

REFERENCES

- Acharya, S., V. C. Foletta, *et al.* (2000). "SPACRCAN, a novel human interphotoreceptor matrix hyaluronan-binding proteoglycan synthesized by photoreceptors and pinealocytes." *J. Biol. Chem.*, 275(10): 6945-55.
- Ang, L. C., Y. Zhang, *et al.* (1999). "Versican enhances locomotion of astrocytoma cells and reduces cell adhesion through its G1 domain." *J. Neuropathol. Exp. Neurol.*, 58(6): 597-605.
- Asher, R. A., D. A. Morgenstern, *et al.* (2002). "Versican is upregulated in CNS injury and is a product of oligodendrocyte lineage cells." *J. Neurosci.*, 22(6): 2225-36.
- Aspberg, A., S. Adam, *et al.* (1999). "Fibulin-1 is a ligand for the C-type lectin domains of aggrecan and versican." *J. Biol. Chem.*, 274(29): 20444-9.
- Aspberg, A., C. Binkert, *et al.* (1995). "The versican C-type lectin domain recognizes the adhesion protein tenascin-R." *Proc. Natl. Acad. Sci. USA.*, 92(23): 10590-4.
- Aspberg, A., R. Miura, *et al.* (1997). "The C-type lectin domains of lecticans, a family of aggregating chondroitin sulfate proteoglycans, bind tenascin-R by protein-protein interactions independent of carbohydrate moiety." *Proc. Natl. Acad. Sci. USA.*, 94(19): 10116-21.
- Atarashi, K., H. Kawashima, *et al.* (2002). "[Chondroitin sulfate proteoglycan, common ligand of L-selectin and CD44]." *Tanpakushitsu Kakusan Koso.*, 47(16 Suppl): 2214-20.

Bajorath, J., B. Greenfield, *et al.* (1998). "Identification of CD44 residues important for hyaluronan binding and delineation of the binding site." *J. Biol. Chem.*, 273(1): 338-43.

Bennett, K. L., D. G. Jackson, *et al.* (1995). "CD44 isoforms containing exon V3 are responsible for the presentation of heparin-binding growth factor." *J. Cell. Biol.*, 128(4): 687-98.

Bevilacqua, M. P. and R. M. Nelson (1993). "Selectins." *J. Clin. Invest.*, 91(2): 379-87.

Boehm, J. S. and W. C. Hahn (2005). "Understanding transformation: progress and gaps." *Curr. Opin. Genet. Dev.*, 15(1): 13-7.

Bono, P., K. Rubin, *et al.* (2001). "Layilin, a novel integral membrane protein, is a hyaluronan receptor." *Mol. Biol. Cell.*, 12(4): 891-900.

Bost, F., M. Diarra-Mehrpour, *et al.* (1998). "Inter-alpha-trypsin inhibitor proteoglycan family--a group of proteins binding and stabilizing the extracellular matrix." *Eur. J. Biochem.*, 252(3): 339-46.

Bourguignon, L. Y., E. Gilad, *et al.* (2006). "Hyaluronan-CD44 interaction with leukemia-associated RhoGEF and epidermal growth factor receptor promotes Rho/Ras co-activation, phospholipase C epsilon-Ca²⁺ signaling, and cytoskeleton modification in head and neck squamous cell carcinoma cells." *J. Biol. Chem.*, 281(20): 14026-40.

Bourguignon, L. Y., H. Zhu, *et al.* (2001). "CD44 interaction with c-Src kinase promotes cortactin-mediated cytoskeleton function and hyaluronic acid-dependent ovarian tumor cell migration." *J. Biol. Chem.*, 276(10): 7327-36.

Bradbury, E. J., L. D. Moon, *et al.* (2002). "Chondroitinase ABC promotes functional recovery after spinal cord injury." *Nature*, 416(6881): 636-40.

- Braig, M. and C. A. Schmitt (2006). "Oncogene-induced senescence: putting the brakes on tumor development." *Cancer Res.*, 66(6): 2881-4.
- Braunewell, K. H., P. Pesheva, *et al.* (1995). "Functional involvement of sciatic nerve-derived versican- and decorin-like molecules and other chondroitin sulphate proteoglycans in ECM-mediated cell adhesion and neurite outgrowth." *Eur. J. Neurosci.*, 7(4): 805-14.
- Brech, M., U. Mayer, *et al.* (1986). "Increased hyaluronate synthesis is required for fibroblast detachment and mitosis." *Biochem. J.*, 239(2): 445-50.
- Brinck, J. and P. Heldin (1999). "Expression of recombinant hyaluronan synthase (HAS) isoforms in CHO cells reduces cell migration and cell surface CD44." *Exp. Cell. Res.*, 252(2): 342-51.
- Camenisch, T. D., A. P. Spicer, *et al.* (2000). "Disruption of hyaluronan synthase-2 abrogates normal cardiac morphogenesis and hyaluronan-mediated transformation of epithelium to mesenchyme." *J. Clin. Invest.*, 106(3): 349-60.
- Campisi, J. (2005). "Senescent cells, tumor suppression, and organismal aging: good citizens, bad neighbors." *Cell*, 120(4): 513-22.
- Cao, L., W. Li, *et al.* (2003). "Senescence, aging, and malignant transformation mediated by p53 in mice lacking the Brca1 full-length isoform." *Genes. Dev.*, 17(2): 201-13.
- Cattaruzza, S., M. Schiappacassi, *et al.* (2004). "The globular domains of PG-M/versican modulate the proliferation-apoptosis equilibrium and invasive capabilities of tumor cells." *FASEB J.*, 18(6): 779-81.
- Cheng, C., M. B. Yaffe, *et al.* (2006). "A positive feedback loop couples Ras activation and CD44 alternative splicing." *Genes. Dev.*, 20(13): 1715-20.

