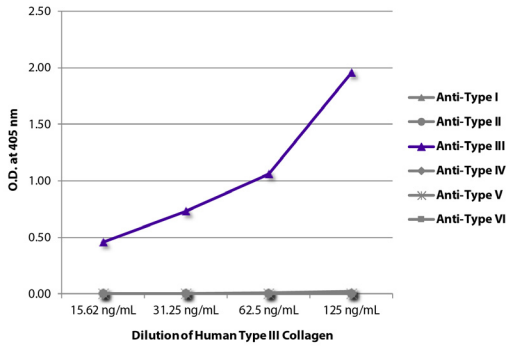
SouthernBiotech

Human Type III Collagen

Cat. No.	Format	Size
1230-01S	Purified Protein - Solution	0.5 mg



ELISA plate was coated with serially diluted Human Type III Collagen (SB Cat. No. 1230-01S). Purified collagen was detected with Goat Anti-Type I Collagen-BIOT (SB Cat. No. 1310-08), Goat Anti-Type II Collagen-BIOT (SB Cat. No. 1320-08), Goat Anti-Type III Collagen-BIOT (SB Cat. No. 1330-08), Goat Anti-Type IV Collagen-BIOT (SB Cat. No. 1340-08), Goat Anti-Type V Collagen-BIOT (SB Cat. No. 1350-08), and Goat Anti-Type VI Collagen-BIOT (SB Cat. No. 1360-08) followed by Streptavidin-HRP (SB Cat. No. 7100-05).

Overview

Source	Placental villi
Purification	Controlled and limited pepsin digestion followed by selective salt precipitation
Purity	> 90% by SDS-PAGE
Alternate Name(s)	COL3A1

Description

Collagen is the main structural protein in the extracellular space and is the most abundant protein in the ECM. Collagens are divided into two classes - fibril (types I, II, III, V) and non-fibril (types IV, VI). Type III collagen is expressed in the skin and a variety of internal organs including the lungs, intestinal walls, uterus, and walls of blood vessels and is often associated with type I collagen. It also interacts with platelets in the blood clotting cascade. Type III collagen mutations are associated in a range of diseases including the vascular form of Ehlers–Danlos syndrome. Type III collagen is formed by homotrimers of α1(III) chains.

Applications

ELISA – Quality tested [1-27]
SDS-PAGE – Quality tested
SPR – Reported in literature [8,28]
Thermal Stability Studies – Reported in literature [29,30]
Coating Material for –
- Adhesion Studies – Reported in literature [13,19,22,31-34]
- Aggregation Studies – Reported in literature [34]
- Blood Disorder Studies – Reported in literature [8-28,32-35]
- Differentiation Studies – Reported in literature [36]
- ECM Interaction Studies – Reported in literature [37-38]

Handling and Storage

- The purified protein is supplied as a solution of 0.5 mg collagen in 1.0 mL of 500 mM acetic acid. Store at 2-8°C.
- Reagent is stable for the period shown on the label if stored as directed.

Warning

Reagent contains acetic acid. Please refer to product specific SDS.

For Research Use Only. Not for Diagnostic or Therapeutic Use.

Corporate Offices: 160 Oxmoor Blvd • Birmingham, AL 35209 • USA **Mailing Address:** P.O. Box 26221 • Birmingham, AL 35260 • USA
Tel: 205.945.1774 • U.S. and Canada: 800.722.2255 • **Fax:** 205.945.8768
Email: info@southernbiotech.com • **Website:** www.southernbiotech.com

