

6. Referenzen

1. Papst R, Reinecke G (1981): Proliferation of human lymphoid cells. Lymphocytogenesis and cell cycle parameters in isolated perfused human spleens. *Scand J Haematol* 26: 41-49
2. Heinen E, Cormann N, Kinet-Denoel C (1988): The lymph follicle: a hard nut to crack. *Immunol Today* 1988: 240-243
3. Melamed I, Zakuth V, Tzechoval E, Spirer Z (1982): Suppressor T cell activity in splenectomized subjects. *J Clin Lab Immunol* 7:173-177
4. Lampert IA (1992): The spleen. Ed. McGee JO'D, Isaacson PG, Wright NA. Oxford University Press. 1794-1807
5. Clark MR (1988): Senescence of red blood cells: progress and problems. *Physiol Rev* 68: 503-554
6. Peters AM, Klonizakis I, Lewis SM, Lavender JP (1990): Use of 111 indium-labelled platelets to measure spleen function. *Br J Haematol* 46: 587-593
7. Hsu SM, Crossman J, Jaffe ES (1983): Lymphocyte subsets in normal human lymphoid tissues. *Am J Clin Pathol* 80: 21-30
8. Müller-Hermelink HK, Heusermann U, Stutte JH (1974): Enzyme histochemical observations on the localization and structure of the T-cell and B-cell regions in the human spleen. *Cell Tissue Res* 154: 167-179
9. Hoefsmit EchM (1975): Mononuclear phagocytes, reticulum cells and dendritic cells in lymphoid tissue. In: *Mononuclear phagocytes in immunity, infection, and pathology*. Ed. von Furth R, Blackwell, Oxford London Edinburgh Melbourne, 129-146
10. Kamperdijk EWA, Raaymakers EM, De Leeuw JHS, Hoefsmit EchM (1978): Lymph node macrophages and reticulum cells in the immune response. The primary response to paratyphoid vaccine. *Cell Tissue Res* 192: 1-23
11. Eickelenboom P, Dijkstra C, Boorsma DM, von Rooijen N (1985): Characterization of lymphoid and nonlymphoid cells in the white pulp of the spleen using immunohisto-peroxidase techniques and enzyme-histochemistry. *Experientia* 41: 209-215
12. Dijkstra C (1991): The heterogeneity of reticulum cells and the origin of the follicular dendritic cell. In: *Accessory cells in HIV and other retroviral infections*. Ed. Racsi P, Dijkstra C, Gluckman JC, Karger, Basel. 18-28

13. Heusermann U, Zurborn K-H, Schroeder L, Stutte HJ (1980): The origin of the dendritic reticulum cell. An experimental enzyme-histochemical and electron microscopic study on the rabbit spleen. *Cell Tissue Res* 209: 279-294
14. Pippart MJ (1994): Functions of the spleen. In: Disorders of the spleen. Ed. Cuschieri A, Forbes CD. Blackwell, Oxford. 25-50
15. Satodate R, Ogasawara S, Sasou S, Katsura S (1971): Characteristic structure of the splenic white pulp of rats. *J Reticuloendothel Soc* 10: 428-433
16. van Krieken JHJM, te Velde J (1997): Spleen. In: Histology for pathologists. Ed. Sternberg SS. Lippincott-Raven, Philadelphia. 675-685
17. Padgett RW, Wozney JM, Gelbart WM (1993): Human BMP sequences can confer normal dorsal-ventral patterning in the Drosophila embryo. *Proc Natl Acad Sci USA* 90: 2905-2909
18. Urist MR (1965): Bone: formation by autoinduction. *Science* 150: 893-899
19. Urist MR, Iwata H, Ceccotti PL, Dorfmann RL, Boyd SD, Mc-Dowell RM, Chen C (1973): Bone morphogenesis in implants of insoluble bone gelatin. *Proc Natl Acad Sci USA* 70: 3511-3515
20. Urist MR, Mikulski A, Lietze A (1979): Solubilized and insolubilized bone morphogenetic protein. *Proc Natl Acad Sci USA* 76: 1828-1832
21. Bottinger EP, Letterio JJ, Roberts AB (1997): Biology of TGF-beta in knockout and transgenic mouse models. *Kidney Int* 51: 1355-1360
22. Wozney, JM (1992): The bone morphogenetic protein family and osteogenesis. *Mol Reprod Dev* 32:160-167
23. Harland RM (1994): The transforming growth factor β family and induction of the vertebrate mesoderm: Bone morphogenetic proteins are ventral inducers. *Proc Natl Acad Sci USA* 91: 10243-10246
24. Ebendal T, Bengtsson H, Sonderstrom S (1998): Bone morphogenetic proteins and their receptors: Potential functions in the brain. *J Neurosci Res* 51: 139-146
25. Hogan BLM (1996): Bone morphogenetic proteins: multifunctional regulators of vertebrate development. *Genes Dev* 10: 1580-1594
26. Reddi AH (1997): Bone morphogenetic proteins: An unconventional approach to isolation of first mammalian morphogenes. *Cytokine Growth Factor Rev* 8: 11-20
27. Graff JM (1997): To BMP or not to BMP, that is the question. *Cell* 89: 171-174

