Theodore J. Price Faculty Vitae

02/05/25
Theodore John Price, Ph.D.
School of Behavioral and Brain Sciences
Department of Neuroscience

Educational History:

1993-1997	Bachelors of Science University of Texas at Dallas Mentor: Alice J. O'Toole, Ph.D. Field of Study: Neuroscience
1997-2003	Doctor of Philosophy University of Texas Health Science Center at San Antonio Mentor: Christopher M. Flores, Ph.D. Field of Study: Pharmacology Doctoral Dissertation: *The Neuronal Localization and Neuromodulatory Function of Cannabinoid-Responsive Receptors in the Trigeminal*
2003-2004	Postdoctoral Fellow University of Texas Health Science Center at San Antonio Mentor: Kenneth M. Hargreaves, D.D.S., Ph.D. Field of Study: Pharmacology
2004-2007	Postdoctoral Fellow McGill University Mentor: Fernando Cervero, M.D., Ph.D., D.Sc. Field of Study: Neuroscience and Anesthesiology

Employment History – principal positions since the Bachelor's degree:

2007 – 2012	Assistant Professor Department of Pharmacology College of Medicine University of Arizona
2012 – 2014	Associate Professor Department of Pharmacology College of Medicine University of Arizona
2014 – 2018	Associate Professor School of Behavior and Brain Sciences

University of Texas at Dallas

2018 – present Ashbel Smith Professor
School of Behavior and Brain Sciences
University of Texas at Dallas

Employment History – concurrent temporary or visiting appointments, consultantships:

[position description], [beginning date-ending date], [organization and address]
(repeat as appropriate)

Professional recognitions and honors (study, teaching, research, service):

- College Honors List (University of Texas at Dallas), 1994 Spring, 1996 Spring and Fall.
- Nortel Scholar (University of Texas at Dallas), 1995
- Runner-up Alamo Chapter for Neuroscience poster contest, 1999
- Committee for Graduate Studies UTHSCSA Student Representative, 2002-2003
- Cover Art for *Neuroscience* Vol 120(1), 2003
- McGill Pain Day Organizing Committee, 2006-2007
- Vice President, Quebec Network of Junior Pain Investigators, 2006-2007
- American Pain Society Future Leaders in Pain Research, 2006-2007
- AAAS/Science Program for Excellence in Science Award Recipient, 2007
- First Prize, McGill Anesthesia Research Day, 2007
- American Pain Society Nominating Committee (elected position), 2008-2009
- American Pain Society Basic Science SIG Co-Chair (elected position), 2009-2011
- American Pain Society John C. Liebeskind Early Career Scholar Award, 2011
- Louis J Kettel Faculty Mentor Award from Department of Surgery, 2011
- University of Texas at Dallas Buhrmester Rising Star Award, 2012
- Vernon and Virginia Furrow Award for Graduate Education, University of Arizona, 2012
- Patrick D. Wall Young Investigator Award, International Association for the Study of Pain 2014
- NIH Executive Committee for Strategic Planning for the HEAL Initiative 2024-2025
- United States Association for the Study of Pain (USASP) Fellow 2025
- Peter J Dyck Department of Neurology Visiting Professor, Mayo Clinic, 2025

Professional memberships:

- Member, Society for Neuroscience 1999 - present
- Member, American Pain Society 2003 - 2019
- Member, International Association for the Study of Pain 2004 - present
- Founding Member, Quebec Network of Junior Pain Investigators 2006
- IASP small grants review panel, 2008

- Wellcome Trust Review Panel, 2009
- NIH / NIDA CEBRA study section ad hoc reviewer November 2009
- NIH / NIAAA study section ad hoc reviewer April 2010
- The Louise and Allen Edwards Foundation (Montreal) grant reviewer, 2010 - present
- American Pain Society 2011 (Austin, TX) Conference Planning Committee
- American Pain Society Public Policy Committee, 2010 - present
- NIH / NIDCR SEP for RFA-DE-11-001, October 2010
- NIH / NCCAM Centers for Excellence in Pain Research Program Project, November 2010
- NIH /NIDA CEBRA study section reviewer March 2012
- NIH / NIDCR SEP March 2012
- NIH SCS Study Section Oct 2012, Jan 2014, June 2014
- NIH/NIDA CEBRA reviewer January 2013, Jan 2014, October 2014
- NIH SEP June 2013
- Chair of IASP Futures Task Force: 2013
- Member Organizing Committee IASP Buenos Aires 2014 Congress
- Co-chair APS Organizing Committee, Tampa 2014 Congress
- IASP Steering Committee for Strategic Plan: 2014
- Chair APS Organizing Committee, Palm Springs 2015 Congress
- IASP Committee for launch of new open access journal: Pain Reports 2015
- Member, Somatosensory and Chemosensory/Neurobiology of Pain and Itch Study Section: 2015 – 2021
- IASP Governance Committee 2015
- Co-chair, National Pain Strategy Transition to Chronic Pain Working Group: 2016 - 2017
- American Pain Society Board of Directors: Elected 2016 - 2019
- Member, AAAS 2018 - present
- Member, Peripheral Nerve Society 2019 – present
- Member, USASP 2020 – present
- Executive Committee, North American Pain School 2020 – 2025
- Editor in Chief, *Neurobiology of Pain* 2022 – present
- Scientific Advisory Board, *Science Translational Medicine* 2025 – present

Achievements in original investigation:
Books authored or co-authored, etc.:
Books edited or co-edited; exhibitions curated, etc.:

1. **Price TJ** and Dussor GO, Volume Editors. 2015. *The Molecular and Cellular Biology of Pain: Progress in Molecular Biology and Translational Science*. Elsevier Press, Oxford UK.