- Chicurel, M. E., C. S. Chen, *et al.* (1998). "Cellular control lies in the balance of forces." *Curr. Opin. Cell. Biol.*, 10(2): 232-9.
- Chicurel, M. E., R. H. Singer, *et al.* (1998). "Integrin binding and mechanical tension induce movement of mRNA and ribosomes to focal adhesions." *Nature*, 392(6677): 730-3.
- Collis, L., C. Hall, *et al.* (1998). "Rapid hyaluronan uptake is associated with enhanced motility: implications for an intracellular mode of action." *FEBS Lett.*, 440(3): 444-9.
- Cooper, D. L. and G. J. Dougherty (1995). "To metastasize or not? Selection of CD44 splice sites." *Nat. Med.*, 1(7): 635-7.
- Courtois-Cox, S., S. M. Genther Williams, *et al.* (2006). "A negative feedback signaling network underlies oncogene-induced senescence." *Cancer. Cell.*, 10(6): 459-72.
- Cristofalo, V. J., P. D. Phillips, *et al.* (1989). "Alterations in the responsiveness of senescent cells to growth factors." *J. Gerontol.*, 44(6): 55-62.
- Cristofalo, V. J. and R. J. Pignolo (1993). "Relicative senescence of human fibroblast-like cells in culture." *J. Gerontol.*, 73(3): 617-38.
- Culty, M., K. Miyake, *et al.* (1990). "The hyaluronate receptor is a member of the CD44 (H-CAM) family of cell surface glycoproteins." *J. Cell. Biol.*, 111(6 Pt 1): 2765-74.
- Day, A. J. (1999). "The structure and regulation of hyaluronan-binding proteins." *Biochem. Soc. Trans.*, 27(2): 115-21.
- Day, A. J. and G. D. Prestwich (2002). "Hyaluronan-binding proteins: tying up the giant." *J. Biol. Chem.*, 277(7): 4585-8.

- De Strooper, B., W. Annaert, *et al.* (1999). "A presenilin-1-dependent gamma-secretase-like protease mediates release of Notch intracellular domain." *Nature*, 398(6727): 518-22.
- DeAngelis, P. L., J. Papaconstantinou, *et al.* (1993). "Molecular cloning, identification, and sequence of the hyaluronan synthase gene from group A Streptococcus pyogenes." *J. Biol. Chem.*, 268(26): 19181-4.
- Dimri, G. P., K. Itahana, *et al.* (2000). "Regulation of a senescence checkpoint response by the E2F1 transcription factor and p14(ARF) tumor suppressor." *Mol. Cell. Biol.*, 20(1): 273-85.
- Dimri, G. P., X. Lee, *et al.* (1995). "A biomarker that identifies senescent human cells in culture and in aging skin *in vivo*." *Proc. Natl. Acad. Sci. USA.*, 92(20): 9363-7.
- Dirac, A. M. and R. Bernards (2003). "Reversal of senescence in mouse fibroblasts through lentiviral suppression of p53." *J. Biol. Chem.*, 278(14): 11731-4.
- Domenzain, C., M. J. Docampo, *et al.* (2003). "Differential expression of versican isoforms is a component of the human melanoma cell differentiation process." *Biochim Biophys Acta* 1642(1-2): 107-14.
- Dours-Zimmermann, M. T. and D. R. Zimmermann (1994). "A novel glycosaminoglycan attachment domain identified in two alternative splice variants of human versican." *J. Biol. Chem.*, 269(52): 32992-8.
- Duncan, E. L., R. Wadhwa, *et al.* (2000). "Senescence and immortalization of human cells." *Biogerontology* 1(2): 103-21.
- Embry, J. J. and W. Knudson (2003). "G1 domain of aggrecan cointernalizes with hyaluronan via a CD44-mediated mechanism in bovine articular chondrocytes." *Arthritis Rheum* 48(12): 3431-41.

- Enghild, J. J., I. B. Thogersen, *et al.* (1999). "Organization of the inter-alpha-inhibitor heavy chains on the chondroitin sulfate originating from Ser(10) of bikunin: posttranslational modification of IalphaI-derived bikunin." *Biochemistry* 38(36): 11804-13.
- Erickson, H. P. (1993). "Tenascin-C, tenascin-R and tenascin-X: a family of talented proteins in search of functions." *Curr Opin Cell Biol* 5(5): 869-76.
- Evanko, S. P., J. C. Angello, *et al.* (1999). "Formation of hyaluronan- and versican-rich pericellular matrix is required for proliferation and migration of vascular smooth muscle cells." *Arterioscler Thromb Vasc Biol* 19(4): 1004-13.
- Evanko, S. P., P. Y. Johnson, *et al.* (2001). "Platelet-derived growth factor stimulates the formation of versican-hyaluronan aggregates and pericellular matrix expansion in arterial smooth muscle cells." *Arch Biochem Biophys* 394(1): 29-38.
- Evanko, S. P. and T. N. Wight (1999). "Intracellular localization of hyaluronan in proliferating cells." *J Histochem Cytochem* 47(10): 1331-42.
- Faragher, R. G. and D. Kipling (1998). "How might replicative senescence contribute to human ageing?" *Bioessays* 20(12): 985-91.
- Finkel, T. (2003). "Oxidant signals and oxidative stress." *Curr Opin Cell Biol* 15(2): 247-54.
- Forsberg, E., E. Hirsch, *et al.* (1996). "Skin wounds and severed nerves heal normally in mice lacking tenascin-C." *Proc. Natl. Acad. Sci. USA.*, 93(13): 6594-9.
- Fraser, J. R., T. C. Laurent, *et al.* (1997). "Hyaluronan: its nature, distribution, functions and turnover." *J. Intern. Med.* 242(1): 27-33.
- Ghatak, S., S. Misra, *et al.* (2002). "Hyaluronan oligosaccharides inhibit anchorage-independent growth of tumor cells by suppressing the phosphoinositide 3-kinase/Akt cell survival pathway." *J. Biol. Chem.*, 277(41): 38013-20.

