabbit IgG secondary antibody with DAB chromogen. Moderate to strong cytoplasmic staining is observed throughout the neoplastic epithelial cells, consistent with increased P4HA1 expression associated with collagen biosynthesis, extracellular matrix remodeling, and tumor progression. These results demonstrate that this Collagen Biosynthesis Enzyme Antibody is suitable for immunohistochemical detection of P4HA1 in formalin-fixed, paraffin-embedded human lung cancer tissue.



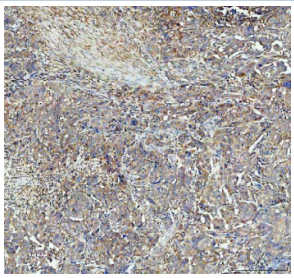
Western blot analysis of P4HA1 using anti-P4HA1 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human K562 whole cell lysates, Lane 2: human PC-3 whole cell lysates, Lane 3: human HepG2 whole cell lysates, Lane 4: human U251 whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-P4HA1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A specific band was detected for P4HA1 at approximately 61 kDa. The expected molecular weight of P4HA1 is at 61 kDa.



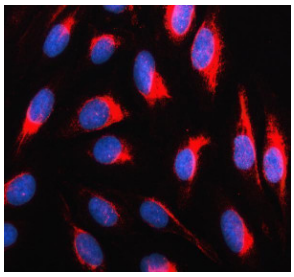
P4HA1 Antibody Human Liver Cancer IHC. Immunohistochemistry was performed on FFPE human liver cancer tissue using P4HA1 Antibody. Heat-induced epitope retrieval was carried out in pH 8 EDTA buffer prior to incubation with the primary antibody at 2 ug/ml. Bound antibody was detected using an HRP-conjugated goat anti-rabbit IgG secondary antibody with DAB chromogen. Moderate to strong cytoplasmic staining is observed throughout the malignant hepatocytes, consistent with elevated P4HA1 expression associated with collagen biosynthesis, extracellular matrix remodeling, and hypoxia-driven tumor progression. These results demonstrate that this Collagen Biosynthesis Enzyme Antibody is suitable for immunohistochemical detection of P4HA1 in formalin-fixed, paraffin-embedded human liver cancer tissue.



P4HA1 Antibody Human Liver IHC. Immunohistochemistry was performed on FFPE human liver tissue using P4HA1 Antibody. Heat-induced epitope retrieval was carried out in pH 8 EDTA buffer prior to incubation with the primary antibody at 2 ug/ml. Bound antibody was detected using an HRP-conjugated goat anti-rabbit IgG secondary antibody with DAB chromogen. Moderate diffuse cytoplasmic staining is observed in hepatocytes, consistent with the constitutive expression of P4HA1 as an essential enzyme involved in collagen biosynthesis and extracellular matrix homeostasis. These results demonstrate that this Collagen Biosynthesis Enzyme Antibody is suitable for immunohistochemical detection of P4HA1 in formalin-fixed, paraffin-embedded human liver tissue.



P4HA1 Antibody Human Ovarian Cancer IHC. Immunohistochemistry was performed on FFPE human ovarian cancer tissue using P4HA1 Antibody. Heat-induced epitope retrieval was carried out in pH 8 EDTA buffer prior to incubation with the primary antibody at a 1:100 dilution. Bound antibody was detected using an HRP-conjugated goat anti-rabbit IgG secondary antibody with DAB chromogen. Moderate to strong cytoplasmic staining is observed throughout the neoplastic cells, consistent with elevated P4HA1 expression associated with collagen biosynthesis, extracellular matrix remodeling, and tumor progression. These results demonstrate that this Collagen Biosynthesis Enzyme Antibody is suitable for immunohistochemical detection of P4HA1 in formalin-fixed, paraffin-embedded human ovarian cancer tissue.



P4HA1 Antibody U-2 OS Cell IF. Immunofluorescence was performed on U-2 OS cells using P4HA1 Antibody (red). Enzyme-mediated antigen retrieval was performed prior to incubation with the primary antibody at 5 ug/ml. A Cy3-conjugated goat anti-rabbit IgG secondary antibody was used for detection, and nuclei were counterstained with DAPI (blue). Strong cytoplasmic staining with a reticular, perinuclear distribution is observed, consistent with the endoplasmic reticulum localization of P4HA1 as a key enzyme involved in collagen biosynthesis and post-translational collagen modification. These results demonstrate that this Collagen Biosynthesis Enzyme Antibody is suitable for immunofluorescent detection of endogenous P4HA1 in human U-2 OS cells.

Description

P4HA1 Antibody recognizes prolyl 4-hydroxylase subunit alpha 1 (P4HA1), the catalytic alpha subunit of collagen prolyl 4-hydroxylase, a key enzyme required for collagen biosynthesis and extracellular matrix assembly. P4HA1 catalyzes the hydroxylation of specific proline residues within procollagen chains, a critical post-translational modification that enables formation of stable collagen triple helices. Without this enzymatic activity, newly synthesized collagen molecules fail to fold correctly and are unable to form functional extracellular matrices. Consequently, P4HA1 is indispensable for connective tissue development, tissue integrity, and normal wound healing. NSJ Bioreagents supplies P4HA1 Antibody for reliable detection of this essential collagen biosynthesis enzyme across a broad range of research applications.

P4HA1 functions within the lumen of the endoplasmic reticulum as part of a tetrameric collagen prolyl 4-hydroxylase

complex, where it cooperates with beta subunits to modify newly synthesized procollagen prior to secretion. Hydroxylation of proline residues stabilizes collagen molecules under physiological conditions and promotes efficient extracellular matrix deposition. Expression of P4HA1 is regulated by hypoxia, transforming growth factor beta signaling, and other pathways involved in fibrosis, tissue remodeling, and extracellular matrix homeostasis. Accordingly, P4HA1 Antibody is widely used to investigate collagen maturation, extracellular matrix biology, and mechanisms regulating tissue remodeling.

Aberrant P4HA1 expression has been implicated in numerous pathological conditions, including organ fibrosis, chronic kidney disease, pulmonary fibrosis, liver fibrosis, cardiovascular remodeling, and many solid tumors. Increased P4HA1 activity contributes to excessive collagen deposition, extracellular matrix stiffening, tumor invasion, angiogenesis, and metastatic progression. Because collagen remodeling is a defining feature of both fibrotic disease and the tumor microenvironment, P4HA1 has emerged as an important biomarker and potential therapeutic target. Researchers also study P4HA1 in developmental biology, wound repair, and hypoxia-driven cellular adaptation to better understand mechanisms governing extracellular matrix formation.

A P4HA1 Antibody is a valuable reagent for investigating collagen biosynthesis, extracellular matrix remodeling, fibrosis, and tissue repair. By enabling reliable detection of prolyl 4-hydroxylase subunit alpha 1, a P4HA1 Antibody supports research into connective tissue biology, cancer progression, hypoxia signaling, and the molecular pathways responsible for collagen maturation.

Explore additional antibodies involved in cellular metabolism and protein modification on our Metabolism Antibodies page.

Application Notes

Optimal dilution of the P4HA1 Antibody / Collagen Biosynthesis Enzyme 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 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Prolyl 4-Hydroxylase Subunit Alpha 1 antibody, Prolyl 4-Hydroxylase Alpha 1 antibody, Collagen Prolyl Hydroxylase Alpha 1 antibody, Procollagen Prolyl 4-Dioxygenase Alpha 1 antibody, C-P4H Alpha 1 antibody, P4H Alpha 1 antibody

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