Journal special issues edited or co-edited, etc.:
Articles in refereed journals; juried exhibition entries; juried film festival entries; theatrical productions, etc.:

1. **Price TJ**, O'Toole AJ, Dambach KC. (1998) A moving cast shadow diminishes the Pulfrich phenomenon. *Perception*, 27(5): 591-3.
2. O'Toole AJ, **Price TJ**, Vetter T, Bartlett JC, Blanz V. (1999) 3D shape and 2D surface textures of human faces: the role of "averages" in attractiveness and age. *Image And Vision Computing*, 18 (1): 9-19.
3. **Price TJ**, Helesic G, Parghi D, Hargreaves KM, Flores CM. (2003) Cannabinoid receptor type one (CB1) expression and distribution in the trigeminal ganglion of the rat. *Neuroscience,* 120(1): 155-62.
4. Dussor GO, Leong AS, Gracia NB, Kilo S, **Price TJ**, Hargreaves KM, Flores CM. (2003) Potentiation of Evoked CGRP Release from Oral Mucosa: A Potential Basis for the Pro-Inflammatory Effects of Nicotine. *European Journal of Neuroscience,* 18(9) 2515-26.
5. Dussor GO, **Price TJ**, Flores CM. (2003) Activating transcription factor 3 (ATF3) mRNA is up-regulated in primary cultures of trigeminal ganglion neurons. *Molecular Brain Research*, 118(1-2) 156-9.
6. **Price TJ**, Patwardhan A, Akopian A, Hargreaves KM, Flores CM. (2004) Modulation of trigeminal sensory neuron activity by the dual cannabinoid-vanilloid agonists anandamide (AEA), N-arachidonoyl-dopamine (NADA) and arachidonyl-2-chloroethylamide (ACEA). *British Journal of Pharmacology* 141(7) 1118-30.
7. **Price TJ**, Patwardhan A, Akopian A, Hargreaves KM, Flores CM. (2004) Cannabinoid receptor-independent actions of the aminoalkylindole cannabinoid WIN 55,212-2 on trigeminal sensory neurons. *British Journal of Pharmacology.* 142 (2) 257-66.
8. **Price TJ**, Louria MD, Candelario-Soto D, Dussor GO, Jeske NA, Patwardhan AM, Diogenes A, Trott A, Hargreaves KM, Flores CM. (2005) Treatment of trigeminal ganglion neurons in vitro with NGF, GDNF and BDNF: effects on neuronal survival, neurochemical properties and TRPV1-mediated neuropeptide secretion. *BMC Neuroscience* 6(1): 4.
9. **Price TJ**, Patwardhan AM, Flores CM, Hargreaves KM (2005). A role for the anandamide membrane transporter in TRPV1-mediated neurosecretion from trigeminal nociceptors. *Neuropharmacology* 49(1) 25-39.
10. **Price TJ**, Cervero F, DeKonick Y (2005) Role of cation-chloride cotransporters in pain and hyperalgesia. *Current Topics in Medicinal Chemistry.* 5(6) 547-555.
11. **Price TJ**, Jeske NA, Flores CM, Hargreaves KM (2005) Pharmacological interactions between calcium/calmodulin-dependent kinase II α and TRPV1 receptors in rat trigeminal sensory neurons. *Neuroscience Letters.* 389(2) 94-8.
12. **Price TJ**, Flores CM, Cervero F, Hargreaves KM (2006). The RNA binding and transport proteins staufen and fragile x mental retardation protein are expressed by rat primary afferent neurons and localize to peripheral and central axons. *Neuroscience*. 141(4) 2107-2116.
13. Patwardhan AM, Jeske NA, **Price TJ**, Akopian AN, Hargreaves KM (2006) The cannabinoid WIN 55,212 inhibits transient receptor potential vanilloid 1 (TRPV1) and evokes peripheral antihyperalgesia via calcineurin. *Proceedings of the National Academy of Sciences (USA).* 103(30) 11393-8.
14. **Price TJ**, Hargreaves KM, Cervero F (2006) Protein expression and mRNA cellular distribution of the NKCC1 cotransporter in the dorsal root and trigeminal ganglia of the rat. *Brain Research.* 1112(1) 146-158.

15. Jeske NA, Patwardhan AM, Gamper N, **Price TJ**, Akopian AN, Hargreaves KM. (2006) Cannabinoid WIN 55,212-2 regulated TRPV1 phosphorylation in sensory neurons. *Journal of Biological Chemistry.* 281(43) 32879-32890.
16. **Price TJ**, Flores CM (2006) Critical evaluation of colocalization of putative nociceptive markers in primary sensory ganglia: differences between the dorsal root (DRG) and trigeminal (TG) ganglia. *Journal of Pain.* 8(3) 263-72.
17. Pitcher MH, **Price TJ,** Entrena JM, Cervero F. (2007) Spinal NKCC1 blockade inhibits TRPV1-dependent referred allodynia. *Molecular Pain*. 3(17).
18. **Price TJ**, Rashid M, Millecamps M, Sanoja R, Entrena JM, Cervero F. (2007) Decreased nociceptive sensitization in mice lacking the fragile X mental retardation protein: role of mGluR1/5 and mTOR. *Journal of Neuroscience.* 27(51) 13958-67.
19. **Price TJ,** Cervero F, Gold MS, Hammond DL, Prescott SA. (2009) Chloride regulation in the pain pathway. *Brain Research Reviews.* 60(1) 149-70.
20. Walczak JS, **Price TJ,** Cervero F. (2009) Cannabinoid CB1 receptors are expressed in the mouse urinary bladder and their activation modulates afferent bladder activity. *Neuroscience.* 159(3) 1154-63.
21. **Price TJ**, Geranton SM. (2009) Translating nociceptor sensitivity: the role of axonal protein synthesis in nociceptor physiology. *European Journal of Neuroscience.* 29(12) 2253-2263.
22. Porreca F and **Price TJ**. (2009) When Pain Lingers. *Scientific American Mind.* 20, 34-41.
23. Sanoja R, Tortorici V, Fernandez C, **Price TJ**, Cervero F. (2010) Role of RVM neurons in capsaicin-evoked visceral nociception and referred hyperalgesia. *European Journal of Pain.* 14(2) 120e1-9.
24. Asiedu MN, Ossipov M, Kaila K, **Price TJ**. (2010) Acetazolamide and Midazolam act synergistically to inhibit neuropathic allodynia. *Pain.* 148(2) 302-208.
25. Vardanyan M, Melemedjian OK, **Price TJ**, Ossipov MH, Lai J, Roberts E, Boos TL, Deschamps JR, Jacobson AE, Rice KC, Porreca F. (2010) Reversal of pancreatitis-induced pain by an orally available, small molecule interleukin-6 receptor antagonist. *Pain*. 151(2) 257-265.
26. Melemedjian OK, Asiedu MN, Tillu DV, Peebles K, Yan J, Ertz N, Dussor G, **Price TJ**. (2010) IL-6- and NGF-induced rapid control of protein synthesis and nociceptive plasticity via convergent signaling to the eIF4F complex. *Journal of Neuroscience*. 30(45) 15113-23.
27. Boitano S, Flynn AN, Schulz SM, Hoffman J, **Price TJ**, Vagner J. (2011) Potent agonists of the Protease Activated Receptor 2 (PAR_2). *Journal of Medicinal Chemistry*. 10; 54(5) 1308-13.
28. Asiedu MN, Tillu DV, Melemedjian OK, Shy A, Bodell B, Sanoja R, Ghosh S, Porreca F, **Price TJ**. (2011) Spinal PKMζ underlies the maintenance mechanism of persistent nociceptive sensitization. *Journal of Neuroscience*. 31(18) 6646-53. *Featured article*
29. Flynn AN, Tillu DT, Asiedu MN, Hoffman J, Vagner J, **Price TJ**, Boitano S. (2011) The protease-activated receptor-2 specific agonists, 2-aminothiazol-4-yl-LIGRL and 6-aminonicotinyl-LIGRL stimulate multiple signaling pathways to induce physiological responses in vitro and in vivo. *Journal of Biological Chemistry*. 286(21) 19076-88.