28. Ducy P, Karsenty G (2000): The family of bone morphogenetic proteins. *Kidney Int* 57: 2207-2214
29. Kawabata M, Miyazono K (2000): Bone morphogenetic proteins. In: *Skeletal Growth Factors*, Ed. Canalis E, Lippincott Williams and Wilkins, Philadelphia.
30. Kingsley DM (1994): The TGF β superfamily: new members, new receptors, and new genetic tests of function in different organisms. *Genes Dev* 8:133-146
31. Luyten FP, Kaplan FS, Shore EM (2000): Clinical disorders associated with bone morphogenetic proteins. *Skeletal Growth Factors*. Ed. Canalis E, Lippincott Williams & Wilkins, Philadelphia, 323-334
32. Schlunegger MP, Grutter MG (1992): An unusual feature revealed by the crystal structure at 2,2 A resolution of human transforming growth factor-beta2. *Nature* 358: 430-434
33. Daopin S, Piez KA, Ogawa Y, Davies DR (1992): Crystal structure of transforming growth factor-beta2: An unusual fold for the superfamily. *Science* 257: 369-373
34. Griffith DL, Keck PC, Sampath TK, Rueger DC, Carlson WD (1996): Three-dimensional structure of recombinant human osteogenic protein 1: structural paradigm for the transforming growth factor β superfamily. *Proc Natl Acad Sci USA* 93: 878-883
35. McPherron AC, Lee SJ (1993): GDF-3 and GDF-9: Two new members of the transforming growth factor-beta superfamily containing a novel pattern of cysteines. *J Biol Chem* 268: 3444-3449
36. Cui Y, Jean F, Thomas G, Christian JL (1998): BMP-4 is proteolytically activated by furin and/or PC6 during vertebrate embryonic development. *EMBO J* 17: 4735-4743
37. Constam DB, Robertson EJ (1999): Regulation of bone morphogenetic protein activity by pro domains and proprotein convertases. *J Cell Biol* 144: 139-149
38. Phillips DJ (2000): Regulation of activin's access to the cell: Why is mother nature such a control freak? *Bioessays* 22: 689-696
39. Otsuka F, Moore RK, Iemura S, Ueno N, Shimasaki S (2001): Follistatin inhibits the function of the oocyte-derived factor BMP-15. *Biochem Biophys Res Commun* 289: 961-966
40. Nogai, H (2002), persönliche Kommunikation
41. Reddi AH (2001): Interplay between bone morphogenetic proteins in bone and cartilage development: Noggin, chordin, and DAN. *Arthritis Res* 3: 1-5

