

6 Literaturverzeichnis

- Airaksinen, M. S., and Saarma, M. (2002). The GDNF family: signalling, biological functions and therapeutic value. *Nat Rev Neurosci* 3, 383-394.
- Amaya F, Decosterd I, Samad TA, Plumpton C, Tate S, Mannion RJ, Costigan M, Woolf CJ (2000) Diversity of expression of the sensory neuron-specific TTX-resistant voltage-gated sodium ion channels SNS and SNS2. *Mol Cell Neurosci* 15:331-342.
- Averill, S., McMahon, S. B., Clary, D. O., Reichardt, L. F., and Priestley, J. V. (1995). Immunocytochemical localization of trkA receptors in chemically identified subgroups of adult rat sensory neurons. *Eur J Neurosci* 7, 1484-1494.
- Bautista, D. M., Jordt, S. E., Nikai, T., Tsuruda, P. R., Read, A. J., Poblete, J., Yamoah, E. N., Basbaum, A. I., and Julius, D. (2006). TRPA1 mediates the inflammatory actions of environmental irritants and proalgesic agents. *Cell* 124, 1269-1282.
- Bennett DL, Michael GJ, Ramachandran N, Munson JB, Averill S, Yan Q, McMahon SB, Priestley JV (1998) A distinct subgroup of small DRG cells express GDNF receptor components and GDNF is protective for these neurons after nerve injury. *J Neuroscience* 18:3059-3072.
- Bennett DL, Koltzenburg M, Priestley JV, Shelton DL, McMahon SB (1998) Endogenous nerve growth factor regulates the sensitivity of nociceptors in the adult rat. *Eur J Neuroscience* 10:1282-1291.
- Bergmann I, Priestley JV, McMahon SB, Brocker EB, Toyka KV, Koltzenburg M (1997) Analysis of cutaneous sensory neurons in transgenic mice lacking the low affinity neurotrophin receptor p75. *Eur J Neurosci* 9:18-28.
- Bradbury, E. J., Burnstock, G., and McMahon, S. B. (1998). The expression of P2X3 purinoreceptors in sensory neurons: effects of axotomy and glial-derived neurotrophic factor. *Mol Cell Neurosci* 12, 256-268.

- Cain DM, Khasabov SG, Simone DA (2001) Response Properties of Mechanoreceptors and Nociceptors in Mouse Glabrous Skin: An In Vivo Study. *J Neurophysiol* 85:1561-1574.54
- Caterina, M. J., Leffler, A., Malmberg, A. B., Martin, W. J., Trafton, J., Petersen-Zeitz, K. R., Koltzenburg, M., Basbaum, A. I., and Julius, D. (2000). Impaired nociception and pain sensation in mice lacking the capsaicin receptor. *Science* 288, 306-313.
- Caterina, M. J., Schumacher, M. A., Tominaga, M., Rosen, T. A., Levine, J. D., and Julius, D. (1997). The capsaicin receptor: a heat-activated ion channel in the pain pathway. *Nature* 389, 816-824.
- Cesare P, Moriondo A, Vellani V, McNaughton PA (1999) Ion channels gated by heat. *Proc Natl Acad Sci U S A.* 96:7658-7663.
- Chuang, H. H., Prescott, E. D., Kong, H., Shields, S., Jordt, S. E., Basbaum, A. I., Chao, M. V., and Julius, D. (2001). Bradykinin and nerve growth factor release the capsaicin receptor from PtdIns(4,5)P₂-mediated inhibition. *Nature* 411, 957-962.
- Church, G. M. and Gilbert, W. (1984). Genomic sequencing. *Proc Natl Acad Sci U S A* 81, 1991-5.
- Clapham DE, Runnels LW, Strubing C (2001) The TRP ion channel family. *Nat Rev Neurosci* 2:387-396.55
- Corey D, Stevens C (1983) Science and technology of patch recording electrodes. In: Sakman B, Neher E, Editor *Single Channel Recording*. Plenum Press 53-68.
- Crowley, C., Spencer, S. D., Nishimura, M. C., Chen, K. S., Pitts-Meek, S., Armanini, M. P., Ling, L. H., McMahon, S. B., Shelton, D. L., Levinson, A. D., and *et al.* (1994). Mice lacking nerve growth factor display perinatal loss of sensory and sympathetic neurons yet develop basal forebrain cholinergic neurons. *Cell* 76, 1001-1011.
- Davis, J. B., Gray, J., Gunthorpe, M. J., Hatcher, J. P., Davey, P. T., Overend, P., Harries, M. H., Latcham, J., Clapham, C., Atkinson, K., *et al.* (2000). Vanilloid receptor-1 is essential for inflammatory thermal hyperalgesia. *Nature* 405, 183-187.