- Goetinck, P. F., N. S. Stirpe, *et al.* (1987). "The tandemly repeated sequences of cartilage link protein contain the sites for interaction with hyaluronic acid." *J. Cell. Biol.*, 105(5): 2403-8.
- Goldstein, S. (1990). "Replicative senescence: the human fibroblast comes of age." *Science*, 249(4973): 1129-33.
- Goodison, S., V. Urquidi, *et al.* (1999). "CD44 cell adhesion molecules." *Mol. Pathol.*, 52(4): 189-96.
- Green, S. J., G. Tarone, *et al.* (1988). "Aggregation of macrophages and fibroblasts is inhibited by a monoclonal antibody to the hyaluronate receptor." *Exp. Cell. Res.*, 178(2): 224-32.
- Grumet, M., P. Milev, *et al.* (1994). "Interactions with tenascin and differential effects on cell adhesion of neurocan and phosphacan, two major chondroitin sulfate proteoglycans of nervous tissue." *J. Biol. Chem.*, 269(16): 12142-6.
- Hascall, V. C., A. K. Majors, *et al.* (2004). "Intracellular hyaluronan: a new frontier for inflammation?" *Biochim. Biophys. Acta.*, 1673(1-2): 3-12.
- Hatano, S. (2006). "Aichi Medical University." personal communication.
- Henderson, D. J. and A. J. Copp (1998). "Versican expression is associated with chamber specification, septation, and valvulogenesis in the developing mouse heart." *Circ. Res.*, 83(5): 523-32.
- Henderson, D. J., P. Ybot-Gonzalez, *et al.* (1997). "Over-expression of the chondroitin sulphate proteoglycan versican is associated with defective neural crest migration in the Pax3 mutant mouse (splotch)." *Mech. Dev.*, 69(1-2): 39-51.
- Hinek, A., K. R. Braun, *et al.* (2004). "Retrovirally mediated overexpression of versican v3 reverses impaired elastogenesis and heightened proliferation

exhibited by fibroblasts from Costello syndrome and Hurler disease patients."

Am. J. Pathol., 164(1): 119-31.

Hinek, A., R. P. Mecham, *et al.* (1991). "Impaired elastin fiber assembly related to reduced 67-kD elastin-binding protein in fetal lamb ductus arteriosus and in cultured aortic smooth muscle cells treated with chondroitin sulfate." *J. Clin. Invest.*, 88(6): 2083-94.

Hinek, A. and S. E. Wilson (2000). "Impaired elastogenesis in Hurler disease: dermatan sulfate accumulation linked to deficiency in elastin-binding protein and elastic fiber assembly." *Am. J. Pathol.*, 156(3): 925-38.

Hirose, J., H. Kawashima, *et al.* (2001). "Versican interacts with chemokines and modulates cellular responses." *J. Biol. Chem.*, 276(7): 5228-34.

Hua, Q., C. B. Knudson, *et al.* (1993). "Internalization of hyaluronan by chondrocytes occurs via receptor-mediated endocytosis." *J. Cell. Sci.*, 106 (Pt 1): 365-75.

Inoue, K., R. Wen, *et al.* (2000). "Disruption of the ARF transcriptional activator DMP1 facilitates cell immortalization, Ras transformation, and tumorigenesis." *Genes. Dev.*, 14(14): 1797-809.

Iozzo, R. V., M. F. Naso, *et al.* (1992). "Mapping of the versican proteoglycan gene (CSPG2) to the long arm of human chromosome 5 (5q12-5q14)." *J. Biol. Chem.*, 14(4): 845-51.

Isogai, Z., A. Aspberg, *et al.* (2002). "Versican interacts with fibrillin-1 and links extracellular microfibrils to other connective tissue networks." *J. Biol. Chem.*, 277(6): 4565-72.

Itano, N., F. Atsumi, *et al.* (2002). "Abnormal accumulation of hyaluronan matrix diminishes contact inhibition of cell growth and promotes cell migration." *Proc. Natl. Acad. Sci. USA.*, 99(6): 3609-14.

- Itano, N., T. Sawai, *et al.* (1999). "Three isoforms of mammalian hyaluronan synthases have distinct enzymatic properties." *J. Biol. Chem.*, 274(35): 25085-92.
- Ito, T., J. D. Williams, *et al.* (2004). "Hyaluronan and proximal tubular cell migration." *Kidney Int.*, 65(3): 823-33.
- Ito, T., J. D. Williams, *et al.* (2004). "Hyaluronan attenuates transforming growth factor-beta1-mediated signaling in renal proximal tubular epithelial cells." *Am. J. Pathol.*, 164(6): 1979-88.
- Ito, T., J. D. Williams, *et al.* (2004). "Hyaluronan regulates transforming growth factor-beta1 receptor compartmentalization." *J. Biol. Chem.*, 279(24): 25326-32.
- Jain, M., Q. He, *et al.* (1996). "Role of CD44 in the reaction of vascular smooth muscle cells to arterial wall injury." *J. Clin. Invest.*, 98(3): 877.
- Jiang, H., R. S. Peterson, *et al.* (2002). "A requirement for the CD44 cytoplasmic domain for hyaluronan binding, pericellular matrix assembly, and receptor-mediated endocytosis in COS-7 cells." *J. Biol. Chem.*, 277(12): 10531-8.
- Johnson, P. R. (2001). "Role of human airway smooth muscle in altered extracellular matrix production in asthma." *Clin. Exp. Pharmacol. Physiol.*, 28(3): 233-6.
- Kamiya, N., A. Jikko, *et al.* (2002). "Establishment of a novel chondrocytic cell line N1511 derived from p53-null mice." *J. Bone. Miner. Res.*, 17(10): 1832-42.
- Karvinen, S., V. M. Kosma, *et al.* (2003). "Hyaluronan, CD44 and versican in epidermal keratinocyte tumours." *Br. J. Dermatol.*, 148(1): 86-94.
- Kawashima, H., K. Atarashi, *et al.* (2002). "Oversulfated chondroitin/dermatan sulfates containing GlcAbeta1/IdoAalpha1-3GalNAc(4,6-O-disulfate) interact with L- and P-selectin and chemokines." *J. Biol. Chem.*, 277(15): 12921-30.