30. De Felice M, Sanoja R, Wang R, Vera-Portocarrero L, Oyarzo J, King T, Ossipov M, Vanderah TW, Lai J, Dussor G, Fields HL, **Price TJ**[#], Porreca F[#]. (2011) Engagement of descending inhibition from the rostral ventromedial medulla protects against chronic neuropathic pain. *Pain*. 152(12) 2701-9. [#]co-corresponding authors
31. Melemedjian OK, Asiedu MN, Tillu DV, Sanoja R, Yan, J, Lark A, Khoutorsky A, Johnson J, Peebles KA, Lepow T, Sonenberg N, Dussor G, **Price TJ**. (2011) Targeting adenosine monophosphate-activated protein kinase (AMPK) in preclinical models reveals a potential mechanism for the treatment of neuropathic pain. *Molecular Pain*. 7:70.
32. Peebles KA, **Price TJ**. (2012) Self-injurious behavior in intellectual disability syndromes: evidence for aberrant pain signaling as a contributing factor. *Journal of Intellectual Disability Research.* 56(5) 441-52.
33. Melemedjian OK, **Price TJ**. (2012) Dendritic spine plasticity as an underlying mechanism of neuropathic pain. *Experimental Neurology*. 233(2) 740-4.
34. Tillu DV, Melemedjian OK, Asiedu MN, Qu N, De Felice M Dussor G, **Price TJ**. (2012) Resveratrol engages AMPK to attenuate ERK and mTOR signaling in sensory neurons and inhibits incision-induced acute and chronic pain. *Molecular Pain.* 8:5.
35. Bowden K, Woullet A, Patwardhan A, **Price TJ**, Lawall J, Annabi J, Barker S, Annabi E. (2012) Transforaminal blood patch for the treatment of chronic headache from intracranial hypotension: a case report and review. *Anesthesiology Research and Practice.* 2012:923904.
36. Stidd DA, Wuollet AL, Bowden K, **Price TJ**, Patwardhan A, Barker S, Weinand ME, Annabi J, Annabi E (2012) Peripheral nerve stimulation for trigeminal neuropathic pain. *Pain Physician*. 15(1) 27-33.
37. Yan J, Melemedjian OK, **Price TJ**, Dussor G. (2012) Sensitization of dural afferents underlies migraine-related behavior following meningeal application of interleukin-6 (IL-6). *Molecular Pain.* 8:6.
38. King T, Qu C, Okun A, Melemedjian OK, Mandell E, Maskaykina I, Navratilova E, Dussor G, Ghosh S, **Price TJ**[#], Porreca F[#]. (2012) Contribution of PKMζ dependent and independent amplification to components of experimental neuropathic pain. *Pain*. 153(6) 1263-73 [#]co-corresponding authors
39. Asiedu MN, Mejia G, Ossipov MK, Malan TP, Kaila K, **Price TJ**. (2012) Modulation of spinal GABAergic analgesia by inhibition of chloride extrusion capacity in mice. *Journal of Pain*. 13(6) 546-54.
40. Patwardhan A, Edelmayer R, Annabi E, **Price TJ**, Malan P, Dussor G. (2012) Receptor specificity defines algogenic properties of propofol and fospropofol. *Anesthesia and Analgesia*. 115(4) 837-840.
41. Hoffman J, Flynn A, Tillu DV, Zhang Z, Patek R, **Price TJ**, Vagner J, Boitano S. (2012) Lanthanide labeling of a potent protease activated receptor-2 agonist for time resolved fluorescence analysis. *Bioconjugate Chemistry*. 23(10) 2098-2104.
42. Flynn AN, Hoffman J, Tillu DV, Sherwood CL, Zhang Z, Patek R, Asiedu MN, Vagner J, **Price TJ**, Boitano S. (2013) Development of highly potent protease-activated receptor 2 agonists via synthetic lipid tethering. *FASEB Journal.* 27(4): 1498-510.
43. **Price TJ** and Ghosh S. (2013) ZIPping to pain relief: the role (or not) of PKMzeta in chronic pain. *Molecular Pain*. 22; 9(1): 6.

