

6 Literaturverzeichnis

1. Schuppan D, Ruehl M, Somasundaram R, et al. Matrix as a modulator of hepatic fibrogenesis. *Semin Liver Dis* 2001;21:351-372.
2. Schuppan D, Somasundaram R, Dieterich W, et al. The extracellular matrix in cellular proliferation and differentiation. *Ann N Y Acad Sci* 1994;733:87-102.
3. Schuppan D, Gressner AM. Function and metabolism of collagens and other extracellular matrix proteins. 2 ed. New York: Oxford University Press, 1999: 381-407.
4. Kadler KE, Holmes DF, Trotter JA, et al. Collagen fibril formation. *Biochem J* 1996;316 (Pt 1):1-11.
5. Aumailley M, Gayraud B. Structure and biological activity of the extracellular matrix. *J Mol Med* 1998;76:253-265.
6. van der Rest M, Garrone R. Collagen family of proteins. *Faseb J* 1991;5:2814-2823.
7. Brown JC, Timpl R. The collagen superfamily. *Int Arch Allergy Immunol* 1995;107:484-490.
8. Ricard-Blum S, Dublet B, van der Rest M: Unconventional Collagens Types VI, VII, VIII, IX, X, XIV, XVI and XIX. In: Humphries M, ed. Unconventional Collagens Types VI, VII, VIII, IX, X, XIV, XVI and XIX. Oxford, New York: Oxford University Press, 2000.
9. Colige A, Beschin A, Samyn B, et al. Characterization and partial amino acid sequencing of a 107-kDa procollagen I N-proteinase purified by affinity chromatography on immobilized type XIV collagen. *J Biol Chem* 1995;270:16724-16730.
10. Prockop DJ, Sieron AL, Li SW. Procollagen N-proteinase and procollagen C-proteinase. Two unusual metalloproteinases that are essential for procollagen processing probably have important roles in development and cell signaling. *Matrix Biol* 1998;16:399-408.
11. Schuppan D, Cantaluppi MC, Becker J, et al. Undulin, an extracellular matrix glycoprotein associated with collagen fibrils. *J Biol Chem* 1990;265:8823-8832.
12. Trueb J, Trueb B. Type XIV collagen is a variant of undulin. *European Journal Of Biochemistry* 1992;207:549-557.
13. Bauer M, Dieterich W, Ehnis T, et al. Complete primary structure of human collagen type XIV (undulin). *Biochimica Et Biophysica Acta* 1997;1354:183-188.
14. Aubert-Foucher E, Font B, Eichenberger D, et al. Purification and characterization of native type XIV collagen. *J Biol Chem* 1992;267:15759-15764.
15. Brown JC, Mann K, Wiedemann H, et al. Structure and binding properties of collagen type XIV isolated from human placenta. *J Cell Biol* 1993;120:557-567.
16. Brown JC, Golbik R, Mann K, et al. Structure and stability of the triple-helical domains of human collagen XIV. *Matrix Biology* 1994;14:287-295.
17. Gerecke DR, Meng X, Liu B, et al. Complete primary structure and genomic organization of the mouse Col14a1 gene. *Matrix Biol* 2004;22:595-601.
18. Walchli C, Trueb J, Kessler B, et al. Complete primary structure of chicken collagen XIV. *Eur J Biochem* 1993;212:483-490.
19. Dublet B, van der Rest M. Type XIV collagen, a new homotrimeric molecule extracted from fetal bovine skin and tendon, with a triple helical disulfide-bonded domain homologous to type IX and type XII collagens. *J Biol Chem* 1991;266:6853-6858.