- Kawashima, H., M. Hirose, *et al.* (2000). "Binding of a large chondroitin sulfate/dermatan sulfate proteoglycan, versican, to L-selectin, P-selectin, and CD44." *J. Biol. Chem.*, 275(45): 35448-56.
- Kitagawa, H., K. Tsutsumi, *et al.* (1997). "Developmental regulation of the sulfation profile of chondroitin sulfate chains in the chicken embryo brain." *J. Biol. Chem.*, 272(50): 31377-81.
- Knudson, C. B., G. A. Nofal, *et al.* (1999). "The chondrocyte pericellular matrix: a model for hyaluronan-mediated cell-matrix interactions." *Biochem. Soc. Trans.*, 27(2): 142-7.
- Kohda, D., C. J. Morton, *et al.* (1996). "Solution structure of the link module: a hyaluronan-binding domain involved in extracellular matrix stability and cell migration." *Cell*, 86(5): 767-75.
- Lammich, S., M. Okochi, *et al.* (2002). "Presenilin-dependent intramembrane proteolysis of CD44 leads to the liberation of its intracellular domain and the secretion of an Abeta-like peptide." *J. Biol. Chem.*, 277(47): 44754-9.
- Landolt, R. M., L. Vaughan, *et al.* (1995). "Versican is selectively expressed in embryonic tissues that act as barriers to neural crest cell migration and axon outgrowth." *Development*, 121(8): 2303-12.
- Laurent, T. C. and J. R. Fraser (1992). "Hyaluronan." *FASEB J.*, 6(7): 2397-404.
- Lazzerini Denchi, E., C. Attwooll, *et al.* (2005). "Deregulated E2F activity induces hyperplasia and senescence-like features in the mouse pituitary gland." *Mol. Cell. Biol.*, 25(7): 2660-72.
- Lee, G. M., B. Johnstone, *et al.* (1993). "The dynamic structure of the pericellular matrix on living cells." *J. Cell. Biol.*, 123(6 Pt 2): 1899-907.

- Lemire, J. M., M. J. Merrilees, *et al.* (2002). "Overexpression of the V3 variant of versican alters arterial smooth muscle cell adhesion, migration, and proliferation in vitro." *J. Cell. Physiol.*, 190(1): 38-45.
- Lemire, J. M., S. Potter-Perigo, *et al.* (1996). "Distinct rat aortic smooth muscle cells differ in versican/PG-M expression." *Arterioscler. Thromb. Vasc. Biol.*, 16(6): 821-9.
- Lesley, J., V. C. Hascall, *et al.* (2000). "Hyaluronan binding by cell surface CD44." *J. Biol. Chem.*, 275(35): 26967-75.
- Lin, A. W., M. Barradas, *et al.* (1998). "Premature senescence involving p53 and p16 is activated in response to constitutive MEK/MAPK mitogenic signaling." *Genes. Dev.*, 12(19): 3008-19.
- Lin, Y., K. Mahan, *et al.* (1994). "A hyaluronidase activity of the sperm plasma membrane protein PH-20 enables sperm to penetrate the cumulus cell layer surrounding the egg." *J. Cell. Biol.*, 125(5): 1157-63.
- Lowe, S. W., T. Jacks, *et al.* (1994). "Abrogation of oncogene-associated apoptosis allows transformation of p53-deficient cells." *Proc. Natl. Acad. Sci. USA.*, 91(6): 2026-30.
- Majors, A. K., R. C. Austin, *et al.* (2003). "Endoplasmic reticulum stress induces hyaluronan deposition and leukocyte adhesion." *J. Biol. Chem.*, 278(47): 47223-31.
- Maldonado, J. L., L. Timmerman, *et al.* (2004). "Mechanisms of cell-cycle arrest in Spitz nevi with constitutive activation of the MAP-kinase pathway." *Am. J. Pathol.*, 164(5): 1783-7.
- Margolis, R. U. and R. K. Margolis (1997). "Chondroitin sulfate proteoglycans as mediators of axon growth and pathfinding." *Cell. Tissue. Res.*, 290(2): 343-8.

