

Gary Lewin

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Molecular Physiology of Somatic Sensation
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Curriculum vitae

since 2008	Associate faculty member, Bernstein Center for Computational Neuroscience, Berlin
2003	Group leader, Max Delbrück Center for Molecular Medicine Professor (W3), joint appointment, Charité - Universitätsmedizin Berlin
1996	Independent group leader, Department of Neuroscience, Max Delbrück Center for Molecular Medicine Berlin-Buch
1994	Max Planck Researcher, Department of Neurobiochemistry, Max Planck Institute for Psychiatry, Munich
1993	Visiting Alexander von Humboldt research fellow, Department of Neurobiochemistry (Prof. Yves-Alain Barde), Max Planck Institute for Psychiatry, Munich
1992	Research Assistant Professor, Department of Neurobiology and Behavior, SUNY at Stony Brook. Awarded first peer-reviewed grant, American Paralysis Society
1990	Postdoctoral research associate, Department of Neurobiology and Behavior (Laboratory of Prof. Lorne Mendell), SUNY Stony Brook, New York

Research fields

Sensory neurons of the dorsal root ganglia allow us to detect stimuli to the body surface that lead directly to the sensations such as touch and pain. We explore the genes that allow these neurons to transduce different types of stimuli. Sensory neurons can, for example, detect changes in temperature of the skin in non-noxious (not painful) as well as noxious ranges (painful heat or cold). They can also detect gentle movement of the skin as well as intense mechanical stimulation of the skin that is normally harmful. The nature of the transduction molecules involved together with the developmental events that lead to specification of the appropriate sensory neuron sub-types are actively investigated in my lab.

Activities in the scientific community, honors, awards

2008	Elected member, European Molecular Biology Organization (EMBO)
1996	Young Investigator Prize of the International Society for the Study of Pain (IASP)
1993	Alexander von Humboldt fellowship to travel from the US to Germany to perform research at the Max Planck Institute for Psychiatry, Martinsried, Munich
1991	NATO traveling fellowship to carry out further experimental studies, in collaboration with Stephen McMahon

Selected publications

Chiang L-Y, Poole K, Oliveira BE, Duarte N, Bernal Sierra YA, Bruckner-Tudermann L, Koch M, Hu J, Lewin GR. Laminin-332 coordinates mechanotransduction and growth cone bifurcation in sensory neurons. *Nat Neurosci* 2011; Jul3;14(8):993-1000.

Vaegter, CB, Jansen, P, Fjorback, AW, Glerup, S, Skeldal, S, Kjolby, M, Richner, M, Erdmann, B, Nyengaard, JR, Tessarollo, L, Lewin, GR, Willnow, TE, Chao, MV and Nykjaer, A. Sortilin associates with Trk receptors to enhance anterograde transport and neurotrophin signaling. *Nat Neurosci*. 2011; 14, 54-61.

Lechner, SG, Markworth, S, Poole, K, Smith, ES, Lapatsina, L, Frahm, S, May, M, Pischke, S, Suzuki, M, Ibanez-Tallon, I, Luft, FC, Jordan, J and Lewin, GR. The molecular and cellular identity of peripheral osmoreceptors. *Neuron*. 2011; 69, 332-44.

Hu, J, Chiang, LY, Koch, M and Lewin, GR. Evidence for a protein tether involved in somatic touch. *EMBO J*. 2010; 29, 855-67.

Lechner, SG, Frenzel, H, Wang, R and Lewin, GR. Developmental waves of mechanosensitivity acquisition in sensory neuron subtypes during embryonic development. *EMBO J*. 2009; 28, 1479-91.

Park, TJ, Lu, Y, Juttner, R, Smith, ES, Hu, J, Brand, A, Wetzel, C, Milenkovic, N, Erdmann, B, Heppenstall, PA, Laurito, CE, Wilson, SP and Lewin, GR. Selective inflammatory pain insensitivity in the African naked mole-rat (*Heterocephalus glaber*). *PLoS Biol*. 2008; 6, e13.

Wetzel, C, Hu, J, Riethmacher, D, Benckendorff, A, Harder, L, Eilers, A, Moshourab, R, Kozlenkov, A, Labuz, D, Caspani, O, Erdmann, B, Machelska, H, Heppenstall, PA and Lewin, GR. A stomatin-domain protein essential for touch sensation in the mouse. *Nature*. 2007; 445, 206-9.

Milenkovic, N, Frahm, C, Gassmann, M, Griffel, C, Erdmann, B, Birchmeier, C, Lewin, GR and Garratt, AN. Nociceptive tuning by stem cell factor/c-Kit signaling. *Neuron*. 2007; 56, 893-906.

Jansen, P, Giehl, K, Nyengaard, JR, Teng, K, Lioubinski, O, Sjoegaard, SS, Breiderhoff, T, Gotthardt, M, Lin, F, Eilers, A, Petersen, CM, Lewin, GR, Hempstead, BL, Willnow, TE and Nykjaer, A. Roles for the pro-neurotrophin receptor sortilin in neuronal development, aging and brain injury. *Nat Neurosci*. 2007; 10, 1449-57.

Hu, J and Lewin, GR. Mechanosensitive currents in the neurites of cultured mouse sensory neurones. *J Physiol*. 2006; 577, 815-28.