- Dirajlal, S., Pauers, L. E., and Stucky, C. L. (2003). Differential response properties of IB(4)-positive and -negative unmyelinated sensory neurons to protons and capsaicin. *J Neurophysiol* 89, 513-524.
- Dittert I, Vlachova V, Knotkova H, Vitaskova Z, Vyklicky L, Kress M, Reeh PW (1998) A technique for fast application of heated solutions of different composition to cultured neurones. *J Neurosci Methods* 82(2): 195-201
- Dittert, I., Benedikt, J., Vyklicky, L., Zimmermann, K., Reeh, P. W., and Vlachova, V. (2006). Improved superfusion technique for rapid cooling or heating of cultured cells under patch-clamp conditions. *J Neurosci Methods* 151, 178-185.
- Donnerer, J., Schuligoi, R., and Stein, C. (1992). Increased content and transport of substance P and calcitonin gene-related peptide in sensory nerves innervating inflamed tissue: evidence for a regulatory function of nerve growth factor in vivo. *Neuroscience* 49, 693-698.
- Eckert, W. A., 3rd, Julius, D., and Basbaum, A. I. (2006). Differential contribution of TRPV1 to thermal responses and tissue injury-induced sensitization of dorsal horn neurons in laminae I and V in the mouse. *Pain*.
- Eglen RM, Hunter JC, Dray A (1999) Ions in the fire: recent ion-channel research and approaches to pain therapy. *TIPS* 20:337-342.
- Elitt, C. M., McIlwrath, S. L., Lawson, J. J., Malin, S. A., Molliver, D. C., Cornuet, P. K., Koerber, H. R., Davis, B. M., and Albers, K. M. (2006). Artemin overexpression in skin enhances expression of TRPV1 and TRPA1 in cutaneous sensory neurons and leads to behavioral sensitivity to heat and cold. *J Neurosci* 26, 8578-8587.
- Farokhi A, Keunecke M, Hansen UP (2000) The anomalous mole fraction effect in chara: gating at the edge of temporal resolution. *Biophys J* 79: 3072-3082
- Feinberg AP, Vogelstein B (1983) A technique for radiolabeling DNA restriction endonuclease fragments to high specific activity. *Anal Biochem.* 132(1): 6-13

- Fjell J, Cummins TR, Dib-Hajj SD, Fried K, Black JA, Waxman SG (1999). Differential role of GDNF and NGF in the maintenance of two TTX-resistant sodium channels in adult DRG neurons. *Brain Res Mol Brain Res* 67:267-82.
- Frahm C, Milenkovic N, Gassmann M, Griffel C, Erdmann B, Birchmeier C, Lewin GR, Garratt AN (2007) Nociceptive tuning by Stem Cell Factor/c-Kit signaling (Manuscript)
- Galoyan, S. M., Petruska, J. C., and Mendell, L. M. (2003). Mechanisms of sensitization of the response of single dorsal root ganglion cells from adult rat to noxious heat. *Eur J Neurosci* 18, 535-541.
- Gillespie PG, Walker RG (2001) Molecular basis of mechanosensory transduction. *Nature* 413: 194-202.
- Guillemot F, Lo LC, Johnson JE, Auerbach A, Anderson DJ, Joyner AL (1993) Mammalian achaete-scute homolog 1 is required for the early development of olfactory and autonomic neurons. *Cell* 75: 463-76.
- Gunthorpe MJ, Benham CD, Randall A, Davis JB (2002) The diversity in the vanilloid (TRPV) receptor family of ion channels. *TIPS* 23:183-191.
- Guo A, Vulchanova L, Wang J, Li X, Elde R (1999) Immunocytochemical localization of the vanilloid receptor 1 (TRPV1): relationship to neuropeptides, the P2X3 purinoceptor and IB4 binding sites. *Eur J Neurosci* 11:946-958.56
- Hamill OP, Marty A, Neher E, Sakmann B, Sigworth FJ (1981) Improved patch-clamp techniques for high-resolution current recording from cells and cell-free membrane patches. *Pflugers Arch.* 391:85-100.
- Hargreaves, K., Dubner, R., Brown, F., Flores, C., and Joris, J. (1988). A new and sensitive method for measuring thermal nociception in cutaneous hyperalgesia. *Pain* 32, 77-88.
- Harper AA, Lawson SN (1985) Conduction velocity is related to morphological cell type in rat dorsal root ganglion neurons. *J Physiol (Lond)* 359:31-46.