- Matsumoto, K., M. Shionyu, *et al.* (2003). "Distinct interaction of versican/PG-M with hyaluronan and link protein." *J. Biol. Chem.*, 278(42): 41205-12.
- Mayanil, C. S., D. George, *et al.* (2001). "Microarray analysis detects novel Pax3 downstream target genes." *J. Biol. Chem.*, 276(52): 49299-309.
- Mazzucato, M., M. R. Cozzi, *et al.* (2002). "Vascular PG-M/versican variants promote platelet adhesion at low shear rates and cooperate with collagens to induce aggregation." *FASEB J.*, 16(14): 1903-16.
- Merrilees, M. J., J. M. Lemire, *et al.* (2002). "Retrovirally mediated overexpression of versican v3 by arterial smooth muscle cells induces tropoelastin synthesis and elastic fiber formation in vitro and in neointima after vascular injury." *Circ. Res.*, 90(4): 481-7.
- Meyer, M. F. and G. Kreil (1996). "Cells expressing the DG42 gene from early Xenopus embryos synthesize hyaluronan." *Proc. Natl. Acad. Sci. USA.*, 93(10): 4543-7.
- Milev, P., P. Maurel, *et al.* (1998). "Differential regulation of expression of hyaluronan-binding proteoglycans in developing brain: aggrecan, versican, neurocan, and brevican." *Biochem. Biophys. Res. Commun.*, 247(2): 207-12.
- Mjaatvedt, C. H., H. Yamamura, *et al.* (1998). "The Cspg2 gene, disrupted in the hdf mutant, is required for right cardiac chamber and endocardial cushion formation." *Dev. Biol.*, 202(1): 56-66.
- Moore, K. L., K. D. Patel, *et al.* (1995). "P-selectin glycoprotein ligand-1 mediates rolling of human neutrophils on P-selectin." *J. Cell. Biol.*, 128(4): 661-71.
- Morrison, H., L. S. Sherman, *et al.* (2001). "The NF2 tumor suppressor gene product, merlin, mediates contact inhibition of growth through interactions with CD44." *Genes. Dev.*, 15(8): 968-80.

Murai, T., Y. Miyazaki, *et al.* (2004). "Engagement of CD44 promotes Rac activation and CD44 cleavage during tumor cell migration." *J. Biol. Chem.*, 279(6): 4541-50.

Naso, M. F., J. L. Morgan, *et al.* (1995). "Expression pattern and mapping of the murine versican gene (Cspg2) to chromosome 13." *Genomics*, 29(1): 297-300.

Nelson, D. L. and M. M. Cox (2005). Lehninger: Principles of Biochemistry edition 4th.

Nishida, N., C. B. Knudson, *et al.* (2003). "Extracellular matrix recovery by human articular chondrocytes after treatment with hyaluronan hexasaccharides or *Streptomyces* hyaluronidase." *Modern Rheumatology*, 13: 7.

Nishida, Y., C. B. Knudson, *et al.* (1999). "Antisense inhibition of hyaluronan synthase-2 in human articular chondrocytes inhibits proteoglycan retention and matrix assembly." *J. Biol. Chem.*, 274(31): 21893-9.

Nishina, H., K. Inageda, *et al.* (1994). "Cell surface antigen CD38 identified as ectoenzyme of NAD glycohydrolase has hyaluronate-binding activity." *Biochem. Biophys. Res. Commun.*, 203(2): 1318-23.

Okamoto, I., Y. Kawano, *et al.* (2001). "Proteolytic release of CD44 intracellular domain and its role in the CD44 signaling pathway." *J. Cell. Biol.*, 155(5): 755-62.

Olin, A. I., M. Morgelin, *et al.* (2001). "The proteoglycans aggrecan and Versican form networks with fibulin-2 through their lectin domain binding." *J. Biol. Chem.*, 276(2): 1253-61.

Olin, K. L., S. Potter-Perigo, *et al.* (1999). "Lipoprotein lipase enhances the binding of native and oxidized low density lipoproteins to versican and biglycan

synthesized by cultured arterial smooth muscle cells." *J. Biol. Chem.*, 274(49): 34629-36.

Olsen, C. L., B. Gardie, *et al.* (2002). "Raf-1-induced growth arrest in human mammary epithelial cells is p16-independent and is overcome in immortal cells during conversion." *Oncogene*, 21(41): 6328-39.

Olsson, U., G. Camejo, *et al.* (1997). "Possible functional interactions of apolipoprotein B-100 segments that associate with cell proteoglycans and the ApoB/E receptor." *Arterioscler. Thromb. Vasc. Biol.*, 17(1): 149-55.

Orian-Rousseau, V., L. Chen, *et al.* (2002). "CD44 is required for two consecutive steps in HGF/c-Met signaling." *Genes. Dev.*, 16(23): 3074-86.

Pachynski, R. K., S. W. Wu, *et al.* (1998). "Secondary lymphoid-tissue chemokine (SLC) stimulates integrin alpha 4 beta 7-mediated adhesion of lymphocytes to mucosal addressin cell adhesion molecule-1 (MAdCAM-1) under flow." *J. Immunol.*, 161(2): 952-6.

Paulus, W., I. Baur, *et al.* (1996). "Differential expression of versican isoforms in brain tumors." *J. Neuropathol. Exp. Neurol.*, 55(5): 528-33.

Pepper, D. S., A. Shvarts, *et al.* (2002). "A functional screen identifies hDRIL1 as an oncogene that rescues RAS-induced senescence." *Nat. Cell. Biol.*, 4(2): 148-53.

Pereira-Smith, O. M. and J. R. Smith (1983). "Evidence for the recessive nature of cellular immortality." *Science*, 221(4614): 964-6.

Perissinotto, D., P. Iacopetti, *et al.* (2000). "Avian neural crest cell migration is diversely regulated by the two major hyaluronan-binding proteoglycans PG-M/versican and aggrecan." *Development*, 127(13): 2823-42.

