

LIST OF PUBLICATIONS

Research articles

1. Nees T.A., Wang N., Adamek P., Verkest C., Schaefer I., Virnich J., Balkaya S., Prato V., Morelli C., Zeitzschel N., Begay V., Lee Y.J., Lewin G.R., Heppenstall P.A., Taberner F.J. & **Lechner S.G.** (2022) The molecular mechanism and physiological role of silent nociceptor activation
BIORXIV 2022.04.07.486730. <https://doi.org/10.1101/2022.04.07.486730>.
2. Verkest C., Schaefer I., Nees T.A., Na W., Jegelka J.M., Taberner F.J., & **Lechner S.G.** (2022). "An intrinsically disordered intracellular domain of PIEZO2 is required for force-from-filament activation of the channel."
NATURE COMMUNICATIONS Mar 15; 13(1) 1365
3. Morelli C., Castaldi L., Brown S.J., Streich L.L., Websdale A., Taberner F.J., Cerreti B., Barengi A., Blum K.M., Sawitzke J, Frank T., Steffens L., Doleschall B., Serrao J., **Lechner S.G.**, Prevedel R., Heppenstall P.A. (2021) Identification of a novel population of peripheral sensory neuron that regulates blood pressure.
CELL REPORTS Jun 1;35(9):109191
4. Schwaller, F., Bégay, V., García-García, G., Taberner, F., Moshourab, R., McDonald, B., Docter, T., Kühnemund, J., Ojeda-Alonso, J., Paricio-Montesinos, R., **Lechner, S.G.**, Poulet, J., Millan, J., Lewin, G. (2021). USH2A is a skin end-organ protein necessary for vibration sensing in mice and humans
NATURE NEUROSCIENCE 24, 74-81
5. Agarwal N., Taberner F.J., Rangel Rojas D., Moroni M., Omberbasic D., Njoo C., Andrieux A., Gupta P., Bali K.K., Herpel E., Faghihi F., Fleming T., Dejean A., **Lechner S.G.**, Nawroth P.P., Lewin G.R., Kuner R. (2020) SUMOylation of metabolic enzymes and ion channels in sensory neurons protects against metabolic dysfunction, neuropathy and sensory loss in diabetes.
NEURON Sep 23; 107(6):1141-1159
6. Jonas R., Prato V., **Lechner S.G.**, Groen G., Obreja O., Werland F., Rukwied R., Klusch A., Petersen M., Carr R.W., Schmelz M. (2020) TTX-resistant sodium channels functionally separate silent from polymodal C-nociceptors.
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7. Taberner F.J., Prato, V., Schaefer, I., Schrenk-Siemens, K., Heppenstall P.A. & **Lechner, S.G.** (2019) Structure-guided examination of the mechanogating mechanisms of PIEZO2.
PNAS Jun 24. 116, 14260–14269.
8. Schäfer I., Prato V., Arcourt A., Taberner F.J. & **Lechner S.G.** (2018). Differential modulation of voltage-gated sodium channels by nerve growth factor in three major subsets of TrkA-expressing nociceptors.
MOL PAIN Nov 2: 1744806918814640,
9. Dhandapani, R., Arokiaraj, C.M., Taberner, F.J., Pacifico, P., Raja, S., Nocchi, L., Portulano, C., Franciosa, F., Maffei, M., Hussain, A.F., Reis, F. de C., Reymond, L., Perlas, E., Garcovich, S., Barth, S., Johnsson, K., **Lechner, S.G.** & Heppenstall, P.A., (2018). Control of mechanical pain hypersensitivity through ligand-targeted photoablation of TrkB positive sensory neurons.
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10. Narayanan P, Huette M, Kudryasheva G, Taberner F.J., **Lechner S.G.**, Rehfeldt F, Gomez-Varela D, Schmidt M. (2018) Myotubularin related protein-2 and its phospholipid substrate PIP2 control Piezo2-mediated mechanotransduction in peripheral sensory neurons
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11. Prato V.*, Taberner F.J.*, Hockley J.R.F., Callejo G., Arcourt A., Tazir B., Hammer L., Schad P, Heppenstall P.A., Smith E.St.J & **Lechner S.G.** (2017) Functional and molecular characterization of mechanoinensitive 'silent' nociceptors.
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12. Arcourt A., Gorham L., Dhandapani R., Prato V., Taberner F.J., Wende H., Gangadharan V., Birchmeier C., Heppenstall P.A. and **Lechner S.G.** (2017) Touch receptor-derived sensory information alleviates acute mechanical pain and fine-tunes nociceptive reflex coordination.
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13. Schrenk-Siemens, K., Wende, H., Prato, V., Song, K., Rostock, C., Loewer, A. Utikal, J., Lewin, G.R., **Lechner, S.G.** and Siemens, J. (2015) PIEZO 2 is required for mechanotransduction in human stem cell-derived touch receptors.
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14. Wende, H., **Lechner, S.G.**, Cheret, C., Bourane, S., Kolanczyk, M.E., Pattyn, A., Reuter, K., Munier, F.L., Carroll, P., Lewin, G.R. and Birchmeier C. (2012). The transcription factor c-Maf controls touch receptor development and function.
SCIENCE 335, 1373–1376.,
15. Heidenreich, M.*, **Lechner, S.G.***, Vardanyan, V., Wetzel, C., Cremers, C.W., De Leenheer, E.M., Aránguez, G., Moreno-Pelayo, M.Á., Jentsch, T.J., and Lewin, G.R. (2012). KCNQ4 K(+) channels tune mechanoreceptors for normal touch sensation in mouse and man. (* denotes equal contribution)
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16. Frenzel, H., Bohlender, J., Pinsker, K., Wohlleben, B., Tank, J., **Lechner, S.G.**, Schiska, D., Jaijo, T., Rüschenendorf, F., Saar, K., Jordan, J., Millán, J.M., Gross, M. and Lewin G.R. (2012). A Genetic Basis for Mechanosensory Traits in Humans.
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17. Tappe-Theodor, A., Constantin, C.E., Tegeder, I., **Lechner, S.G.**, Langeslag, M., Lepczynsky, P., Wirotanseng, R.I., Kurejova, M., Agarwal, N., Nagy, G., Todd, A., Wettschureck, N., Offermanns, S., Kress, M., Lewin, G.R. and Kuner, R. (2012). Gα(q/11) signaling tonically modulates nociceptor function and contributes to activity-dependent sensitization.
PAIN 153, 184–196.,
18. **Lechner, S.G.***, Markworth, S.*, Poole, K., Smith, E.S.J., Lapatsina, L., Frahm, S., May, M., Pischke, S., Suzuki, M., Ibañez-Tallon, I., Luft, F.C., Jordan J. and Lewin G.R. (2011). The molecular and cellular identity of peripheral osmoreceptors. (* denotes equal contribution)
NEURON 69, 332–344.
19. Smith, E.S.J., Omerbašić, D., **Lechner, S.G.**, Anirudhan, G., Lapatsina, L., and Lewin, G.R. (2011). The molecular basis of acid insensitivity in the African naked mole-rat.
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20. **Lechner, S.G.**, Frenzel, H., Wang, R., and Lewin, G.R. (2009). Developmental waves of mechanosensitivity acquisition in sensory neuron subtypes during embryonic development.
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22. **Lechner, S.G.**, Hussl, S., Schicker, K.W., Drobny, H., and Boehm, S. (2005). Presynaptic inhibition via a phospholipase C- and phosphatidylinositol bisphosphate-dependent regulation of neuronal Ca²⁺ channels. MOLECULAR PHARMACOLOGY 68, 1387–1396.,
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24. **Lechner, S.G.**, Dorostkar, M.M., Mayer, M., Edelbauer, H., Pankevych, H., and Boehm, S. (2004). Autoinhibition of transmitter release from PC12 cells and sympathetic neurons through a P2Y receptor-mediated inhibition of voltage-gated Ca²⁺ channels. EUROPEAN JOURNAL OF NEUROSCIENCE 20, 2917–28.,
25. **Lechner, S.G.**, Mayer, M., and Boehm, S. (2003). Activation of M1 muscarinic receptors triggers transmitter release from rat sympathetic neurons through an inhibition of M-type K⁺ channels. JOURNAL OF PHYSIOLOGY - LONDON 553, 789–802.,
26. Kubista, H.*, **Lechner, S.G.***, Wolf, A.M., and Boehm, S. (2003). Attenuation of the P2Y receptor-mediated control of neuronal Ca²⁺ channels in PC12 cells by antithrombotic drugs. (* denotes equal contribution) BRITISH JOURNAL OF PHARMACOLOGY 138, 343–350.,