44. Melemedjian OK, Khoutorsky A, Sorge RE, Yan J, Asiedu MN, Valdez A, Ghosh S, Dussor G, Mogil JS, Sonenberg N, **Price TJ**. (2013) mTORC1 inhibition induces pain via IRS1-dependent feedback activation of ERK. *Pain*. 154(7): 1080-91.
45. Melemedjian OK, Tillu DV, Asiedu MN, Mandell EK, Moy JK, Blute VM, Taylor CJ, Ghosh S, **Price TJ**. (2013) BDNF regulates atypical PKC at spinal synapses to initiate and maintain a centralized chronic pain state. *Molecular Pain*. 9(1): 12.
46. Melemedjian OK, Yassine H, Shy A, **Price TJ.** (2013) Proteomic and functional annotation analysis of injured peripheral nerves reveals ApoE as a protein upregulated by injury that is modulated by metformin treatment. *Molecular Pain*. 9(1): 14.
47. **Price TJ**, Dussor G (2013) AMPK: An emerging target for modification of injury-induced pain plasticity. *Neuroscience Letters.* S0304-3940(13) 607-1.
48. Gao Y, Romero-Aleshire MJ, Cai Q, **Price TJ**, Brooks HL. (2013) Rapamycin inhibition of mTORC1 reverses lithium-induced proliferation of renal collecting duct cells. *American Journal of Physiology Renal Physiology.* 305(8) F1201-8.
49. Parker SS, Mandell EK, Hapak SM, Maskaykina IY, Kusne Y, Kim JY, Moy JK, St John P, Wilson JM, Gothard KM, **Price TJ[#]**, Ghosh S[#]. (2013) Competing molecular interactions of aPKC isoforms regulate neuronal polarity. *PNAS.* 110(35) 14450-5. [#] co-corresponding authors.
50. Taylor A, Westveld A, Szkudlinska M, Guruguri P, Annabi E, Patwardhan A, **Price TJ[#]**, Yassine H[#]. (2013) The use of metformin is associated with decreased lumbar radiculopathy pain. *Journal of Pain Research.* Dec 9 (6) 755-63. [#] co-corresponding authors.
51. Melemedjian OK[#], Mejia GL, Lepow TS, Zoph OK, **Price TJ[#]**. (2014) Bidirectional regulation of P body formation mediated by eIF4F complex formation in sensory neurons. *Neuroscience Letters.* 563 169-174. [#] co-corresponding authors
52. Asiedu MN, Mejia GL, Hubner CA, Kaila K, **Price TJ**. (2014) Inhibition of carbonic anhydrase augments $GABA_A$ receptor-mediated analgesia via a spinal mechanism of action. *Journal of Pain.* S1526-5900(14) 00019-4.
53. Boitano S[#], Hoffman J, Tillu DV, Asiedu MN, Zhang Z, Sherwood CL, Wang Y, Dong X, **Price TJ[#]**, Vagner J[#]. (2014) Development and evaluation of small peptidomimetic ligands to protease-activated receptor-2 (PAR_2) through the use of lipid tethering. *PLoS ONE*. 9(6) e99140. [#] co-corresponding authors
54. **Price TJ**, Dussor G. (2014) Evolution: the advantage of 'maladaptive' pain plasticity. *Current Biology.* 24(10) R384-6.
55. Kusne Y, Goldberg EL, Parker SS, Hapak SM, Maskaykina IY, Chew WM, Limesand KH, Brooks HL, **Price TJ**, Nikolich-Zugich J, Ghosh S. (2014) Contrasting effects of chronic, systemic treatment with mTOR inhibitors rapamycin and metformin on adult neural progenitors in mice. *Age.* 36(1) 199-212.
56. Mao-Ying QL, Kavelaars A, Krukowski K, Zhuo W, **Price TJ**, Cleeland C, Heijnen CJ. (2014) The antidiabetic drug metformin protects against chemotherapy-induced peripheral neuropathy in a mouse model. *PLoS One*. 9(6) e100701.
57. Melemedjian OK, Tillu DV, Moy JK, Asiedu MN, Mandell EK, Ghosh S, Dussor G, **Price TJ**. (2014) Local translation and retrograde axonal transport of CREB regulates IL-6-induced nociceptive plasticity. *Molecular Pain*. 10:45.

58. Kaila K, **Price TJ**, Payne JA, Puskarjov M, Voipio J. (2014) Cation-chloride cotransporters in neuronal development, plasticity and disease. *Nature Reviews Neuroscience.* 15(10) 637-54.
59. Sherwood CL, Daines MO, **Price TJ**, Vagner J, Boitano S. (2014) A highly potent agonist to protease-activated receptor-2 (PAR_2) reveals apical activation of the airway epithelium resulting in Ca^{2+}-regulated ion conductance. *American Journal of Physiology: Cell Physiology.* 307(8) 718-26
60. Gereau RW, Sluka KA, Maixner W, Savage SR, **Price TJ**, Murinson BB, Sullivan MD, Fillingim RB. (2014) A pain research agenda for the 21st century. *Journal of Pain*. 15(12) 1203-14.
61. Gkogkas CG, Khoutorsky A, Cao R, Jafarnejad SM, Prager-Khoutorsky M, Giannakas N, Kaminari A, Fragkouli A, Nader K, **Price TJ**, Konicek BW, Graff JR, Tzinia AK, Lacaille JC, Sonenberg N. (2014) Pharmacogenetic inhibition of eIF4E-dependent MMP9 mRNA translation reverses fragile X syndrome-like phenotypes. *Cell Reports*. S2211-1247(14) 00933-4.
62. Wei X, Yan K, Tillu DV, Asiedu MN, Weinstein N, Melemedjian OK, **Price TJ**, Dussor G (2015) Meningeal norepinephrine produces headache behaviors in rats via actions both on dural afferents and fibroblasts. *Cephalalgia*. 35(12) 1054-64.
63. **Price TJ**, Prescott SA (2015) Inhibitory regulation of the pain gate and how its failure causes pathological pain. *Pain*. 156(5) 789-92.
64. Tillu DV, Hassler SN, Burgos-Vega C, Quinn TL, Sorge RE, Dussor G, Boitano S, Vagner J, **Price TJ** (2015) Protease activated receptor 2 (PAR_2) activation is sufficient to induce the transition to a chronic pain state. *Pain*. 156(5) 859-67.
65. Kim JV, Tillu DV, Quinn TL, Mejia GL, Shy A, Asiedu MN, Murad E, Schumann AP, Totsch SK, Sorge R, Mantyh PW, Dussor G, **Price TJ** (2015) Spinal dopaminergic projections control the transition to pathological pain plasticity via a D1/D5-mediated mechanism. *Journal of Neuroscience*. 35(16) 6307-6317.
66. Kandasamy R, **Price TJ** (2015) The pharmacology of nociceptor priming. *Handbook of Experimental Pharmacology.* 227, 15-37.
67. Boitano S, Hoffman J, Flynn AN, Asiedu MN, Tillu DV, Zhang Z, Sherwood CL, Rivas CM, DeFea K, Vagner J, **Price TJ** (2015) The novel PAR2 ligand C391 blocks multiple PAR2 signaling pathways in vitro and in vivo. *British Journal of Pharmacology.* 172(18) 4535-4545.
68. Lipovka Y, Chen H, Vagner J, **Price TJ**, Tsao TS, Konhilas JP (2015) Estrogen receptors interact with the alpha catalytic subunit of AMP-activated protein kinase. *Bioscience Reports.* 35(5) e00264.
69. **Price TJ**, Das V, Dussor G (2016) Adenosine monophosphate-activated protein kinase (AMPK) activators for the prevention, treatment and potential reversal of pathological pain. *Current Drug Targets*. 17(8) 908-920.
70. Andrews NA, Latremoliere A, Basbaum AI, Mogil JS, Porreca F, Rice AS, Woolf CJ, Currie GL, Dworkin RH, Eisenach JC, Evans S, Gewandter JS, Gover TD, Handwerker H, Huang W, Iyengar S, Jensen MP, Kennedy JD, Lee N, Levine J, Lidster K, Machin I, McDermott MP, McMahon SB, **Price TJ**, Ross SE, Scherrer G, Seal RP, Sena ES, Silva E, Stone L, Svensson CI, Turk DC, Whiteside G (2016) Ensuring transparency and minimization of methodological bias in preclinical pain research: Pprecise considerations. *Pain.* 157(4) 901-909.