42. Chang C, Holtzman DA, Chau S, Chickering T, Woolf EA, Holmgren LM, Bodorova J, Gearing DP, Holmes WE, Hemmati-Brivanlou A (2001): Twisted gastrulation can function as a BMP antagonist. *Nature* 410: 483-487
43. Larrain J, Oelgeschlager M, Kotpura NI, Reversade B, Zakin L, De Robertis EM (2001): Proteolytic cleavage of chordin as a switch for the dual activities of Twisted gastrulation in BMP signalling. *Development* 128: 4439-4447
44. Janitz M, Heiser V, Böttcher U, Landt O, Lauster R (1998): Three alternatively spliced variants of the gene coding for the human bone morphogenetic protein-1. *J Mol Med* 76: 141-146
45. Massague J, Weis-Garcia F (1996): Serine/threonine kinase receptors: Mediators of transforming growth factor beta family signals. *Cancer Surv* 27: 41-64
46. Liu F, Ventura F, Doody J, Massague J (1995): Human type II receptor for BMPs: Extension of the two-kinase receptor model to the BMPs. *Mol Cell Biol* 15: 3479-3486
47. Ruberte E, Marty T, Nellen D, Affolter M, Basler K (1995): An absolute requirement for both the type II and type I receptors, punit and thick veins for dpp signalling in vivo. *Cell* 80: 889-897
48. Heldin CH, Miyazono K, Ten Dijke P (1997): TGF-beta signalling from cell membrane to nucleus through SMAD proteins. *Nature* 390: 465-471
49. Massague J (1998): TGF-beta signal transduction. *Annu Rev Biochem* 67: 753-791
50. Massague J (2000): How cells read TGF- β signals. *Nature Rev Mol Cell Biol* 1: 169-178
51. Wrana JL (2000): Crossing Smads. *SciSTKE* 23: RE1
52. Roberts AB, Derynck, R (2001): Signaling schmemes for TGF- β . *SciSTKE* 113: PE43
53. Jones CM, Simon-Chazottes D, Guenet JL, Hogan BLM (1992): Isolation of Vgr-2, a novel member of the transforming growth factor- β -related gene family. *Mol Endocrinol* 6: 1961-1968
54. Withuhn BA, Bernlohr DA (2001): Upregulation of bone morphogenetic protein GDF-3/Vgr-2 expression in adipose tissue of FABP4/aP2 null mice. *Cytokine* 14: 129-135
55. Caricasole AAD, van Schaik RHN, Zeinstra LM, Wierikx CDJ, et al. (1998): Human growth-differentiation factor 3 (hGDF3): developmental regulation in human teratocarcinoma cell lines and expression in primary testicular germ cell tumors. *Oncogene* 16: 95-103

56. Bootcov MR, Bauskin AR, Valenzuela SM, et al. (1997): MIC-1, a novel macrophage inhibitory cytokine, is a divergent member of the TGF- β superfamily. Proc Natl Acad Sci USA 94: 11514-11519
57. Fairlie WD, Moore AG, Bauskin AR, et al. (1999): MIC-1 is a novel TGF-beta superfamily cytokine associated with macrophage activation. J Leukocyte Biol 65: 2-5
58. Kehrl JH, Wakefield LM, Roberts AB et al. (1986): Production of transforming growth factor beta by human T lymphocytes and its potential role in the regulation of T cell growth. J Exp Med 163: 1037-1050
59. Kehrl JH, Roberts AB, Wakefield LM, et al. (1986): Transforming growth factor beta is an important immunomodulatory protein for human B lymphocytes. J Immunol 137: 3855-3860
60. Kehrl JH, Taylor A, Kim SJ, et al. (1991): Transforming growth factor beta is potent negative regulator of human lymphocytes. Ann NY Acad Sci 628: 345-353
61. Coffman RL, Lebman DA, Shrader B (1989): Transforming growth factor beta specifically enhances IgA production by lipopolysaccharide-stimulated murine B lymphocytes. J Exp Med 170: 1039-1044
62. Keller JR, Mcniece IK, Sill KT, et al. (1990): Transforming growth factor beta directly regulates primitive murine hematopoietic cell proliferation. Blood. 75: 596-602
63. Shiozaki M, Sabai R, Tabuchi M, Nakamura T et al. (1992): Evidence for the participation of endogenous activin A/ erythroid differentiation factor in the regulation of erythropoiesis. Proc Natl Acad Sci USA 89: 1553-1556
64. Morrison DC, Ryan JL (1979): Bacterial endotoxins and the host immune response. Adv Immunol 28: 293-450
65. Wright SD, Ramos RA, Tobias PS, Ulevitch RJ, Mathison JC (1990): CD14, a receptor for complexes of lipopolysaccharide (LPS) and LPS binding protein. Science 249: 1431-1433
66. De Smed T, Pajak B, Muraille E, et al. (1996): Regulation of dendritic cell numbers and maturation by lipopolysaccharide in vivo. J Exp Med 184: 1413-1424
67. Rougier F, Cornu E, Praloran V, Denizot Y (1998): IL-6 and IL-8 production by human bone marrow stromal cells. Cytokine 10: 93-97
68. Fleischer B, Schrezenmeier H (1988): T cell stimulation by staphylococcal enterotoxins: Clonally variable response and requirement for major histocompatibility complex class II molecules on accessory or target cells. J Exp Med 167: 1697-1707