References

1. Rizvi MA, Katwa L, Spadone DP, Myers PR. The effects of endothelin-1 on collagen type I and type III synthesis in cultured porcine coronary artery vascular smooth muscle cells. J Mol Cell Cardiol. 1996;28:243-52. (ELISA, Standard Curve)
2. Bumann A, Carvalho RS, Schwarzer CL, Yen EH. Collagen synthesis from human PDL cells following orthodontic tooth movement. Eur J Orthod. 1997;19:29-37. (ELISA, Standard Curve)
3. Rizvi MA, Myers PR. Nitric oxide modulates basal and endothelin-induced coronary artery vascular smooth muscle cell proliferation and collagen levels. J Mol Cell Cardiol. 1997;29:1779-89. (ELISA, Standard Curve)
4. Myers PR, Tanner MA. Vascular endothelial cell regulation of extracellular matrix collagen: role of nitric oxide. Arterioscler Thromb Vasc Biol. 1998;18:717-22. (ELISA, Standard Curve)
5. Howard PS, Renfrow D, Schechter NM, Kucich U. Mast cell chymase is a possible mediator of neurogenic bladder fibrosis. Neurourol Urodyn. 2004;23:374-82. (ELISA, Standard Curve)
6. Kottler UB, Jünemann AG, Aigner T, Zenkel M, Rummelt C, Schlötzer-Schrehardt U. Comparative effects of TGF-β1 and TGF-β2 on extracellular matrix production, proliferation, migration, and collagen contraction of human Tenon's capsule fibroblasts in pseudoexfoliation and primary open-angle glaucoma. Exp Eye Res. 2005;80:121-34. (ELISA, Standard Curve)
7. Buckley MR, Evans EB, Matuszewski PE, Chen Y, Satchel LN, Elliott DM. Distributions of types I, II and III collagen by region in the human supraspinatus tendon. Connect Tissue Res. 2013;54:374-9. (ELISA, Standard Curve)
8. Siekmann J, Turecek PL, Schwarz HP. The determination of von Willebrand factor activity by collagen binding assay. Haemophilia. 1998;4:15-24. (ELISA, SPR, Coating, Blood Disorder Studies)
9. Kaersgaard P, Barington KA, inventors; Hemasure Denmark A/S, assignee. von Willebrand factor (vWF)-containing preparation, process for preparing vWF-containing preparations, and use of such preparations. United States patent US 2003/6531577 B1. 2003 Mar 11. (ELISA, Coating, Blood Disorder Studies)
10. Guerin V, Ryman A, Velez F. Acquired von Willebrand disease: potential contribution of the von Willebrand factor collagen-binding to the identification of functionally inhibiting auto-antibodies to von Willebrand factor: a rebuttal. J Thromb Haemost. 2008;6:1051-2. (ELISA, Coating, Blood Disorder Studies)
11. Riddell AF, Gomez K, Millar CM, Mellars G, Gill S, Brown SA, et al. Characterization of W1745C and S1783A: 2 novel mutations causing defective collagen binding in the A3 domain of von Willebrand factor. Blood. 2009;114:3489-96. (ELISA, Coating, Blood Disorder Studies)
12. Flood VH, Gill JC, Morateck PA, Christopherson PA, Friedman KD, Haberichter SL, et al. Common VWF exon 28 polymorphisms in African Americans affecting the VWF activity assay by ristocetin cofactor. Blood. 2010;116:280-6. (ELISA, Coating, Blood Disorder Studies)
13. Nowak AA, Canis K, Riddell A, Laffan MA, McKinnon TA. O-linked glycosylation of von Willebrand factor modulates the interaction with platelet receptor glycoprotein Ib under static and shear stress conditions. Blood. 2012;120:214-22. (ELISA, Coating, Blood Disorder Studies, Adhesion Studies)
14. Flood VH, Gill JC, Christopherson PA, Wren JS, Friedman KD, Haberichter SL, et al. Comparison of type I, type III and type VI collagen binding assays in diagnosis of von Willebrand disease. J Thromb Haemost. 2012;10:1425-32. (ELISA, Coating, Blood Disorder Studies)