- Pesheva, P., R. Probstmeier, *et al.* (1991). "Divalent Cations Modulate the Inhibitory Substrate Properties of Murine Glia-derived J1-160 and J1-180 Extracellular Matrix Glycoproteins for Neuronal Adhesion." *Eur. J. Neurosci.*, 3(4): 356-365.
- Peterson, R. M., Q. Yu, *et al.* (2000). "Perturbation of hyaluronan interactions by soluble CD44 inhibits growth of murine mammary carcinoma cells in ascites." *Am. J. Pathol.*, 156(6): 2159-67.
- Ponta, H., L. Sherman, *et al.* (2003). "CD44: from adhesion molecules to signalling regulators." *Nat. Rev. Mol. Cell. Biol.*, 4(1): 33-45.
- Pouyani, T. and B. Seed (1995). "PSGL-1 recognition of P-selectin is controlled by a tyrosine sulfation consensus at the PSGL-1 amino terminus." *Cell.*, 83(2): 333-43.
- Prevo, R., S. Banerji, *et al.* (2001). "Mouse LYVE-1 is an endocytic receptor for hyaluronan in lymphatic endothelium." *J. Biol. Chem.*, 276(22): 19420-30.
- Reddel, R. R. (1998). "A reassessment of the telomere hypothesis of senescence." *Bioessays*, 20(12): 977-84.
- Reinhardt, D. P., D. R. Keene, *et al.* (1996). "Fibrillin-1: organization in microfibrils and structural properties." *J. Mol. Biol.*, 258(1): 104-16.
- Ricciardelli, C., K. Mayne, *et al.* (1998). "Elevated levels of versican but not decorin predict disease progression in early-stage prostate cancer." *Clin. Cancer Res.*, 4(4): 963-71.
- Sakko, A. J., C. Ricciardelli, *et al.* (2003). "Modulation of prostate cancer cell attachment to matrix by versican." *Cancer Res.*, 63(16): 4786-91.
- Sakko, A. J., C. Ricciardelli, *et al.* (2001). "Versican accumulation in human prostatic fibroblast cultures is enhanced by prostate cancer cell-derived transforming growth factor beta1." *Cancer Res.*, 61(3): 926-30.

- Schmalfeldt, M., C. E. Bandtlow, *et al.* (2000). "Brain derived versican V2 is a potent inhibitor of axonal growth." *J. Cell. Sci.*, 113 (Pt 5): 807-16.
- Schmalfeldt, M., M. T. Dours-Zimmermann, *et al.* (1998). "Versican V2 is a major extracellular matrix component of the mature bovine brain." *J. Biol. Chem.*, 273(25): 15758-64.
- Schonherr, E., H. T. Jarvelainen, *et al.* (1991). "Effects of platelet-derived growth factor and transforming growth factor-beta 1 on the synthesis of a large versican-like chondroitin sulfate proteoglycan by arterial smooth muscle cells." *J. Biol. Chem.*, 266(26): 17640-7.
- Schonherr, E., M. G. Kinsella, *et al.* (1997). "Genistein selectively inhibits platelet-derived growth factor-stimulated versican biosynthesis in monkey arterial smooth muscle cells." *Arch. Biochem. Biophys.*, 339(2): 353-61.
- Serrano, M., A. W. Lin, *et al.* (1997). "Oncogenic ras provokes premature cell senescence associated with accumulation of p53 and p16INK4a." *Cell.*, 88(5): 593-602.
- Sharpless, N. E., M. R. Ramsey, *et al.* (2004). "The differential impact of p16(INK4a) or p19(ARF) deficiency on cell growth and tumorigenesis." *Oncogene.*, 23(2): 379-85.
- Sheng, W., G. Wang, *et al.* (2005). "The roles of versican V1 and V2 isoforms in cell proliferation and apoptosis." *Mol. Biol. Cell.*, 16(3): 1330-40.
- Sherwood, S. W., D. Rush, *et al.* (1988). "Defining cellular senescence in IMR-90 cells: a flow cytometric analysis." *Proc. Natl. Acad. Sci. USA.*, 85(23): 9086-90.
- Shinomura, T., Y. Nishida, *et al.* (1993). "cDNA cloning of PG-M, a large chondroitin sulfate proteoglycan expressed during chondrogenesis in chick limb

buds. Alternative spliced multiforms of PG-M and their relationships to versican." *J. Biol. Chem.*, 268(19): 14461-9.

Simpson, M. A., C. M. Wilson, *et al.* (2002). "Inhibition of prostate tumor cell hyaluronan synthesis impairs subcutaneous growth and vascularization in immunocompromised mice." *Am. J. Pathol.*, 161(3): 849-57.

Smith, J. R. and O. M. Pereira-Smith (1990). "Genetic and molecular studies of cellular immortalization." *Adv. Cancer. Res.*, 54: 63-77.

Sobel, R. A. and A. S. Ahmed (2001). "White matter extracellular matrix chondroitin sulfate/dermatan sulfate proteoglycans in multiple sclerosis." *J. Neuropathol. Exp. Neurol.*, 60(12): 1198-207.

Sohara, Y., N. Ishiguro, *et al.* (2001). "Hyaluronan activates cell motility of v-Src-transformed cells via Ras-mitogen-activated protein kinase and phosphoinositide 3-kinase-Akt in a tumor-specific manner." *Mol. Biol. Cell.*, 12(6): 1859-68.

Spicer, A. P. and J. A. McDonald (1998). "Characterization and molecular evolution of a vertebrate hyaluronan synthase gene family." *J. Biol. Chem.*, 273(4): 1923-32.

Srinivasan, S. R., J. H. Xu, *et al.* (1995). "Low-density lipoprotein binding affinity of arterial chondroitin sulfate proteoglycan variants modulates cholesteryl ester accumulation in macrophages." *Biochim. Biophys. Acta.*, 1272(1): 61-7.

Stoolman, L. M. (1989). "Adhesion molecules controlling lymphocyte migration." *Cell*, 56(6): 907-10.

Sugahara, K. N., T. Murai, *et al.* (2003). "Hyaluronan oligosaccharides induce CD44 cleavage and promote cell migration in CD44-expressing tumor cells." *J. Biol. Chem.*, 278(34): 32259-65.

