Product name: Anti-Collagen I antibody [EPR7785] ab138492

Description: Rabbit monoclonal [EPR7785] to Collagen I

Host species: Rabbit

Tested applications: Suitable for: WB, IHC-P
Unsuitable for: ICC/IF

Species reactivity: Reacts with: Cow, Human

Immunogen: Synthetic peptide within Human Collagen I aa 1200-1300. The exact sequence is proprietary.
Database link: P02452
(Peptide available as ab198239)

Positive control: WB: Human stomach, skin and adrenal gland tissue lysates. IHC-P: Human breast carcinoma, colon, placenta and stomach tissues.

General notes: A trial size is available to purchase for this antibody.
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

We are constantly working hard to ensure we provide our customers with best in class antibodies. As a result of this work we are pleased to now offer this antibody in purified format. We are in the process of updating our datasheets. The purified format is designated 'PUR' on our product labels. If you have any questions regarding this update, please contact our Scientific Support team.

This product is a recombinant rabbit monoclonal antibody.

Form: Liquid


Dissociation constant ($K_D$): $K_D = 1.22 \times 10^{-10}$ M
**Storage buffer**
Preservative: 0.01% Sodium azide  
Constituents: 40% Glycerol, 0.05% BSA, PBS

**Purity**
Protein A purified

**Clonality**
Monoclonal

**Clone number**
EPR7785

**Isotype**
IgG

### Applications

Our [Abpromise guarantee](#) covers the use of **ab138492** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
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<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
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<tbody>
<tr>
<td>WB</td>
<td>🟢 🟢 🟢 🟢 🟡</td>
<td>1/1000 - 1/10000. Predicted molecular weight: 139 kDa. Sample preparation: frozen, ground tissue samples were added to hot lysis buffer (10 mM Tris-HCl (pH 8.0); 1% SDS; 1.0 mM Na-Orthovanadate), boiled for 10-20 minutes and sonicated (3 seconds at 40kW, 30 intervals) prior to centrifugation. ab138492 has not been experimentally confirmed in cell lysates in western blot.</td>
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<tr>
<td>IHC-P</td>
<td>🟢 🟢 🟢 🟢 🟡</td>
<td>1/1500. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.</td>
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</table>

### Application notes
Is unsuitable for ICC/IF.

### Target

#### Function
Type I collagen is a member of group I collagen (fibrillar forming collagen).

#### Tissue specificity
Forms the fibrils of tendon, ligaments and bones. In bones the fibrils are mineralized with calcium hydroxyapatite.

#### Involvement in disease
Defects in COL1A1 are the cause of Caffey disease (CAFFD) [MIM:114000]; also known as infantile cortical hyperostosis. Caffey disease is characterized by an infantile episode of massive subperiosteal new bone formation that typically involves the diaphyses of the long bones, mandible, and clavicles. The involved bones may also appear inflamed, with painful swelling and systemic fever often accompanying the illness. The bone changes usually begin before 5 months of age and resolve before 2 years of age.

Defects in COL1A1 are a cause of Ehlers-Danlos syndrome type 1 (EDS1) [MIM:130000]; also known as Ehlers-Danlos syndrome gravis. EDS is a connective tissue disorder characterized by hyperextensible skin, atrophic cutaneous scars due to tissue fragility and joint hyperlaxity. EDS1 is the severe form of classic Ehlers-Danlos syndrome.

Defects in COL1A1 are the cause of Ehlers-Danlos syndrome type 7A (EDS7A) [MIM:130060];
also known as autosomal dominant Ehlers-Danlos syndrome type VII. EDS is a connective tissue disorder characterized by hyperextensible skin, atrophic cutaneous scars due to tissue fragility and joint hyperlaxity. EDS7A is marked by bilateral congenital hip dislocation, hyperlaxity of the joints, and recurrent partial dislocations.

Defects in COL1A1 are a cause of osteogenesis imperfecta type 1 (OI1) [MIM:166200]. A dominantly inherited connective tissue disorder characterized by bone fragility and blue sclerae. Osteogenesis imperfecta type 1 is non-deforming with normal height or mild short stature, and no dentinogenesis imperfecta.

Defects in COL1A1 are a cause of osteogenesis imperfecta type 2A (OI2A) [MIM:166210]; also known as osteogenesis imperfecta congenita. A connective tissue disorder characterized by bone fragility, with many perinatal fractures, severe bowing of long bones, undermineralization, and death in the perinatal period due to respiratory insufficiency.

Defects in COL1A1 are a cause of osteogenesis imperfecta type 3 (OI3) [MIM:259420]. A connective tissue disorder characterized by progressively deforming bones, very short stature, a triangular face, severe scoliosis, grayish sclera, and dentinogenesis imperfecta.

Defects in COL1A1 are a cause of osteogenesis imperfecta type 4 (OI4) [MIM:166220]; also known as osteogenesis imperfecta with normal sclerae. A connective tissue disorder characterized by moderately short stature, mild to moderate scoliosis, grayish or white sclera and dentinogenesis imperfecta.

Genetic variations in COL1A1 are a cause of susceptibility to osteoporosis (OSTEOP) [MIM:166710]; also known as involutional or senile osteoporosis or postmenopausal osteoporosis. Osteoporosis is characterized by reduced bone mass, disruption of bone microarchitecture without alteration in the composition of bone. Osteoporotic bones are more at risk of fracture.

Note=A chromosomal aberration involving COL1A1 is found in dermatofibrosarcoma protuberans. Translocation t(17;22)(q22;q13) with PDGF.

Sequence similarities
Belongs to the fibrillar collagen family.
Contains 1 fibrillar collagen NC1 domain.
Contains 1 VWFC domain.