15. Jacobi PM, Gill JC, Flood VH, Jakab DA, Friedman KD, Haberichter SL. Intersection of mechanisms of type 2A VWD through defects in VWF multimerization, secretion, ADAMTS-13 susceptibility, and regulated storage. Blood. 2012;119:4543-53. (ELISA, Coating, Blood Disorder Studies)
16. Flood VH, Gill JC, Christopherson PA, Bellissimo DB, Friedman KD, Haberichter SL, et al. Critical von Willebrand factor A1 domain residues influence type VI collagen binding. J Thromb Haemost. 2012;10:1417-24. (ELISA, Coating, Blood Disorder Studies)
17. Bellissimo DB, Christopherson PA, Flood VH, Gill JC, Friedman KD, Haberichter SL, et al. VWF mutations and new sequence variations identified in healthy controls are more frequent in the African-American population. Blood. 2012;119:2135-40. (ELISA, Coating, Blood Disorder Studies)
18. Flood VH, Gill JC, Friedman KD, Christopherson PA, Jacobi PM, Hoffmann RG, et al. Collagen binding provides a sensitive screen for variant von Willebrand disease. Clin Chem. 2013;59:684-91. (ELISA, Coating, Blood Disorder Studies)
19. Nowak AA, McKinnon TA, Hughes JM, Chion AC, Laffan MA. The O-linked glycans of human von Willebrand factor modulate its interaction with ADAMTS-13. J Thromb Haemost. 2014;12:54-61. (ELISA, Coating, Blood Disorder Studies, Adhesion Studies)
20. Larsen DM, Haberichter SL, Gill JC, Shapiro AD, Flood VH. Variability in platelet- and collagen-binding defects in type 2M von Willebrand disease. Haemophilia. 2013;19:590-4. (ELISA, Coating, Blood Disorder Studies)
21. Doruelo AL, Haberichter SL, Christopherson PA, Boggio LN, Gupta S, Lentz SR, et al. Clinical and laboratory phenotype variability in type 2M von Willebrand disease. J Thromb Haemost. 2017;15:1559-66. (ELISA, Coating, Blood Disorder Studies)
22. Riddell A, Vinayagam S, Gomez K, Laffan M, McKinnon T. Evaluation of von Willebrand factor concentrates by platelet adhesion to collagen using an in vitro flow assay. Res Pract Thromb Haemost. 2018;3:126-35. (ELISA, Coating, Blood Disorder Studies, Adhesion Studies)
23. Hinterleitner C, Kreisselmeier K, Pecher A, Mauz P, Kanz L, Kopp H, et al. Low plasma protein Z levels are associated with an increased risk for perioperative bleedings. Eur J Haematol. 2018;100:403-11. (ELISA, Coating, Blood Disorder Studies)
24. Ahmad F, Kannan M, Obser T, Budde U, Schneppenheim S, Saxena R, et al. Characterization of VWF gene conversions causing von Willebrand disease. Br J Haematol. 2019;184:817-25. (ELISA, Coating, Blood Disorder Studies)
25. Slobodianuk TL, Kochelek C, Foeckler J, Kalloway S, Weiler H, Flood VH. Defective collagen binding and increased bleeding in a murine model of von Willebrand disease affecting collagen IV binding. J Thromb Haemost. 2019;17:63-71. (ELISA, Coating, Blood Disorder Studies)
26. Bortot M, Ashworth K, Sharifi A, Walker F, Crawford NC, Neeves KB, et al. Turbulent flow promotes cleavage of VWF (von Willebrand Factor) by ADAMTS13 (a disintegrin and metalloproteinase with a thrombospondin type-1 motif, member 13). Arterioscler Thromb Vasc Biol. 2019;39:1831-42. (ELISA, Coating, Blood Disorder Studies)
27. Hinterleitner C, Pecher A, Kreißelmeier K, Budde U, Kanz L, Kopp H, et al. Disease progression and defects in primary hemostasis as major cause of bleeding in multiple myeloma. Eur J Haematol. 2020;104:26-35. (ELISA, Coating, Blood Disorder Studies)
