# abcam

## Product datasheet

# Human Pro-Collagen I alpha 1 ELISA Kit, Fluorescent ab229389

Recombinant · CatchPoint SimpleStep ELISA

**2 References**     6 Images

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## Overview

| | |
|---|---|
| **Product name** | Human Pro-Collagen I alpha 1 ELISA Kit, Fluorescent |
| **Detection method** | Fluorescent |
| **Precision** | |

Intra-assay

| Sample | n | Mean | SD | CV% |
|---|---|---|---|---|
| Serum | 8 | | | 1.8% |

Inter-assay

| Sample | n | Mean | SD | CV% |
|---|---|---|---|---|
| Serum | 3 | | | 3% |

| | |
|---|---|
| **Sample type** | Cell culture supernatant, Serum, Cell culture extracts, Tissue Extracts, Hep Plasma, EDTA Plasma, Cit plasma |
| **Assay type** | Sandwich (quantitative) |
| **Sensitivity** | 3.7 pg/ml |
| **Range** | 3.91 pg/ml - 16000 pg/ml |
| **Recovery** | |

Sample specific recovery

| Sample type | Average % | Range |
|---|---|---|
| Serum | 93 | 91% - 94% |
| Cell culture media | 99 | 97% - 101% |
| Hep Plasma | 101 | 94% - 107% |
| EDTA Plasma | 108 | 105% - 114% |
| Cit plasma | 106 | 102% - 110% |

| Assay time | 1h 30m |
|---|---|
| Assay duration | One step assay |
| Species reactivity | **Reacts with:** Human |
| | **Does not react with:** Cow |

**Product overview**

Pro-Collagen I alpha 1 *in vitro* CatchPoint SimpleStep ELISA (Enzyme-Linked Immunosorbent Assay) kit is designed for the quantitative measurement of Pro-Collagen I alpha 1 protein in human serum, plasma, cell culture supernatants, and cell and tissue extract samples.

This CatchPoint SimpleStep ELISA kit has been **optimized for Molecular Devices Microplate Readers**. Click **here** for a list of recommended Microplate Readers.
If using a Molecular Devices' plate reader supported by SoftMax® Pro software, a preconfigured protocol for these CatchPoint SimpleStep ELISA Kits is available with all the protocol and analysis settings at **www.softmaxpro.org**.

The CatchPoint SimpleStep ELISA employs an affinity tag labeled capture antibody and a reporter conjugated detector antibody which immunocapture the sample analyte in solution. This entire complex (capture antibody/analyte/detector antibody) is in turn immobilized via immunoaffinity of an anti-tag antibody coating the well. To perform the assay, samples or standards are added to the wells, followed by the antibody mix. After incubation, the wells are washed to remove unbound material. CatchPoint Development Solution containing the Stoplight Red Substrate is added. During incubation, the substrate is catalyzed by HRP generating a fluorescent product. Signal is generated proportionally to the amount of bound analyte and the intensity is measured in a fluorescence plater reader at 530/570/590 nm Excitation/Cutoff/Emission.

**Notes**

Type I collagen is the most abundant structural protein of connective tissues such as skin, bone and tendon. It is synthesized as a pro-collagen molecule that is characterized by a 300 nm triple helical domain flanked by globular N- and C-terminal propeptides. Specifically, human Pro-Collagen I alpha 1 consists of a signal peptide (amino acids (aa) 1-22), a propeptide (aa 23-161), the mature chain (aa 162-1218), and another propeptide (aa 1219 – 1464). The non-helical propeptides are removed by procollagen N- and C-proteinase activities so that the mature triple helices can self-assemble into collagen fibrils that provide tensile strength to tissues.

Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.
It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

**Platform**

Pre-coated microplate (12 x 8 well strips)

## Properties

**Storage instructions**

Store at +4°C. Please refer to protocols.