- Hayashi, S., Kunisada, T., Ogawa, M., Yamaguchi, K., and Nishikawa, S. (1991). Exon skipping by mutation of an authentic splice site of c-kit gene in W/W mouse. *Nucleic Acids Res* 19, 1267-1271.
- Heyman I, Rang HP (1985) Depolarizing responses to capsaicin in a subpopulation of rat dorsal root ganglion cells. *Neurosci Lett*. 56:69-75.
- Hille B. (2001) *Ionic Channels in Excitable Membranes*. 2nd ed. Sinauer Associates, Sunderland, Mass., 607 pp.
- Hirata T, Morii E, Morimoto M, Kasugai T, Tsujimura T, Hirota S, Kanakura Y, Nomura S, Kitamura S (1993) Stem cell factor induces outgrowth of c-kit positive neurites and supports the survival of c-kit positive neurons in dorsal root ganglia of mouse embryos. *Development* 119, 49-56.
- Hirata T, Kasugai T, Morii E, Hirota S, Nomura S, Fujisawa H, Kitamura Y (1995) Characterization of c-kit positive neurons in the dorsal root ganglion of the mouse. *Brain Res Dev* 85(2): 201-11.
- Holzer P (1991) Capsaicin: cellular targets, mechanisms of action, and selectivity for thin sensory neurons. *Pharmacol Rev* 43:143-201.
- Horigome, K., Pryor, J. C., Bullock, E. D., and Johnson, E. M., Jr. (1993). Mediator release from mast cells by nerve growth factor. Neurotrophin specificity and receptor mediation. *J Biol Chem* 268, 14881-14887.
- Huang, E. J., and Reichardt, L. F. (2003). Trk receptors: roles in neuronal signal transduction. *Annu Rev Biochem* 72, 609-642.
- Iadorola JM, Caudle RM (1997) Good pain, bad pain. *Science* 278(5336): 239-40
- Inoue H, Nojima H, Okayama H (1990) High efficiency transformation of *Escherichia coli* with plasmids. *Gene* 96(1): 23-8
- Jin K, Mao XO, Sun Y, Xie L, Greenberg DA (2002) Stem Cell Factor stimulates neurogenesis in vitro and in vivo. *J Clin. Invest.* 110(3): 311-9

- Jordt, S. E., Bautista, D. M., Chuang, H. H., McKemy, D. D., Zygmunt, P. M., Hogestatt, E. D., Meng, I. D., and Julius, D. (2004). Mustard oils and cannabinoids excite sensory nerve fibres through the TRP channel ANKTM1. *Nature* 427, 260-265.
- Julius, D., and Basbaum, A. I. (2001). Molecular mechanisms of nociception. *Nature* 413, 203-210.
- Joyner, A. L. (1999). *Gene Targeting: A Practical Approach*. Oxford, United Kingdom: Oxford University Press.
- Keshet, E., Lyman, S. D., Williams, D. E., Anderson, D. M., Jenkins, N. A., Copeland, N. G., and Parada, L. F. (1991). Embryonic RNA expression patterns of the c-kit receptor and its cognate ligand suggest multiple functional roles in mouse development. *Embo J* 10, 2425-2435.
- Keunecke M (1995) Untersuchung des anomalen Molfraktionseffektes an der Grünalge *Chara corallina*. Diplomarbeit, Christian Albrechts Universität Kiel
- Koltzenburg (1995) Stability and plasticity of nociceptor function and their relationship to evoked and ongoing pain. *Seminars in the Neurosciences* 7:199-210
- Koltzenburg M, Lewin GR (1997) Der Einfluss von Neurotrophinen auf den Phänotyp sensorischer Neurone. *Neuroforum* 1:27-31.58
- Koltzenburg M, Stucky CL, Lewin GR (1997) Receptive properties of mouse sensory neurons innervating hairy skin. *J Neurophysiol* 78:1841-1850.
- Koltzenburg M (1999) The changing sensitivity in the life of the nociceptor. *Pain Supplement* 6:S93-S102
- Kress M, Reeh PW (1996) More sensory competence for nociceptive neurons in culture. *Proc Natl Acad Sci U S A*. 93:14995-14997.
- Kress M, Zeilhofer HU (1999) Capsaicin, protons and heat: new excitement about nociceptors. *Trends Pharmacol Sci* 20:112-118.