Post-translational modifications
Proline residues at the third position of the tripeptide repeating unit (G-X-Y) are hydroxylated in some or all of the chains. Proline residues at the second position of the tripeptide repeating unit (G-X-Y) are hydroxylated in some of the chains.
O-linked glycan consists of a Glc-Gal disaccharide bound to the oxygen atom of a post-translationally added hydroxyl group.

Cellular localization
Secreted > extracellular space > extracellular matrix.

Images
Type I collagen (ab138492) and Type III collagen immunostainings for control, Subtype I, and Subtype II adenomyotic cases.

The type I collagen staining bands for adenomyotic cases were thicker than those of the control uteri, and were seen with more fine muscle bundles. Arrowheads indicate vascular walls. Original magnification: X100. Scale bar = 50μm.

Western blot results of Collagen I from ADSCs (human adipose derived stem cells) cultured in RAD16-I alone, RAD/CS or RAD/Decorin. Actin was used as an internal control. Samples were prepared in triplicate; control, control medium; chondro, chondrogenic medium.

Samples were lysed in RIPA buffer with a protease inhibitor cocktail. Acrylamide gels were prepared according to the size of the proteins, generally at concentrations of 7.5% or 10% (w/v). Cell lysates (5 mg) were run by applying 150 V for 90 min. Proteins were transferred to a PVDF membrane by applying 40 V for 2 hours at RT. The membrane was incubated at RT for 2 hours in blocking buffer (BB) consisting of 4% (w/v) nonfat milk powder in PBST. Membranes were incubated for 1 hour at RT with ab138492 at a final concentration of 1 mg/mL in PBST. An anti-rabbit (IgG-HRP) secondary antibody was added, at a final concentration of 1 mg/mL, and incubated at RT for 1 h.

For full image please see paper.
Paraffin-embedded human skin tissue stained for Collagen I using ab138492 at 1/3000 dilution in immunohistochemical analysis, followed by Goat anti rabbit Alexa Fluor® 555.

IHC image of Collagen I staining in human placenta formalin fixed paraffin embedded tissue section*, performed on a Leica Bond™ system using the standard protocol B. The section was pre-treated using heat mediated antigen retrieval (EDTA based pH 9.0 solution, epitope retrieval solution 2) for 20 minutes. The section was then incubated with ab138492 at 1/1500, for 15 minutes at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.

*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre
Anti-Collagen I antibody [EPR7785] (ab138492) at 1/5000 dilution (unpurified) + Human skin tissue lysate at 10 µg

**Secondary**

HRP-conjugated anti-rabbit IgG, specific to the non-reduced form of IgG at 1/1000 dilution

**Predicted band size:** 139 kDa  
**Observed band size:** 139 kDa

Frozen, ground tissue samples were added to hot lysis buffer (10 mM Tris-HCl (pH 8.0); 1% SDS; 1.0 mM Na-Orthovanadate), boiled for 10-20 minutes and sonicated (3 seconds, 30 intervals).

The blocking and antibody incubations were performed in 5% non-fat milk (TBST).

The lysate in this image is prepared by 1% SDS Hot lysis method. For Lysate preparation protocol, please refer to the protocol book in the protocol section and/or [here](downloadable copy).

Formalin/PFA-fixed paraffin-embedded sections of human breast carcinoma tissue stained for Collagen I with unpurified ab138492 in immunohistochemical analysis.
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human stomach tissue labelling Collagen I with unpurified ab138492 at 1/1500. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. A prediluted HRP-polymer conjugated anti-rabbit IgG was used as the secondary antibody. Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.

Equilibrium disassociation constant ($K_D$)

Learn more about $K_D$

Click here to learn more about $K_D$
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human stomach tissue labelling Collagen I with purified ab138492 at 1/1500. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. A prediluted HRP-polymer conjugated anti-rabbit IgG was used as the secondary antibody. Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.

Immunohistochemistry of breast carcinoma staining Collagen I with ab138492 at 0.5μg/ml
Formalin/PFA-fixed paraffin-embedded sections of human colon tissue staining Collagen I with unpurified ab138492 in immunohistochemical analysis.

Anti-Collagen I antibody [EPR7785] (ab138492) at 1/5000 dilution (purified) + Human skin tissue lysate at 10 µg

**Secondary**

HRP-conjugated anti-rabbit IgG, specific to the non-reduced form of IgG at 1/5000 dilution

**Predicted band size:** 139 kDa

**Observed band size:** 139 kDa

Frozen, ground tissue samples were added to hot lysis buffer (10 mM Tris-HCl (pH 8.0); 1% SDS; 1.0 mM Na-Orthovanadate), boiled for 10-20 minutes and sonicated (3 seconds, 30 intervals).

Blocking buffer and concentration: 5% NFDM/TBST.

Diluting buffer and concentration: 5% NFDM /TBST.

The lysate in this image is prepared by 1% SDS Hot lysis method. For Lysate preparation protocol, please refer to the protocol book in the protocol section and/or [here (downloadable copy)](downloadable-copy).
Western blot - Anti-Collagen I antibody [EPR7785] (ab138492)

**All lanes**: Anti-Collagen I antibody [EPR7785] (ab138492) at 1/1000 dilution (unpurified)

**Lane 1**: Human stomach tissue lysate
**Lane 2**: Human skin lysate
**Lane 3**: Human adrenal gland lysate

Lysates/proteins at 10 µg per lane.

**Secondary**
**Lane 1**: HRP-conjugated goat anti-rabbit IgG at 1/2000 dilution
**Lanes 2-3**: HRP labelled goat anti-rabbit at 1/2000 dilution

**Predicted band size**: 139 kDa

The lysate in this image is prepared by 1% SDS Hot lysis method. For Lysate preparation protocol, please refer to the protocol book in the protocol section and/or [here (downloadable copy)](https://www.abcam.com/abpromise).

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