| Components | 1 x 96 tests | 1 x 96 tests |
|---|---|---|
| 100X Stoplight Red Substrate | 1 x 120µl | 1 x 120µl |
| 10X Human Pro-Collagen I alpha 1 Capture Antibody | 1 x 600µl | 1 x 600µl |
| | | |

| Components | 1 x 96 tests | 1 x 96 tests |
|---|---|---|
| 10X Human Pro-Collagen I alpha 1 Detector Antibody | 1 x 600µl | 1 x 600µl |
| 10X Wash Buffer PT (ab206977) | 1 x 20ml | 1 x 20ml |
| 500X Hydrogen Peroxide (H2O2, 3%) | 1 x 50µl | 1 x 50µl |
| 50X Cell Extraction Enhancer Solution (ab193971) | 1 x 1ml | 1 x 1ml |
| 5X Cell Extraction Buffer PTR (ab193970) | 1 x 10ml | 1 x 10ml |
| Antibody Diluent CPl2 | 1 x 6ml | 1 x 6ml |
| Human Pro-Collagen I alpha 1 Lyophilized Recombinant Protein | 2 vials | 2 vials |
| Plate Seals | 1 unit | 1 unit |
| Sample Diluent NS (ab193972) | 1 x 50ml | 1 x 50ml |
| SimpleStep Pre-Coated Black 96-Well Microplate | 1 unit | 1 unit |
| Stoplight Red Substrate Buffer | 1 x 12ml | 1 x 12ml |

| | |
|---|---|
| **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** | Caffey disease<br>Ehlers-Danlos syndrome, classic type<br>Ehlers-Danlos syndrome 7A<br>Osteogenesis imperfecta 1<br>Osteogenesis imperfecta 2<br>Osteogenesis imperfecta 3<br>Osteogenesis imperfecta 4<br>Osteoporosis<br>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.<br>Contains 1 fibrillar collagen NC1 domain.<br>Contains 1 VWFC domain. |
| **Domain** | The C-terminal propeptide, also known as COLFI domain, have crucial roles in tissue growth and repair by controlling both the intracellular assembly of procollagen molecules and the extracellular assembly of collagen fibrils. It binds a calcium ion which is essential for its function. |
| **Post-translational modifications** | Proline residues at the third position of the tripeptide repeating unit (G-X-P) are hydroxylated in some or all of the chains. Proline residues at the second position of the tripeptide repeating unit (G-P-X) are hydroxylated in some of the chains.<br>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



Other - Human Pro-Collagen I alpha 1 ELISA Kit, Fluorescent (ab229389)
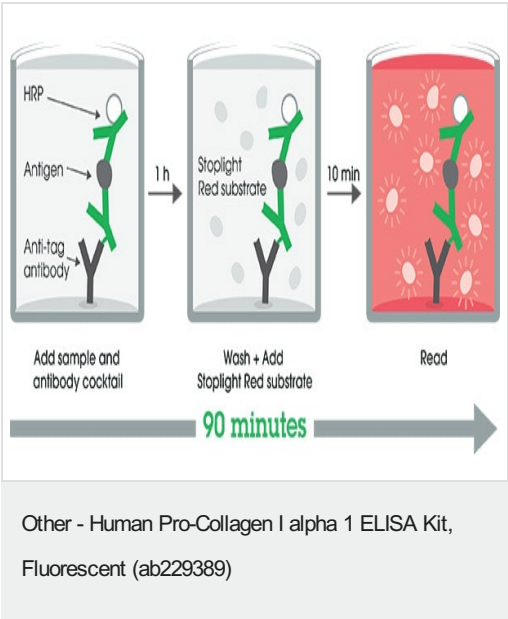
SimpleStep ELISA technology allows the formation of the antibody-antigen complex in one single step, reducing assay time to 90 minutes. Add samples or standards and antibody mix to wells all at once, incubate, wash, and add your final substrate. See protocol for a detailed step-by-step guide.