- Sun, P., N. Yoshizuka, *et al.* (2007). "PRAK is essential for ras-induced senescence and tumor suppression." *Cell*, 128(2): 295-308.
- Suwiwat, S., C. Ricciardelli, *et al.* (2004). "Expression of extracellular matrix components versican, chondroitin sulfate, tenascin, and hyaluronan, and their association with disease outcome in node-negative breast cancer." *Clin. Cancer Res.*, 10(7): 2491-8.
- Tammi, M. I., A. J. Day, *et al.* (2002). "Hyaluronan and homeostasis: a balancing act." *J. Biol. Chem.*, 277(7): 4581-4.
- Timpl, R., T. Sasaki, *et al.* (2003). "Fibulins: a versatile family of extracellular matrix proteins." *Nat. Rev. Mol. Cell. Biol.*, 4(6): 479-89.
- Tlapak-Simmons, V. L., B. A. Baggenstoss, *et al.* (1999). "Purification and lipid dependence of the recombinant hyaluronan synthases from *Streptococcus pyogenes* and *Streptococcus equisimilis*." *J. Biol. Chem.*, 274(7): 4239-45.
- Toole, B. P. (1990). "Hyaluronan and its binding proteins, the hyaladherins." *Curr. Opin. Cell. Biol.*, 2(5): 839-44.
- Toole, B. P. (1997). "Hyaluronan in morphogenesis." *J. Intern. Med.*, 242(1): 35-40.
- Toole, B. P. (2001). "Hyaluronan in morphogenesis." *Semin. Cell. Dev. Biol.*, 12(2): 79-87.
- Toole, B. P. (2004). "Hyaluronan: from extracellular glue to pericellular cue." *Nat Rev. Cancer*, 4(7): 528-39.
- Toole, B. P., T. N. Wight, *et al.* (2002). "Hyaluronan-cell interactions in cancer and vascular disease." *J. Biol. Chem.*, 277(7): 4593-6.
- Touab, M., J. Villena, *et al.* (2002). "Versican is differentially expressed in human melanoma and may play a role in tumor development." *Am. J. Pathol.*, 160(2): 549-57.

- Trochon, V., C. Mabilat, *et al.* (1996). "Evidence of involvement of CD44 in endothelial cell proliferation, migration and angiogenesis in vitro." *Int. J. Cancer.*, 66(5): 664-8.
- Trost, T. M., E. U. Lausch, *et al.* (2005). "Premature senescence is a primary fail-safe mechanism of ERBB2-driven tumorigenesis in breast carcinoma cells." *Cancer Res.*, 65(3): 840-9.
- Tsatas, D., V. Kanagasundaram, *et al.* (2002). "EGF receptor modifies cellular responses to hyaluronan in glioblastoma cell lines." *J. Clin. Neurosci.*, 9(3): 282-8.
- Tsujii, M., H. Hirata, *et al.* (2006). "Involvement of tenascin-C and PG-M/versican in flexor tenosynovial pathology of idiopathic carpal tunnel syndrome." *Histol. Histopathol.*, 21(5): 511-8.
- Tsukada, T., Y. Tomooka, *et al.* (1993). "Enhanced proliferative potential in culture of cells from p53-deficient mice." *Oncogene*, 8(12): 3313-22.
- Turley, E. A., P. Brassel, *et al.* (1990). "A hyaluronan-binding protein shows a partial and temporally regulated codistribution with actin on locomoting chick heart fibroblasts." *Exp. Cell. Res.*, 187(2): 243-9.
- Turley, E. A., P. W. Noble, *et al.* (2002). "Signaling properties of hyaluronan receptors." *J. Biol. Chem.*, 277(7): 4589-92.
- Tuveson, D. A., A. T. Shaw, *et al.* (2004). "Endogenous oncogenic K-ras(G12D) stimulates proliferation and widespread neoplastic and developmental defects." *Cancer Cell.*, 5(4): 375-87.
- Underhill, C. (1992). "CD44: the hyaluronan receptor." *J. Cell. Sci.*, 103 (Pt 2): 293-8.

- Underhill, C. and A. Dorfman (1978). "The role of hyaluronic acid in intercellular adhesion of cultured mouse cells." *Exp. Cell. Res.*, 117(1): 155-64.
- van der Voort, R., T. E. Taher, *et al.* (1999). "Heparan sulfate-modified CD44 promotes hepatocyte growth factor/scatter factor-induced signal transduction through the receptor tyrosine kinase c-Met." *J. Biol. Chem.*, 274(10): 6499-506.
- Voorhoeve, P. M. and R. Agami (2003). "The tumor-suppressive functions of the human INK4A locus." *Cancer. Cell.*, 4(4): 311-9.
- Wahl, G. M. and A. M. Carr (2001). "The evolution of diverse biological responses to DNA damage: insights from yeast and p53." *Nat. Cell. Biol.*, 3(12): E277-86.
- Wang, W., J. X. Chen, *et al.* (2002). "Sequential activation of the MEK-extracellular signal-regulated kinase and MKK3/6-p38 mitogen-activated protein kinase pathways mediates oncogenic ras-induced premature senescence." *Mol. Cell. Biol.*, 22(10): 3389-403.
- Westergren-Thorsson, G., M. Norman, *et al.* (1998). "Differential expressions of mRNA for proteoglycans, collagens and transforming growth factor-beta in the human cervix during pregnancy and involution." *Biochim. Biophys. Acta.*, 1406(2): 203-13.
- Wight, T. N. (2002). "Versican: a versatile extracellular matrix proteoglycan in cell biology." *Curr. Opin. Cell. Biol.*, 14(5): 617-23.
- Wijelath, E. S., J. Murray, *et al.* (2002). "Novel vascular endothelial growth factor binding domains of fibronectin enhance vascular endothelial growth factor biological activity." *Circ. Res.*, 91(1): 25-31.
- Wisniewski, H. G., D. Naime, *et al.* (1996). "TSG-6, a glycoprotein associated with arthritis, and its ligand hyaluronan exert opposite effects in a murine model of inflammation." *Pflugers. Arch.*, 431(6 Suppl 2): R225-6.