20. Ehnis T, Dieterich W, Bauer M, et al. Localization of a cell adhesion site on collagen XIV (undulin). *Exp Cell Res* 1998;239:477-480.
21. Wälchli C, Koch M, Chiquet M, et al. Tissue-specific expression of the fibril-associated collagens XII and XIV. *Journal Of Cell Science* 1994;107 (Pt 2):669-681.
22. Just M, Herbst H, Hummel M, et al. Undulin is a novel member of the fibronectin-tenascin family of extracellular matrix glycoproteins. *J Biol Chem* 1991;266:17326-17332.
23. Font B, Aubert-Foucher E, Goldschmidt D, et al. Binding of collagen XIV with the dermatan sulfate side chain of decorin. *Journal Of Biological Chemistry* 1993;268:25015-25018.
24. Ehnis T, Dieterich W, Bauer M, et al. Localization of a binding site for the proteoglycan decorin on collagen XIV (undulin). *J Biol Chem* 1997;272:20414-20419.
25. Giry-Lozinguez C, Aubert-Foucher E, Penin F, et al. Identification and characterization of a heparin binding site within the NC1 domain of chicken collagen XIV. *Matrix Biol* 1998;17:145-149.
26. Montserret R, Aubert-Foucher E, McLeish MJ, et al. Structural analysis of the heparin-binding site of the NC1 domain of collagen XIV by CD and NMR. *Biochemistry* 1999;38:6479-6488.
27. Keene DR, Lunstrum GP, Morris NP, et al. Two type XII-like collagens localize to the surface of banded collagen fibrils. *J Cell Biol* 1991;113:971-978. 969: Lunstrum GP, et al. Identification and partial ch...[PMID:2026655]Related Articles, Links.
28. Nishiyama T, McDonough AM, Bruns RR, et al. Type XII and XIV collagens mediate interactions between banded collagen fibers in vitro and may modulate extracellular matrix deformability. *J Biol Chem* 1994;269:28193-28199.
29. Knittel T, Armbrust T, Schwogler S, et al. Distribution and cellular origin of undulin in rat liver. *Lab Invest* 1992;67:779-787.
30. Becker J, Schuppan D, Reichart P. The extracellular matrix in oral Kaposi sarcoma (AIDS): the immunohistochemical distribution of collagens type IV, V, VI, of procollagens type I and III, of laminin and of undulin. *Virchows Arch* 1987;412:161-168.
31. Milani S, Grappone C, Pellegrini G, et al. Undulin RNA and protein expression in normal and fibrotic human liver. *Hepatology* 1994;20:908-916.
32. Shahin M, Schuppan D, Waldherr R, et al. Circulating enzyme activities of collagen turnover and undulin in patients with various degrees of schistosomiasis and alcoholic liver cirrhosis. *Hepato-Gastroenterology* 1995;42:22-26.
33. Stickel F, Urbaschek R, Schuppan D, et al. Serum collagen type VI and XIV and hyaluronic acid as early indicators for altered connective tissue turnover in alcoholic liver disease. *Dig Dis Sci* 2001;46:2025-2032.
34. Berthod F, Germain L, Guignard R, et al. Differential expression of collagens XII and XIV in human skin and in reconstructed skin. *J Invest Dermatol* 1997;108:737-742.
35. Erickson HP, Bourdon MA. Tenascin: an extracellular matrix protein prominent in specialized embryonic tissues and tumors. *Annu Rev Cell Biol* 1989;5:71-92.
36. Aufderheide E, Chiquet-Ehrismann R, Ekblom P. Epithelial-mesenchymal interactions in the developing kidney lead to expression of tenascin in the mesenchyme. *J Cell Biol* 1987;105:599-608.
37. Mackie EJ, Halfter W, Liverani D. Induction of tenascin in healing wounds. *J Cell Biol* 1988;107:2757-2767.
38. Whitby DJ, Longaker MT, Harrison MR, et al. Rapid epithelialisation of fetal wounds is associated with the early deposition of tenascin. *J Cell Sci* 1991;99 (Pt 3):583-586.
39. Chiquet M. Regulation of extracellular matrix gene expression by mechanical stress. *Matrix Biol* 1999;18:417-426.

40. Schienk S, Lienard D, Gerain J, et al. Rapid increase in plasma tenascin-C concentration after isolated limb perfusion with high-dose tumor necrosis factor (TNF), interferon gamma (IFN gamma) and melphalan for regionally advanced tumors. *Int J Cancer* 1995;63:665-672.
41. Mackie EJ, Chiquet-Ehrismann R, Pearson CA, et al. Tenascin is a stromal marker for epithelial malignancy in the mammary gland. *Proc Natl Acad Sci U S A* 1987;84:4621-4625.
42. Hoffman S, Crossin KL, Edelman GM. Molecular forms, binding functions, and developmental expression patterns of cytactin and cytactin-binding proteoglycan, an interactive pair of extracellular matrix molecules. *J Cell Biol* 1988;106:519-532.
43. Anagnostopoulos I, Schuppan D, Riecken EO, et al. Tenascin labelling in colorectal biopsies: a useful marker in the diagnosis of collagenous colitis. *Histopathology* 1999;34:425-431. 495: Niki T, et al. A histone deacetylase inhibit...[PMID:10051490]Related Articles, Links.
44. Van Eyken P, Sciot R, Desmet VJ. Expression of the novel extracellular matrix component tenascin in normal and diseased human liver. An immunohistochemical study. *J Hepatol* 1990;11:43-52.
45. De Wever O, Nguyen QD, Van Hoorde L, et al. Tenascin-C and SF/HGF produced by myofibroblasts in vitro provide convergent pro-invasive signals to human colon cancer cells through RhoA and Rac. *Faseb J* 2004;18:1016-1018.
46. Arai K, Kasashima Y, Kobayashi A, et al. TGF-beta alters collagen XII and XIV mRNA levels in cultured equine tenocytes. *Matrix Biol* 2002;21:243-250. 246: Eyre D. Collagen of articular cartil...[PMID:11879535]Related Articles, Links.
47. Pan TC, Zhang RZ, Mattei MG, et al. Cloning and chromosomal location of human alpha 1(XVI) collagen. *Proc Natl Acad Sci U S A* 1992;89:6565-6569.
48. Sohara N, Znoyko I, Levy MT, et al. Reversal of activation of human myofibroblast-like cells by culture on a basement membrane-like substrate. *J Hepatol* 2002;37:214-221.
49. Eckes B, Mauch C, Huppe G, et al. Downregulation of collagen synthesis in fibroblasts within three-dimensional collagen lattices involves transcriptional and posttranscriptional mechanisms. *FEBS Lett* 1993;318:129-133.
50. Ruoslahti E. Integrins. *J Clin Invest* 1991;87:1-5.
51. Ruoslahti E, Pierschbacher MD. New perspectives in cell adhesion: RGD and integrins. *Science* 1987;238:491-497.
52. Saunders S, Jalkanen M, O'Farrell S, et al. Molecular cloning of syndecan, an integral membrane proteoglycan. *J Cell Biol* 1989;108:1547-1556.
53. Vogel WF, Abdulhussein R, Ford CE. Sensing extracellular matrix: an update on discoidin domain receptor function. *Cell Signal* 2006;18:1108-1116.
54. Pure E, Cuff CA. A crucial role for CD44 in inflammation. *Trends Mol Med* 2001;7:213-221.
55. Ehnis T, Dieterich W, Bauer M, et al. A chondroitin/dermatan sulfate form of CD44 is a receptor for collagen XIV (undulin). *Exp Cell Res* 1996;229:388-397.
56. Klein G, Kibler C, Schermutzki F, et al. Cell binding properties of collagen type XIV for human hematopoietic cells. *Matrix Biol* 1998;16:307-317.
57. Lindl T. *Zell- und Gewebekultur*: Gustav Fischer Verlag.
58. Somasundaram R, Schuppan D. Type I, II, III, IV, V, and VI collagens serve as extracellular ligands for the isoforms of platelet-derived growth factor (AA, BB, and AB). *J Biol Chem* 1996;271:26884-26891.
59. Schuppan D, Schmid M, Somasundaram R, et al. Collagens in the liver extracellular matrix bind hepatocyte growth factor. *Gastroenterology* 1998;114:139-152.
60. Stein GS, Stein JL, Lian JB, et al. Cell synchronization as a basis for investigating control of proliferation in mammalian cells., 1995: 193-204.