69. Kappler J, Kotzin B, Herron L et al. (1989): V β -specific stimulation of human T cells by staphylococcal toxins. *Science* 244: 811-813
70. Florquin S, Aaldering L (1997): Superantigens: A tool to gain new insight into cellular immunity. *Res Immunol* 148: 373-386
71. Nishizuka Y (1995): Protein kinase C and lipid signalling for sustained cellular responses. *FASEB J* 9: 484-496
72. Liu WS, Heckman CA (1998): The sevenfold way of PKC regulation. *Cell Signal* 10: 529-542
73. Chatila T, Silverman L, Miller R, Geha R (1989): Mechanisms of T cell activation by the calcium ionophore ionomycin. *J Immunol* 143: 1283-1289
74. Chen J, Shinkai Y, Young F, Alt FW (1994): Probing immune functions in Rag-deficient mice. *Curr Opin Immunol* 6: 313-319
75. Deryck R, Akhurst J, Balmain A (2001): TGF- β signalling in tumor suppression and cancer progression. *Nature Genet* 29: 117-129
76. Letterio JJ, Roberts AB (1998): regulation of immune responses by TGF-beta. *Ann Rev Immunol* 16: 137-162
77. Letterio JJ (2000): Murine models define the role of TGF- β as a master regulator of immune cell function. *Cytokine Growth Factor Rev* 11: 81-87
78. Lee HM, Rich S (1993): Differential activation of CD8+ T cells by transforming growth factor β 1. *J Immunol* 151: 668-677
79. van Vlasselaer P, Punnonen J, de Vries JE (1992): Transforming growth factor- β directs IgA switching in human B cells. *J Immunol* 148: 2062-2067
80. Broxmeyer HE, Lu L, Cooper S, Schwall RH, Mason AJ, Niklits K (1988): Selective and indirect modulation of human multipotential and erythroid hematopoietic progenitor cell proliferation by recombinant human activin and inhibin. *Proc Natl Acad Sci USA* 85: 9052-9056
81. Yamada R, Suzuki T, Hashimoto M et al. (1992): Induction of differentiation of the human promyelocytic cell line HL-60 by activin/ EDF. *Biochem Biophys Res Commun* 187: 79-85
82. Okafuji K, Kaku K, Seguchi M et al. (1995): Effects of activin A/ EDF on erythroid and megakaryocytic differentiations of mouse erythroleukemia (Friend) cells: Evidence for two distinct modes of cell response. *Exp Hematology* 23: 210-216