71. Kim JY, Megat S, Moy JK, Asiedu MN, Mejia GL, Vagner J, **Price TJ** (2016) Neuroligin 2 regulates spinal GABAergic plasticity in hyperalgesic priming, a model of the transition from acute to chronic pain. *Pain*. 157(6) 1314-24.
72. Barragan-Iglesias P, Oineda-Farias JB, Bravo-Hernandez M, Cervantes-Duran C, **Price TJ**, Murbartian J, Granados-Soto V (2016) Predominant role of spinal P2Y1 receptors in the development of neuropathic pain in rats. *Brain Research*. 1636 43-51
73. Davidson S, Golden JP, Copits BA, Ray PR, Vogt SK, Valtcheva MV, Schmidt RE, Ghetti A, **Price TJ,** Gereau RW (2016) Group II mGluRs suppress hyperexcitability in mouse and human nociceptors. *Pain*. 157(9) 2081-8.
74. Pember SO, Mejia GL, **Price TJ**, Pasteris RJ (2016) Piperidinyl thiazole isoxazolines: A new series of highly potent, slowly reversible FAAH inhibitors with analgesic properties. *Bioorganic & Medicinal Chemistry Letters.* 26(12) 2965-73.
75. Mejia GL, Asiedu MN, Hitoshi Y, Dussor G, **Price TJ** (2016) The potent, indirect adenosine monophosphate-activated protein kinase activator R419 attenuates mitogen-activated protein kinase signaling, inhibits nociceptor excitability and reduces pain hypersensitivity in mice. *Pain Reports*. 1(1) e562.
76. Burgos-Vega C, Quigley L, Avona A, **Price TJ**, Dussor G (2016) Dural stimulation in rats causes BDNF-dependent priming to subthreshold stimuli including a migraine trigger. *Pain.* 157(12) 2722-2730.
77. Park SI, Shun G, McCall JG, Al-Hasani R, Norris A, Xia L, Brenner DS, Noh KN, Bang SY, Bhatti, DL, Jang K, Kang K, Mickle AD, Dussor G, **Price TJ**, Gereau RW, Bruchas MR, Rogers JA (2016) Stretchable multi-channel antennas in soft wireless optoelectronic implants for optogenetics. *PNAS.* 113(50) 8169-8177.
78. Asiedu MN, Dussor G, **Price TJ** (2016) Targeting AMPK for the alleviation of pathological pain. *EXS*. 107, 257-285.
79. Li X, Che Z, Mazhar K, **Price TJ**, Qin Z (2016) Ultrafast near infrared light-triggered intracellular uncaging to probe cell signaling. *Advanced Functional Materials.* 27 1605778-1605778.
80. Asiedu MN, Han C, Dib-Hajj SD, Waxman SG, **Price TJ**, Dussor G (2016) The AMPK activator A769662 blocks voltage-gated sodium channels: discovery of a novel pharmacophore with potential utility for analgesic development. *PLoS One.* 12(1) e0169882.
81. Hanamura K, Washburn HR, Sheffler-Collins SI, Xia N, Henderson N, Tillu DV, Hassler S, Spellman DS, Zhang G, Neubert TA, **Price TJ**, Dalva MB (2017) Extracellular phosphorylation of a receptor tyrosine kinase controls synaptic localization of NMDA receptors and regulates pathological pain. *PLoS Biology.* 15(7) e2002457.
82. Sahn JJ, Mejia GL, Ray PR, Martin SF[#], **Price TJ[#]** (2017) Sigma 2 receptor / Tmem97 agonists produce long lasting anti-neuropathic pain effects in mice. *ACS Chemical Neuroscience.* 8(8) 1801-1811. [#] co-corresponding authors
83. Moy, JK, Khoutorsky A, Asiedu MN, Black, BJ, Kuhn JL, Barragan-Iglesias P, Megat S, Burton MD, Burgos-Vega CC, Melemedjian OK, Boitano S, Vagner J, Gkogkas CG, Pancrazio JJ, Mogil JS, Dussor G, Sonenberg N, **Price TJ** (2017) The MNK-eIF4E signaling axis contributes to injury-induced nociceptive plasticity and the development of chronic pain. *Journal of Neuroscience.* 37(31) 7481-7499.