- Kühn, R., Rajewsky, K. and Müller, W. (1991). Generation and analysis of interleukin-4 deficient mice. *Science* 254, 707-10.
- Liu P, Jenkins NA, Copeland NG (2003) A highly efficient recombineering-based method for generating conditional knockout mutations. Cold Spring Harbour Laboratory Press 1088-9051/03
- Lewin, G. R., and Barde, Y. A. (1996). Physiology of the neurotrophins. *Annu Rev Neurosci* 19, 289-317.
- Lewin, G. R., Lu, Y., and Park, T. J. (2004). A plethora of painful molecules. *Curr Opin Neurobiol* 14, 443-449.
- Lewin, G. R., and Mendell, L. M. (1993). Nerve growth factor and nociception. *Trends Neurosci* 16, 353-359.
- Lewin, G. R., and Mendell, L. M. (1994). Regulation of cutaneous C-fiber heat nociceptors by nerve growth factor in the developing rat. *J Neurophysiol* 71, 941-949.
- Lewin, G. R., and Moshourab, R. (2004). Mechanosensation and pain. *J Neurobiol* 61, 30-44.
- Lewin, G. R., Ritter, A. M., and Mendell, L. M. (1993). Nerve growth factor-induced hyperalgesia in the neonatal and adult rat. *J Neurosci* 13, 2136-2148.
- Lewin, G. R., Rueff, A., and Mendell, L. M. (1994). Peripheral and central mechanisms of NGF-induced hyperalgesia. *Eur J Neurosci* 6, 1903-1912.
- Malin, S. A., Molliver, D. C., Koerber, H. R., Cornuet, P., Frye, R., Albers, K. M., and Davis, B. M. (2006). Glial cell line-derived neurotrophic factor family members sensitize nociceptors in vitro and produce thermal hyperalgesia in vivo. *J Neurosci* 26, 8588-8599.
- McMahon, S. B., Bennett, D. L., Priestley, J. V., and Shelton, D. L. (1995). The biological effects of endogenous nerve growth factor on adult sensory neurons revealed by a trkA-IgG fusion molecule. *Nat Med* 1, 774-780.

- Messlinger K (1997) Functional morphology of nociceptive and other fine sensory endings in different tissues. *Prog Brain Res.* 113:273-98.
- Merskey H, Bogduk N (1994) *Classification of Chronic Pain Descriptions of Chronic Pain Syndromes and Definition of Pain Terms.* 2nd Edition, IASP Press.
- Michel GJ, Priestley JV (1999) Differential expression of the mRNA for the vanilloid receptor subtype 1 in cells of the adult dorsal root and nodose ganglia and its downregulation by axotomy. *J Neurosci* 19:1844-1854.
- Molliver DC, Wright DE, Leitner ML, Parsadanian AS, Doster K, Wen D, Yan Q, Snider WD (1997) IB4-binding DRG neurons switch from NGF to GDNF dependence in early postnatal life. *Neuron* 19:849-861.
- Molliver, D. C., Radeke, M. J., Feinstein, S. C., and Snider, W. D. (1995). Presence or absence of TrkA protein distinguishes subsets of small sensory neurons with unique cytochemical characteristics and dorsal horn projections. *J Comp Neurol* 361, 404-416.
- Molliver, D. C., and Snider, W. D. (1997). Nerve growth factor receptor TrkA is down-regulated during postnatal development by a subset of dorsal root ganglion neurons. *J Comp Neurol* 381, 428-438.
- Montell C, Birnbaumer L, Flockerzi V, Bindels RJ, Bruford EA, Caterina MJ, Clapham DE, Harteneck C, Heller S, Julius D, Kojima I, Mori Y, Penner R, Prawitt D, Scharenberg AM, Schultz G, Shimizu N, Zhu MX (2002) A Unified Nomenclature for the Superfamily of TRP Cation Channels. *Mol Cell* 9:229-231.
- Motro, B., van der Kooy, D., Rossant, J., Reith, A., and Bernstein, A. (1991). Contiguous patterns of c-kit and steel expression: analysis of mutations at the W and Sl loci. *Development* 113, 1207-1221.
- Naren AP, Kirk KL (2000), CFTR Chloride Channels: Binding Partners and Regulatory Networks. *News Physiol Sci* 15: 57-61