83. Yu EW, Dolter KE, Shao LE, Yu J (1998): Suppression of IL-6 biological activities of activin A and implications for inflammatory arthropathies. *Clin Exp Immunol* 112: 126-132
84. Bauskin AR, Zhang HP, Fairlie WD, et al. (2000): The propeptide of macrophage inhibitory cytokine (MIC-1), a TGF-beta superfamily member, acts as a quality control determinant for correctly folded MIC-1. *EMBO J* 19:2212-2220.
85. Miyazono K, Kusanagi K, Inoue H (2001): Divergence and convergence of TGF-beta/BMP signalling. *J Cell Physiol* 187: 265-276
86. Gurdon JB, Bourillot P.-Y. (2001): Morphogen gradient interpretation. *Nature* 413: 797-803
87. Coffman B (1982): Surface antigen expression and immunoglobulin rearrangement during mouse pre-B cell development. *Immunol Rev* 69: 5-23
88. Ledbetter JA, Herzenberg LA (1979): Xenogenic monoclonal antibodies to mouse lymphoid differentiation antigens. *Immunol Rev* 47: 63-90
89. Ledbetter JA, Rouse RV, Micklem HS, Herzenberg LA (1980): T cell subsets defined by expression of Lyt-1,2,3 and Thy-1 antigens. *J Exp Med* 152: 280-29
90. Larson RS, Springer TA (1990): Structure and function of leukocyte integrins. *Immunol Rev* 114: 181-217
91. Metlay JP, Witmer-Pak MD, Agger R et al. (1990): The distinct leukocyte integrins of mouse dendritic cells as identified with new hamster monoclonal antibodies. *J Exp Med* 171: 1753-1771
92. Ewijk W, van Soest P, van den Engh G (1981): Fluorescence analysis and anatomic distribution of mouse T lymphocyte subsets defined by monoclonal antibodies to antigens Thy-1, Lyt-1, Lyt-2 and T-200. *J Immunol* 127: 2594-2604
93. Itoh K, Tezuka H, Sakoda H, et al. (1989): Reproducible establishment of hemopoietic supportive stromal cell lines from murine bone marrow. *Exp Hematol* 17: 145-153
94. Sudo T, Ito M, Ogawa Y et al. (1989): Interleukin 7 production and function in stromal cell-dependent B cell development. *J Exp Med* 170: 333-338
95. Collins LS, Dorshkind K (1987): A stromal cell line from myeloid long-term bone marrow cultures can support myelopoiesis and B lymphopoiesis. *J Immunol* 138: 1082-1087
96. Henderson AJ, Johnson A, Dorshkind K (1990): Functional Characterization of two stromal cell lines that support lymphopoiesis. *J Immunol* 145: 423-428

97. Rodan E, Brieva JA (1991): Terminal differentiation of human bone marrow cells capable of spontaneous and high rate immunoglobulin secretion: role of bone marrow stromal cells and interleukin 6. *Eur J Immunol* 21: 2671-2677
98. Lyons AB (1999): Divide we stand: Tracking cell proliferation with carboxyfluorescein diacetate succinimidyl ester. *Immunol Cell Biol* 77: 509-515
99. Hasbold J, Gett AV, Rush JS, Deenick E, Avery D, Jun J, Hodgkin PD (1999): Quantitative analysis of lymphocyte differentiation and proliferation *in vitro* using carboxyfluorescein diacetate succinimidyl ester. *Immunol Cell Biol* 77: 516-522
100. Springer T, Galfré G, Secher DS, Milstein C (1979): Mac-1: a macrophage differentiation antigen identified by monoclonal antibody. *Eur J Immunol* 9: 301-306
101. Ault KA, Springer TA (1981): Crossreaction of a rat anti-mouse phagocyte-specific monoclonal antibody (anti-Mac-1) with human monocytes and natural killer cells. *J Immunol* 126: 359-364
102. Kantor AB, Stall AM, Adams S, et al. (1992): Differential development of progenitor activity for three B cell lineages. *Proc Natl Acad Sci USA* 89: 3320-3324
103. Vremec D, Zorbas M, Scollay DJ (1992): The surface phenotype of dendritic cells purified from mouse thymus and spleen: Investigations of the CD8 expression by a subpopulation of dendritic cells. *J Exp Med* 176: 47-58
104. Leenen PJM, de Brujin MFTR, Voerman PA et al. (1994): Markers of mouse macrophage development detected by monoclonal antibodies. *J Immuno Methods* 174: 5-19
105. Vremec D, Shortmen K (1997): Dendritic cell subtypes in mouse lymphoid organs. *J Immunol* 159: 565-573
106. Corbi AL (1996) In: Leukocyte integrins: structure, expression and function. Ed. Lande RG, Springer, Heidelberg
107. Stewart M, Thiel M, Hogg N (1995): Leukocyte integrins. *Curr Opin Biol* 7: 690-696
108. Junquera et al. (Ed.) (2001): Immunsystem und lymphatische Organe. In: Histologie. Springer, Heidelberg. 226-250