84. Burton MD, Tillu DV, Mazhar K, Mejia GL, Asiedu MN, Inyang K, Hughes T, Lian B, Dussor G, **Price TJ** (2017) Pharmacological activation of AMPK inhibits incision-evoked mechanical hypersensitivity and the development of hyperalgesic priming in mice. *Neuroscience*. 359 119-129.
85. Megat S, Shiers S, Moy JK, Barragan-Iglesias P, Pradhan G, Seal RP, Dussor G, **Price TJ** (2018) A critical role for dopamine D5 receptors in pain chronicity in male mice. *Journal of Neuroscience.* 38(2). 379-397
86. Khoutorsky A, **Price TJ** (2018) Translational control mechanisms in persistent pain. *Trends in Neurosciences.* 41(2) 100-114.
87. Barragan-Iglesias P, Tzu-Fang L, Bhat V, Megat S, Burton M, **Price TJ**, Campbell Z (2018) Inhibition of poly(A) binding protein with a synthetic RNA mimic reduces pain sensitization in mice. *Nature Communications.* 9(1): 10.
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262. Xu M, Li Z, Thottappilli N, Cherief M, Zhu M, Xing X, Gomez-Salazar M, Rao C, Ramesh S, Mwirigi JM, Sankaranarayanan I, Tavares-Ferreira D, Zhang C,

Wang X-W, Archer M, Guan Y, Tower RJ, Cahan P, **Price TJ**, Clemens TL, James AW (2025) Mapping somatosensory afferent circuitry to bone identifies neurotrophic signals required for fracture healing. *Science.* 391(6781):eadr9608.

263. Caparaso SM, Sankaranarayanan I, Lillyman DJ, **Price TJ**, Wachs RA (2025) Single-nuclei RNA sequencing reveals distinct transcriptomic signatures of the Rat Dorsal Root Ganglia in a chronic discogenic low back pain model. *Journal of Pain.* 39:105590.
264. Morchio M, Sankaranarayanan I, Tavares-Ferriera D, Wong N, Atkins S, Sher E, **Price TJ**, Lambert DW, Boissonade FM (2025) Spatially resolved single-cell analysis of transcriptomic changes linked with neuropathic pain in human neuromas. *PAIN. In press.*
265. Naik DK, Espinosa F, Okolie IM, Navqi KF, Nguyen G, Ruhl CR, Mazhar K, Kroener S, Dussor G, Shiloh MU, **Price TJ** (2025) Sulfolipid-1 from Mycobacterium tuberculosis activates Galphaq/11-coupled pathways to increase sensory neuron excitability. *Journal of Neurophysiology. In press.*
266. Li Y, Uhelski ML, North RY, Elahi H, Corrales G, Abercrombie TJ, Sheffield KN, Marri T, **Price TJ**, Dougherty PM (2025) Oncostatin M promotes chronic pain through direct regulation on nociceptors in rats. *PAIN. In press*.
267. Korner J, Howard D, Solinski HJ, Mancilla Moreno M, Haag N, Fiebig A, Maxion A, Bhuiyan SA, Toklucu I, Bott R, Sankaranarayanan I, Tavares-Ferreira D, Shiers S, Inturi NN, Ernst L, Bonguro L, Shulte-Schreppig J, Beyer MD, Stiehl T, Renthal W, Kurth I, Tigerholm J, Serra J, **Price TJ**, Schmelz M, Namer B, Tripathy S, Lampert A (2026) Molecular architecture of human dermal sleeping nociceptors. *Cell*. *In press.*
268. Uhelski ML, Schaub MK, Espinosa F, Heles M, Cortes N, Li Y, Tatsui CE, Shines LD, North RY, Alvarez-Breckenridge C, Funk G, Horton P, Cervantes A, Lesnak JB, Curatolo M, Dussor G, **Price TJ**, Dougherty PM (2026) Suzetrigine (VC-548) exhibits activity-dependent effects on human dorsal root ganglion neurons with differential pain etiology. *PAIN. In press*.
269. Patil M, Belugin S, Henry M, Hovhannisyan AH, Barba-Escobedo, Mecklenberg J, Goffin V, Dussor G, **Price TJ**, Akopian AN (2026) Spinal glial cell derived extra-pituitary prolactin contributes to postoperative pain in females. *Frontiers in Aging Neuroscience. In press.*
270. Lesnak JB, Schaub MK, Gomez K, Calderon-Rivera A, Loya-Lopez S, Stewart R, Jo S, Fujita A, Osomo T, Mydugolam H, Desai M, Natarajan K, Schackmuth MK, Mancilla Moreno M, Shiers SI, Cervantes A, Funk G, Horton P, Vines E. Yousuf MS, Salder KE, Bean BP, Khanna R, Dussor G, **Price TJ** (2026) Enabling wider access to human molecular pain neuroscience: A preservation method for human dorsal root ganglion neurons in Hibernate A media. *Cell Reports Methods*. *In press*.

Articles appearing as chapters in edited volumes; self-mounted exhibitions, etc.:

1. **Price TJ** and Melemedjian OK, Fragile X Mental Retardation Protein (FMRP) and the Spinal Sensory System. In: Modeling the Fragile X Syndrome; Results and Problems in Cell Differentiation. Robert Denman, editor. Springer-Verlag Books. 2012.
2. **Price TJ,** Inyang KE (2015) Commonalities between pain and memory mechanisms and their meaning for understanding chronic pain. *In: The Molecular*

and Cellular Biology of Pain: Progress in Molecular Biology and Translational Science. Price and Dussor Editors. Elsevier Press, Oxford UK. 131, 409-34.

3. Tavares-Ferreira D, Megat S, **Price TJ** (2020) Using translating ribosome affinity purification (TRAP) to understand cell-specific translatomes in pain states. In *Contemporary approaches to the study of pain: from molecules to neural networks.* Edited by Rebecca P Seal. Springer Nature.
4. Paige C, Shiers S, **Price TJ** (2020) The Future of Pain Therapeutics In *Pain Management for Clinicians: A Guide to Assessment and Treatment.* Edited by Carl Noe. Springer Nature Switzerland. ISBN 978-3-030-39981-8.
5. Yousuf MS, **Price TJ** (2020) Chapter 4: The Basics – Translation Regulation and Pain. In R.E. Sorge (Ed.), *Dynamics of Pain*. Great River Learning. https://uab.grlcontent/dynpain

Refereed conference publications or abstracts:
Unrefereed publications:
Unrefereed abstracts:
Other writings (not including abstracts):
Books/articles accepted for publication: (note date of acceptance)
Books/articles submitted for publication: (note date of submission and to whom)
Works in progress:

Invited talks/presentations at professional meetings, seminars, or colloquia assemblies; invited performances or exhibitions, etc.:

Symposia

1. *Beyond the messenger: Role of translational regulation in pain processing. American Pain Society 2007 Meeting Symposia. Washington DC. May 5, 2007.
2. Defining the role of NKCC1 in nociceptive processing. International Association for the Study of Pain World Congress. Glasgow, UK. August 21, 2008.
3. Translational control as a novel mechanism of nociceptive sensitization. University of Helsinki, Finland. Federation of Neurosciences Graduate Programs Symposia. October 6, 2008. *Invited*
4. *Translation control in pain processing. Spring Pain Research Conference. Grand Cayman Island. April 18, 2010.
5. *Emerging role of translation control in nociceptive processing. International Association for the Study of Pain World Congress. Montreal, QC. Sept 3, 2010.
6. *Novel treatment approaches for pain in areas of great clinical need. American Pain Society 2011 Meeting Symposia. Austin TX. May 19, 2011
7. *The future of drug discovery for pain. American Pain Society 2011 Dinner Symposia. Austin TX. May 20, 2011
8. Novel role for PKMζ in pain. International Association for the Study of Pain 2012 Congress Symposia. Milan, Italy. Aug 28, 2012
9. *Targeting spinal GABAergic mechanisms to Develop Novel Analgesics. American Pain Society 2013 Meeting Symposium. New Orleans, LA. May 11, 2013.
10. *Targeting translation control for the treatment of pain. American Pain Society 2014 Meeting Symposium. Tampa, FL. May 1, 2014
11. Descending dopaminergic control of pathological pain plasticity. Winter Conference on Brain Research. Breckenridge, CO. January 26, 2016

12. *Descending dopaminergic circuits and D1/D5 receptors in the transition to chronic pain. American Pain Society. Austin, TX. May 12, 2016
13. Mechanisms of neuropathic pain from mice to human; from AMPK to transcriptomics. International Association for the Study of Pain. Yokohama, Japan. Sept 29, 2016
14. New mechanisms of latent pain sensitization and hyperalgesic priming: Clinical implications. American Pain Society. Pittsburgh, PA. May 19, 2017.
15. *The pain biography: what early life injury and hyperalgesic priming teaches us about how pain becomes chronic. Neuropathic Pain Special Interest Group Meeting (NeuPSIG). Gothenburg, Sweden. June 15, 2017
16. Neuro-immune interactions driving chronic pain from mice to humans. American Pain Society. Anaheim, CA. March 5, 2018.
17. Sex differences in pain mechanisms across the lifespan. Canadian Pain Society Annual Meeting. Montreal, QC. May 23, 2018.
18. *Next generation sequencing reveals sex-specific mechanisms of chronic pain in mice and humans. International Association for the Study of Pain. Boston, MA. Sept 13, 2018.
19. *Pain plasticity mechanisms along the neuroaxis. Neuropathic Pain Special Interest Group Meeting. London, UK. May 10, 2019
20. Sex difference in nociceptor translatomes contribute to divergent prostaglandin signaling in male and female mice. National Academies of Science (US). Online. Sept 23, 2020.
21. A debate on Central and Peripheral Mechanisms of Neuropathic Pain. US Association for Study of Pain. Online. Dec 11, 2020.
22. Transcriptomic (and mostly other) findings from human DRG and spinal cord. IASP Meeting. Toronto Canada. Sept 19, 2022.
23. Basic Science Refresher Course. IASP Meeting. Toronto Canada. Sept 19, 2022.
24. *SILENT NOCICEPTORS The answer is all in the genes – RNA sequencing on human nociceptors. IASP Meeting. Toronto Canada. Sept 20, 2022.
25. *Using Human Molecular Neuroscience to Increase the Translational Potential of Preclinical Pain Research**.** IASP Meeting. Toronto Canada. Sept 21, 2022.
26. * Pain Target Identification in Human DRG and Spinal Cord Studies. ACNP Annual Meeting. Phoenix AZ. Dec 1, 2022.
27. Developing next generation non-opioid analgesics. K-INBRE Annual Symposium. Kansas City, KS. Jan 13, 2023.

*Symposia organizer

Conferences

1. Axonal Plasticity, FMRP and pain. New Developments in Fragile X Syndrome: From Basic Mechanisms to Therapeutics. The Banbury Center, Cold Spring Harbor Laboratory, NY. April 6, 2009. *Invited*
2. IL-6-induced nociception: role of ERK – MNK – eIF4E signaling. American Pain Society Annual Meeting. San Diego, CA. May 8, 2009.