28. Li F, Moake JL, McIntire LV. Characterization of von Willebrand factor interaction with collagens in real time using surface plasmon resonance. Ann Biomed Eng. 2002;30:1107-16. (SPR, Coating, Blood Disorder Studies)
29. Makareeva E, Cabral WA, Marini JC, Leikin S. Molecular mechanism of α1(I)-osteogenesis imperfecta/Ehlers-Danlos syndrome: unfolding of an N-anchor domain at the N-terminal end of the type I collagen triple helix. J Biol Chem. 2006;281:6463-70. (Thermal Stability Studies)
30. Makareeva E, Mertz EL, Kuznetsova NV, Sutter MB, DeRidder AM, Cabral WA, et al. Structural heterogeneity of type I collagen triple helix and its role in osteogenesis imperfecta. J Biol Chem. 2008;283:4787-98. (Thermal Stability Studies)
31. DeNigris J, Yao Q, Birk EK, Birk DE. Altered dermal fibroblast behavior in a collagen V haploinsufficient murine model of classic Ehlers-Danlos syndrome. Connect Tissue Res. 2016;57:1-9. (Coating, Adhesion Studies)
32. Nowak AA, O'Brien HE, Henne P, Doerr A, Vanhoorelbeke K, Laffan MA, et al. ADAMTS-13 glycans and conformation-dependent activity. J Thromb Haemost. 2017;15:1155-66. (Coating, Blood Disorder Studies, Adhesion Studies)
33. Jalaer I, Tsakiris DA, Solecka-Witulska BA, Kannicht C. The role of von Willebrand factor in primary haemostasis under conditions of haemodilution. Thromb Res. 2017;157:142-6. (Coating, Blood Disorder Studies, Adhesion Studies)
34. South K, Denorme F, Salles-Crawley II, De Meyer SF, Lane DA. Enhanced activity of an ADAMTS-13 variant (R568K/F592Y/R660K/Y661F/Y665F) against platelet agglutination in vitro and in a murine model of acute ischemic stroke. J Thromb Haemost. 2018;16:2289-99. (Coating, Blood Disorder Studies, Adhesion Studies, Aggregation Studies)
35. South K, Freitas MO, Lane DA. Conformational quiescence of ADAMTS-13 prevents proteolytic promiscuity. J Thromb Haemost. 2016;14:2011-22. (Coating, Blood Disorder Studies)
36. Andrianarivo AG, Robinson JA, Mann KG, Tracy RP. Growth on type I collagen promotes expression of the osteoblastic phenotype in human osteosarcoma MG-63 cells. J Cell Physiol. 1992;153:256-65. (Coating, Differentiation Studies)
37. Bidanset DJ, Guidry C, Rosenberg LC, Choi HU, Timpl R, Hook M. Binding of the proteoglycan decorin to collagen type VI. J Biol Chem. 1992;267:5250-6. (Coating, ECM Interaction Studies)
38. Hocking AM, Strugnell RA, Ramamurthy P, McQuillan DJ. Eukaryotic expression of recombinant biglycan. Post-translational processing and the importance of secondary structure for biological activity. J Biol Chem. 1996;271:19571-7. (Coating, ECM Interaction Studies)

In accordance with current Good Manufacturing and Good Laboratory Practices (cGMP/cGLP), any protein of human blood origin should be handled pursuant to your organization's documented safety procedures and as if it is capable of transmitting infection. This product has **NOT** been tested for viral, bacterial, or other infectious agents such as, but not limited to, HIV, HbsAg, and HCV.

Corporate Offices: 160 Oxmoor Blvd • Birmingham, AL 35209 • USA **Mailing Address:** P.O. Box 26221 • Birmingham, AL 35260 • USA
Tel: 205.945.1774 • U.S. and Canada: 800.722.2255 • **Fax:** 205.945.8768
Email: info@southernbiotech.com • **Website:** www.southernbiotech.com