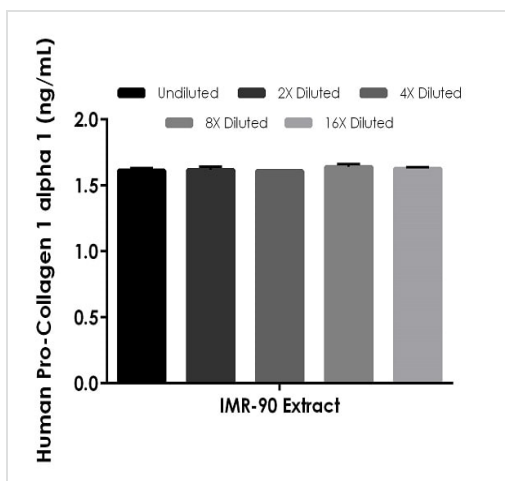Example of human Pro-Collagen I alpha 1 standard curve in Sample Diluent NS.
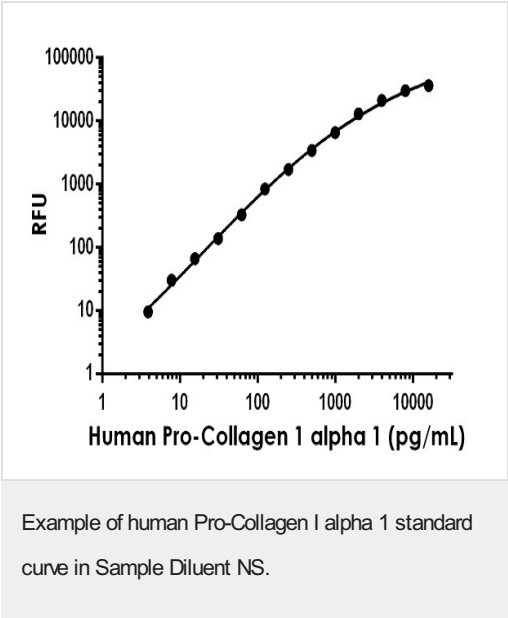
Background-subtracted data values (mean +/- SD) are graphed.
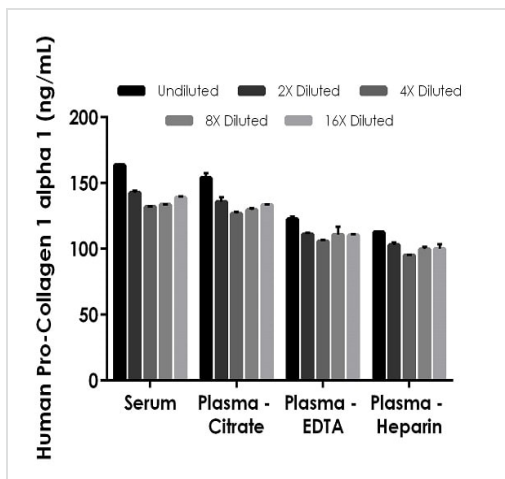
Interpolated concentrations of native Pro-Collagen I alpha 1 in human serum and plasma samples.

The concentrations of Pro-Collagen I alpha 1 were measured in duplicates, interpolated from the Pro-Collagen I alpha 1 standard curves and corrected for sample dilution. Undiluted samples are as follows: serum 1%, plasma (citrate) 1%, plasma (EDTA) 1%, and plasma (heparin) 1%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Pro-Collagen I alpha 1 concentration was determined to be 142.1 ng/mL in serum, 135.9 ng/mL in plasma (citrate), 112.1 ng/mL in plasma (EDTA) and 102.1 ng/mL in plasma (heparin).



Interpolated concentrations of native Pro-Collagen I alpha 1 in human IMR-90 extract based on a 2 µg/mL extract load.

The concentrations of Pro Collagen I alpha 1 were measured in duplicate and interpolated from the Pro Collagen I alpha 1 standard curve and corrected for sample dilution. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Pro-Collagen I alpha 1 concentration was determined to be 1.62 ng/mL in IMR-90 extract.
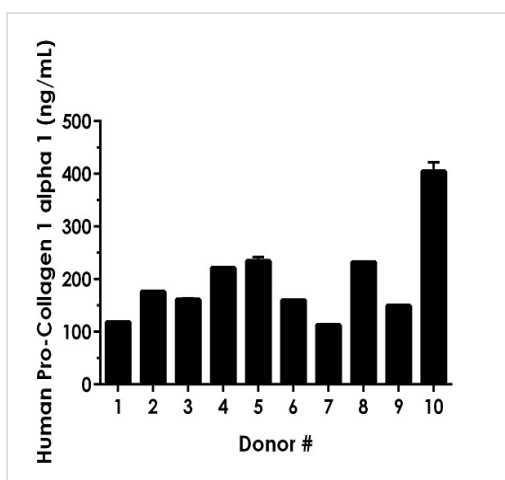


Serum from ten individual healthy human female donors was diluted 1:200 and measured in duplicate.

Interpolated dilution factor corrected values are plotted (mean +/- SD, n=2). The mean Pro-Collagen I alpha 1 concentration was determined to be 197.3 ng/mL with a range of 113.0 – 417 ng/mL.

**Powered by recombinant antibodies**

**Research with confidence**
Consistent and reproducible results

**Long-term and scalable supply**
Recombinant technology

**Success from the first experiment**
Confirmed specificity

**Ethical standards compliant**
Animal-free production

Sandwich ELISA - Human Pro-Collagen I alpha 1

ELISA Kit, Fluorescent (ab229389)

To learn more about the advantages of recombinant antibodies see **here**.

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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