- Wisniewski, H. G., E. S. Snitkin, *et al.* (2005). "TSG-6 protein binding to glycosaminoglycans: formation of stable complexes with hyaluronan and binding to chondroitin sulfates." *J. Biol. Chem.*, 280(15): 14476-84.
- Wu, C., I. Miloslavskaya, *et al.* (2004). "Regulation of cellular response to oncogenic and oxidative stress by Seladin-1." *Nature*, 432(7017): 640-5.
- Wu, Y., L. Chen, *et al.* (2004). "Overexpression of the C-terminal PG-M/versican domain impairs growth of tumor cells by intervening in the interaction between epidermal growth factor receptor and beta1-integrin." *J. Cell. Sci.* 117(Pt 11): 2227-37.
- Wu, Y., L. Chen, *et al.* (2002). "beta 1-Integrin-mediated glioma cell adhesion and free radical-induced apoptosis are regulated by binding to a C-terminal domain of PG-M/versican." *J. Biol. Chem.*, 277(14): 12294-301.
- Wu, Y., W. Sheng, *et al.* (2004). "Versican V1 isoform induces neuronal differentiation and promotes neurite outgrowth." *Mol. Biol. Cell.*, 15(5): 2093-104.
- Wu, Y. J., D. P. La Pierre, *et al.* (2005). "The interaction of versican with its binding partners." *Cell. Res.*, 15(7): 483-94.
- Yamada, K. M. and S. Even-Ram (2002). "Integrin regulation of growth factor receptors." *Nat. Cell. Biol.*, 4(4): E75-6.
- Yamagata, M. and K. Kimata (1994). "Repression of a malignant cell-substratum adhesion phenotype by inhibiting the production of the anti-adhesive proteoglycan, PG-M/versican." *J. Cell. Sci.*, 107 (Pt 9): 2581-90.
- Yamagata, M., S. Saga, *et al.* (1993). "Selective distributions of proteoglycans and their ligands in pericellular matrix of cultured fibroblasts. Implications for their roles in cell-substratum adhesion." *J. Cell. Sci.*, 106 (Pt 1): 55-65.

Yamagata, M., S. Suzuki, *et al.* (1989). "Regulation of cell-substrate adhesion by proteoglycans immobilized on extracellular substrates." *J. Biol. Chem.*, 264(14): 8012-8.

Yamagata, M., K. M. Yamada, *et al.* (1986). "Chondroitin sulfate proteoglycan (PG-M-like proteoglycan) is involved in the binding of hyaluronic acid to cellular fibronectin." *J. Biol. Chem.*, 261(29): 13526-35.

Yang, B. L., L. Cao, *et al.* (2000). "Tandem repeats are involved in G1 domain inhibition of versican expression and secretion and the G3 domain enhances glycosaminoglycan modification and product secretion via the complement-binding protein-like motif." *J. Biol. Chem.*, 275(28): 21255-61.

Yang, B. L., Y. Zhang, *et al.* (1999). "Cell adhesion and proliferation mediated through the G1 domain of versican." *J. Cell. Biochem.*, 72(2): 210-20.

Yaswen, P. and J. Campisi (2007). "Oncogene-induced senescence pathways weave an intricate tapestry." *Cell*, 128(2): 233-4.

Zako, M., T. Shinomura, *et al.* (1995). "Expression of PG-M(V3), an alternatively spliced form of PG-M without a chondroitin sulfate attachment in region in mouse and human tissues." *J. Biol. Chem.*, 270(8): 3914-8.

Zhang, Y., L. Cao, *et al.* (1999). "Promotion of chondrocyte proliferation by versican mediated by G1 domain and EGF-like motifs." *J. Cell. Biochem.*, 73(4): 445-57.

Zhang, Y., L. Cao, *et al.* (1998). "The G3 domain of versican enhances cell proliferation via epidermal growth factor-like motifs." *J. Biol. Chem.*, 273(33): 21342-51.

Zhao, M., M. Yoneda, *et al.* (1995). "Evidence for the covalent binding of SHAP, heavy chains of inter-alpha-trypsin inhibitor, to hyaluronan." *J. Biol. Chem.*, 270(44): 26657-63.

- Zheng, P. S., D. Vais, *et al.* (2004). "PG-M/versican binds to P-selectin glycoprotein ligand-1 and mediates leukocyte aggregation." *J. Cell. Sci.* 117(Pt 24): 5887-95.
- Zheng, P. S., J. Wen, *et al.* (2004). "Versican/PG-M G3 domain promotes tumor growth and angiogenesis." *FASEB J.*, 18(6): 754-6.
- Zhu, J., D. Woods, *et al.* (1998). "Senescence of human fibroblasts induced by oncogenic Raf." *Genes. Dev.*, 12(19): 2997-3007.
- Zhuo, L., A. Kanamori, *et al.* (2006). "SHAP potentiates the CD44-mediated leukocyte adhesion to the hyaluronan substratum." *J. Biol. Chem.*, 281(29): 20303-14.
- Zimmermann, D. R., M. T. Dours-Zimmermann, *et al.* (1994). "Versican is expressed in the proliferating zone in the epidermis and in association with the elastic network of the dermis." *J. Cell. Biol.*, 124(5): 817-25.
- Zimmermann, D. R. and E. Ruoslahti (1989). "Multiple domains of the large fibroblast proteoglycan, versican." *EMBO J.*, 8(10): 2975-81.



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