- Opsahl LR, Webb WW (1994) Lipid-glass adhesion in giga-sealed patch-clamped membranes. *Biophys J.* 66: 75-9
- Paysan J, Breer H (2001) Molecular physiology of odor detection: current views. *Pflugers Arch* 441(5): 579-86
- Petty, B. G., Cornblath, D. R., Adornato, B. T., Chaudhry, V., Flexner, C., Wachsman, M., Sinicropi, D., Burton, L. E., and Peroutka, S. J. (1994). The effect of systemically administered recombinant human nerve growth factor in healthy human subjects. *Ann Neurol* 36, 244-246.
- Plenderleith MB, Snow PJ (1993) The plant lectin *Bandeiraea simplicifolia* I-B4 identifies a subpopulation of small diameter primary sensory neurones which innervate the skin in the rat. *Neurosci Lett* 159:17-20.
- Price MP, Lewin GR, McIlwrath SL, Cheng C, Xie J, Heppenstall PA, Stucky CL, Mannsfeldt AG, Brennan TJ, Drummond HA, Qiao J, Benson CJ, Tarr DE, Hrstka RF, Yang B, Williamson RA, Welsh MJ (2000) The mammalian sodium channel BNC1 is required for normal touch sensation. *Nature* 407:1007-1011.
- Raja SN, Rinkamp M, Meyer RA, Campbell JN, Raja SN (1996) Peripheral neural mechanisms of nociception. In *Textbook of Pain*, 4 Aufl. Edited by Wall PD, Melzack R. Edinburgh: Churchill Livingstone. pp. 11-57.62
- Ramirez-Solis, R., Rivera-Perez, J., Wallace, J. D., Wims, M., Zheng, H. and Bradley, A. (1992). Genomic DNA microextraction: a method to screen numerous samples. *Anal Biochem* 201, 331-5.
- Reeh PW (1986) Sensory receptors in mammalian skin in an in vitro preparation. *Neuroscience Lett* 66:141-146
- Reeh PW, Steen KH (1996) Tissue acidosis in nociception and pain. *Prog Brain Res* 113:143-151.
- Reichling DB, Levine JD (2000) In hot pursuit of the elusive heat transducers. *Neuron* 26:555-558.