61. Skehan P, Storeng R, Scudiero D, et al. New colorimetric cytotoxicity assay for anticancer-drug screening. *J Natl Cancer Inst* 1990;82:1107-1112.
62. Ntambi JM, Young-Cheul K. Adipocyte differentiation and gene expression. *J Nutr* 2000;130:3122S-3126S.
63. Nishizuka M, Tsuchiya T, Nishihara T, et al. Induction of Bach1 and ARA70 gene expression at an early stage of adipocyte differentiation of mouse 3T3-L1 cells. *Biochem J* 2002;361:629-633. 105: Prince AM, et al. Proteasomal degradation of re...[PMID:11798183]Related Articles, Links.
64. Cardin AD, Weintraub HJ. Molecular modeling of protein-glycosaminoglycan interactions. *Arteriosclerosis* 1989;9:21-32.
65. Haegel-Kronenberger H, de la Salle H, Bohbot A, et al. Adhesive and/or signaling functions of CD44 isoforms in human dendritic cells. *J Immunol* 1998;161:3902-3911.
66. Atkinson JC, Ruhl M, Becker J, et al. Collagen VI regulates normal and transformed mesenchymal cell proliferation in vitro. *Exp Cell Res* 1996;228:283-291.
67. Imhof M, Trueb B. Alternative splicing of the first F3 domain from chicken collagen XIV affects cell adhesion and heparin binding. *J Biol Chem* 2001;276:9141-9148.
68. Nakagawa H, Takano K, Kuzumaki H. A 16-kDa fragment of collagen type XIV is a novel neutrophil chemotactic factor purified from rat granulation tissue. *Biochem Biophys Res Commun* 1999;256:642-645.
69. Gaca MD, Zhou X, Issa R, et al. Basement membrane-like matrix inhibits proliferation and collagen synthesis by activated rat hepatic stellate cells: evidence for matrix-dependent deactivation of stellate cells. *Matrix Biol* 2003;22:229-239.
70. Schuppan D, Popov Y. Hepatic fibrosis: From bench to bedside. *J Gastroenterol Hepatol* 2002;17:S300-S305.
71. Loercher AE, Tank EM, Delston RB, et al. MITF links differentiation with cell cycle arrest in melanocytes by transcriptional activation of INK4A. *J Cell Biol* 2005;168:35-40.
72. She H, Xiong S, Hazra S, et al. Adipogenic transcriptional regulation of hepatic stellate cells. *J Biol Chem* 2005;280:4959-4967.
73. Marhaba R, Zoller M. CD44 in cancer progression: adhesion, migration and growth regulation. *J Mol Histol* 2004;35:211-231.
74. Hill MM, Clark SF, Tucker DF, et al. A role for protein kinase Bbeta/Akt2 in insulin-stimulated GLUT4 translocation in adipocytes. *Mol Cell Biol* 1999;19:7771-7781.
75. Gagnon A, Dods P, Roustan-Delatour N, et al. Phosphatidylinositol-3,4,5-trisphosphate is required for insulin-like growth factor 1-mediated survival of 3T3-L1 preadipocytes. *Endocrinology* 2001;142:205-212.