Reviews & Book chapters

27. **Lechner S.G.** (2017). An update on the spinal and peripheral pathways of pain signaling. E-NEUROFORUM 23, 131-136,
28. **Lechner S.G.** (2017). Shedding light on the contribution of different c-fibre nociceptors to nocifensive behaviour. PAIN Dec; 158(12):2281-2282,
29. Moshourab, R., Frenzel, H., **Lechner, S.G.**, Haseleu, J., Bégay, V., Omerbašić, D., Lewin, G.R., (2016). Measurement of Vibration Detection Threshold and Tactile Spatial Acuity in Human Subjects. J VIS EXP. Sep 1;(115) ,
30. Arcourt, A. and **Lechner, S.G.** (2015) Peripheral and spinal circuits involved in mechanical allodynia. PAIN Feb 156(2), 220-1,
31. Lewin G.R., **Lechner S.G.** Smith E.S. (2014) Nerve Growth Factor and Nociception: From Experimental Embryology to New Analgesic Therapy. HANDBOOK OF EXPERIMENTAL PHARMACOLOGY (220):251-82,
32. **Lechner, S.G.**, and Lewin, G.R. (2013). Hairy sensation. PHYSIOLOGY(Bethesda) 28, 142–150,
33. Wende, H., **Lechner, S.G.**, and Birchmeier, C. (2012). The transcription factor c-Maf in sensory neuron development. TRANSCRIPTION Nov 1;3(6) ,
34. **Lechner, S.G.**, and Siemens, J. (2011). Sensory transduction, the gateway to perception: mechanisms and pathology. EMBO REPORTS. Apr;12(4):292-5,

35. Poole K., **Lechner S.G.** and Lewin G.R. The Handbook of Touch: The Molecular and Genetic Basis of Touch. New York: Springer Publications 2011
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