- Reinhardt, R. R., Chin, E., Zhang, B., Roth, R. A., and Bondy, C. A. (1994). Selective coexpression of insulin receptor-related receptor (IRR) and TRK in NGF-sensitive neurons. *J Neurosci* 14, 4674-4683.
- Robinson CJ, Torebjork HE, LaMotte RH (1983). Psychophysical detection and pain ratings of incremental thermal stimuli: a comparison with nociceptor responses in humans. *Brain Res* 274:87-106
- Rueff, A., and Mendell, L. M. (1996). Nerve growth factor NT-5 induce increased thermal sensitivity of cutaneous nociceptors in vitro. *J Neurophysiol* 76, 3593-3596.
- Ruschitzka, F. T., Wenger, R. H., Stallmach, T., Quaschnig, T., de Wit, C., Wagner, K., Labugger, R., Kelm, M., Noll, G., Rulicke, T., et al. (2000). Nitric oxide prevents cardiovascular disease and determines survival in polyglobulic mice overexpressing erythropoietin. *Proc Natl Acad Sci U S A* 97, 11609-11613.
- Russell, E., and Lawson, F. A. (1959). Selection and inbreeding for longevity of a lethal type. *J Hered* 50, 19-25.
- Sakmann B, Neher E (1995) *Single Channel Recording*. 2nd ed, Kluwer Academic Publishers, 700 pp.
- Sambrook, J. and Russell, D. W. (2001). *Molecular Cloning: A Laboratory Manual*. Cold Spring Harbor, New York 11803-2500, USA: Cold Spring Harbor Laboratory Press
- Sauer B, Henderson N (1990) Targeted insertion of exogenous DNA into the eukaryotic genome by the Cre recombinase. *New Biol.* 2(5): 441-9
- Schaible HG, Schmidt RF (1988). Excitation and sensitization of fine articular afferents from cat's knee joint by prostaglandin E2. *J Physiol.* 403:91-104.
- Schmidt R, Schmelz M, Forster C, Ringkamp M, Torebjörk E, Handwerker H (1995) Novel classes of responsive und unresponsive C nociceptors in human skin. *J Neurosci* 15:333-341.

- Shu, X., and Mendell, L. M. (1999). Nerve growth factor acutely sensitizes the response of adult rat sensory neurons to capsaicin. *Neurosci Lett* 274, 159-162.
- Shu, X., and Mendell, L. M. (2001). Acute sensitization by NGF of the response of small-diameter sensory neurons to capsaicin. *J Neurophysiol* 86, 2931-2938.
- Sherrington CS (1990) Cutaneous sensations. In: *Textbook of Physiology* (Schäfer EA, ed). London: Pentland 920-1001.
- Silverman JD, Kruger L (1990) Selective neuronal glycoconjugate expression in sensory and autonomic ganglia: relation of lectin reactivity to peptide and enzyme markers. *J Neurocytol* 19:789-801.
- Silos-Santiago I, Molliver DC, Ozaki S, Smeyne RJ, Fagan AM, Barbacid M, Snider WD (1995) Non-TrkA-expressing small DRG neurons are lost in TrkA deficient mice. *J. Neurosci* 15:5929-5942.
- Sherrington CS (1906) *The Inegrative Action of the Nervous System* (New York: Scribner) 63
- Smeyne RJ, Klein R, Schnapp A, Long LK, Bryant S, Lewin A, Lira SA, Barbacid M (1994) Severe synaptic and sympathetic neuropathies in mice carrying a disrupted TrkA/NGF receptor gene. *Nature* 368: 246-249
- Snider, W. D., and McMahon, S. B. (1998). Tackling pain at the source: new ideas about nociceptors. *Neuron* 20, 629-632.
- Souslova V, Cesare P, Ding Y, Akopian AN, Stanfa L, Suzuki R, Carpenter K, Dickenson A, Boyce S, Hill R, Nebenius-Oosthuizen D, Smith AJH, Kidd EJ, Wood JN (2000) Warm-coding deficits and aberent inflammatory pain in mice lacking P2X3 receptors. *Nature* 407: 1015-1017.
- Steen KH, Reeh PW (1993) Sustained graded pain and hyperalgesia from harmless experimental tissue acidosis in human skin. *Neurosci Lett* 154:113-116.

- Steen KH, Steen AE, Reeh PW (1995) A dominant role of acid pH in inflammatory excitation and sensitization of nociceptors in rat skin, in vitro. *J Neurosci* 15:3982-3989.
- Stucky CL, Lewin GR (1998) Isolectin B4-positive and -negative nociceptors are functionally distinct. *J Neurosci* 19:6497-6505.
- Stucky CL, Koltzenburg M (1999) The low affinity neurotrophin receptor p75 regulates the function but the selective survival of specific subpopulations of sensory neurons. *J Neurosci* 17:4398-4405.64
- Stucky, C. L., Rossi, J., Airaksinen, M. S., and Lewin, G. R. (2002). GFR alpha2/neurturin signalling regulates noxious heat transduction in isolectin B4-binding mouse sensory neurons. *J Physiol* 545, 43-50.
- Szolcsányi J, Jancso-Gabor A (1975) Functional and fine structural characteristics of the sensory neuron blocking effect of capsaicin. *Naunyn Schmiedebergs Arch Pharmacol* 287:157-169.
- Szolcsányi J, Anton F, Reeh PW, Handwerker HO (1988) Selective excitation by capsaicin of mechano-heat sensitive nociceptors in rat skin. *Brain Res* 446:262-268.
- Szallasi A and Blumberg PM (1990) Specific binding of resiniferatoxin, an ultrapotent capsaicin analog, by dorsal root ganglion membranes. *Brain Res* 524:106-111.
- Szallasi A, Blumberg PM (1989) Resiniferatoxin, a phorbol-related diterpene, acts as an ultrapotent analog of capsaicin, the irritant constituent in red pepper. *Neuroscience* 30:515-250.
- Szallasi A, Blumberg PM (1999) Vanilloid (capsaicin) receptors and mechanisms. *Pharmacol. Rev* 51:159-212.
- Taylor AM, Galli SJ, Coleman JW (1995) Stem Cell Factor, the kit ligand, induces direct degranulation of rat peritoneal mast cells in vitro and in vivo: dependence of the in vitro effect on period of culture and comparisons of stem-cell factor with other mast cell-activating agents. *Immunology* 86(3): 427-433

- Tominaga, M., Caterina, M. J., Malmberg, A. B., Rosen, T. A., Gilbert, H., Skinner, K., Raumann, B. E., Basbaum, A. I., and Julius, D. (1998). The cloned capsaicin receptor integrates multiple pain-producing stimuli. *Neuron* 21, 531-543.
- Treede RD, Meyer RA, Raja SN, Campbell JN (1992) Peripheral and central mechanisms of cutaneous hyperalgesia. *Prog Neurobiol* 38:397-421.
- Treede RD, Meyer RA, Raja SN, Campbell JN (1995). Evidence for two different heat transduction mechanisms in nociceptive primary afferents innervating monkey skin. *J Physiol* 483:747-758.
- Viana F, de la Pena E, Belmonte C (2002). Specificity of cold thermotransduction is determined by differential ionic channel expression. *Nat Neurosci* 5:254-260.
- Vulchanova, L., Riedl, M. S., Shuster, S. J., Stone, L. S., Hargreaves, K. M., Buell, G., Surprenant, A., North, R. A., and Elde, R. (1998). P2X3 is expressed by DRG neurons that terminate in inner lamina II. *Eur J Neurosci* 10, 3470-3478.
- Waskow, C., Paul, S., Haller, C., Gassmann, M., and Rodewald, H. R. (2002). Viable c-Kit(W/W) mutants reveal pivotal role for c-kit in the maintenance of lymphopoiesis. *Immunity* 17, 277-288.
- Weidner C, Schmelz M, Schmidt R, Hansson B, Handwerker HO, Torebjork HE (1999) Functional attributes discriminating mechano-insensitive and mechano-responsive C nociceptors in human skin *J Neurosci* 19:10184-10190.
- Wetzel, C., Hu, J., Riethmacher, D., Benckendorff, A., Harder, L., Eilers, A., Moshourab, R., Kozlenkov, A., Labuz, D., Caspani, O., *et al.* (2006). A stomatin domain protein essential for touch sensation in the mouse. *Nature* in press.
- Wood JN, Winter J, James IF, Rang HP, Yeats J, Bevan S (1988) Capsaicin-induced ion fluxes in dorsal root ganglion cells in culture. *J Neurosci* 8:3208-3220.
- Wood JN (2000) II. Genetic approaches to pain therapy. *Am J Physiol Gastrointest Liver Physiol* 278:G507-G512.

Woolf CJ, Salter MW (2001) Neuronal Plasticity: Increasing the Gain in Pain. *Science* 288:1765-1768.

Yu, D., Ellis, H. M., Lee, E. C., Jenkins, N. A., Copeland, N. G. and Court, D. L. (2000). An efficient recombination system for chromosome engineering in *Escherichia coli*. *Proc Natl Acad Sci U S A* 97, 5978-83.

Zhang X, Huang J, McNaughton PA (2005) NGF rapidly increases membrane expression of TRPV1 heat-gated ion channels. *EMBO J.* 24:4211-4223