3. Decreased nociceptive sensitization in fragile X mental retardation knockout mice. The Gatlinburg Conference on Intellectual Disabilities Research. Annapolis, MD. March 19, 2010. *Invited*
4. IL-6 and NGF rapidly control gene expression in sensory neurons via signaling to translation machinery. Spring Pain Research Conference. Grand Cayman Island. April 18, 2010.
5. IL-6 and NGF rapidly control gene expression in sensory neurons via signaling to translation machinery. American Pain Society Annual Meeting. Baltimore, MD. May 8, 2010.
6. Targeting mTOR for novel opportunities for pain control. Pain Society of Oregon Annual Meeting. Portland, OR. May 21, 2010. *Invited*
7. Cytokines, growth factors and nerve injury rapidly alter gene expression in sensory neurons via mTOR and ERK signaling to elongation initiation factors. International Association for the Study of Pain World Congress. Montreal, QC. Sept 3, 2010.
8. Closing opened pain gates by regulating spinal inhibition. Reflex Sympathetic Dystrophy Association Workshop on Activated Glia. Chicago, IL. Oct 9, 2010. *Invited*
9. PKMζ maintains persistent nociceptive sensitization. American Pain Society Annual Meeting. Austin TX. May 19, 2011.
10. Maintenance mechanisms of persistent pain states. Rita Allen Foundation Scholars Meeting. Princeton, NJ. June 22, 2011. *Invited*
11. Role of PKMζ in the maintenance of spinal nociceptive plasticity: role of brain derived neurotrophic factor (BDNF). NeuPSIG. Toronto, ON. May 24, 2013.
12. Pharmacological strategies to mitigate limitations of GABAergic modulation for the treatment of neuropathic pain. NeuPSIG. Toronto, ON, May 26, 2013.
13. Molecular mechanisms driving chronic pain: from sea slugs to memory molecules. BIT NeuroTalk. Nanjing, China. May 17, 2014.
14. Translation control of neuropathic pain. International Association for the Study of Pain World Congress. Buenos Aires, Argentina. October 8, 2014. *Invited*
15. AMPK, an emerging target for pain. Pain and Migraine Therapeutics Summit. San Francisco, California. November 5, 2014. *Invited*
16. Methylglyoxal induces the integrated stress response in nociceptors to promote diabetic neuropathic pain. Mexican Academy of Physiology Meeting. Campeche, Mexico. August 17, 2016. *Invited*
17. Neuro-immune interactions in chronic pain. Advances in Pain Management CME Conference. University of Rochester. Rochester NY. April 14, 2018. *Invited Plenary Lecture.*
18. Targeting translation regulation for the treatment of neuropathic pain. Pain Mechanisms and Therapeutics Conference. Taormina, Italy. June 6, 2018. *Invited.*
19. Nociceptor translational profiling reveals MNK1-eIF4E signaling as a novel target for treatment of neuropathic pain. American College of Neuropsychopharmacology (ACNP). Miami, Fl. Dec 12, 2018. *Invited*
20. Primitive and recently evolved mechanisms driving persistent pain. Evolution of mechanisms and behavior important for pain conference. Royal Society UK. Newport Pagnell, Buckinghamshire, UK. Feb 12, 2019. *Invited*

21. Harnessing the RNA sequencing revolution to find new targets and biomarkers for pain drug discovery. Drug Discovery Re-Invented Conference. Nassau, Bahamas. Feb 21, 2019. *Invited.*
22. Mechanisms of transition to chronic pain. Challenge of Chronic Pain Meeting. Cambridge, UK. March 5, 2019. *Invited.*
23. Using Human Nerves to Identify New Pain Targets. Texas Pain Research Consortium Meeting. San Antonio, TX. Sept 13, 2019. *Invited.*
24. Sex-specific therapeutics based on gene discovery and mechanistic studies. NIH Pain Consortium. Washington DC (online webinar). June 3, 2020. *Invited*
25. Strategies and Pitfalls in Advancing Novel Analgesic Drugs. Study Group. American College of Neuropsychopharmacology. Dec 9, 2020. *Invited*.
26. Molecular profiling of the human peripheral nervous system in chronic pain states. To be at Pain Austria. Jan 30, 2021. *Invited Plenary Speaker*.
27. The impact of COVID-19 on the nervous system – thoughts on long-COVID. Canadian Pain Society Annual Meeting. April 28, 2021. *Invited*.
28. Basic Science of Sickle Cell Pain. Approaches to effective therapeutic management of pain for people with Sickle Cell Disease, NIH. July 21, 2021. *Invited.*
29. Using RNA sequencing on human peripheral nerves to understand mechanisms driving painful neuropathies. Peripheral Nerve Society Annual Meeting. June 13, 2021. *Invited*.
30. Molecular profiling of the human peripheral nervous system in chronic pain states. To Be At Pain Austria Meeting. Online. Jan 30, 2022. *Invited*.
31. Molecular characterization of the human DRG and its implications for pain therapeutic development. Acute to Chronic Pain Transitions Working Group (NIH project) Annual Scientific Meeting. Online. March 18, 2022. *Invited.*
32. Exploiting human DRG explants and spatial transcriptomics for modeling neuropathic pain. European Federation of IASP Chapters Annual Meeting. Dublin, Ireland. April 29, 2022, *Invited*.
33. Spatial transcriptomics on human DRG defines nociceptor transcriptomes and arrangement of immune cell types. United States Association for the Study of Pain annual meeting. Cincinnati, OH. May 12, 2022. *Invited*.
34. Unique pain targets and mechanisms emerging from single cell and spatial sequencing of the human DRG. Pain Mechanisms and Targets Meeting. Verona, Italy. June 3, 2022.
35. Understanding human nociceptors, their molecular makeup, functional regulation and innervation targets. FOP Forum. Dallas, TX. Nov 10, 2022. *Invited.*
36. Using Human Transcriptomics to Better Understand Headache Mechanisms. Pain and Therapeutics Summit. Washington DC. Nov 14, 2022.
37. Human nociceptors identifying their subtypes, molecular profiles, and potential therapeutic targets. 2023 Australian Pain Society 43rd Annual Scientific Meeting. Canberra, Australia. April 3, 2023.
38. The quest to identify human dorsal horn projection neurons of the spinothalamic tract. 12th Annual GCC Translational Pain Conference. May 20, 2023.
39. Creating the next generation of non-opioid pain therapeutics. Festival of Biologics, BioKansas. Kansas City, KS. Aug 3 2023.
40. Molecular Basis of Neuropathic Pain – Insight from human samples. NeuPSIG. Keynote Speaker. Lisbon, Portugal. Sept 8, 2023.

41. Molecular Basis of Neuropathic Pain – Insight from human samples. Society of General Physiologists. Woods Hole, MA. Sept 28, 2023.
42. Molecular signatures of DRG – insights regarding targetable pain mechanisms and sex dimorphisms. American College of Rheumatology Meeting. San Diego, CA. Nov 11, 2023.
43. Novel ligands and receptors in pain – the story of OSM. American College of Rheumatology Meeting. San Diego, CA. Nov 12, 2023.
44. What can we learn about human neuropathies from “pain in a dish” models. Controversies in Neuropathic Pain. Brussels, Belgium. Nov 21, 2023.
45. Molecular Signature of Human Nociceptors. Keystone Symposia, Mammalian Somatosensation. Santa Fe, NM. Jan 15, 2024
46. Molecular profiles of human neck pain. USASP Meeting, Seattle, WA. April 15, 2024.
47. Molecular pathology in the human DRG linked to diabetic neuropathic pain. Pain Mechanisms and Therapeutics 2024. Verona, Italy. May 21, 2024. Invited.
48. Neuropathic Pain Mechanisms in the Human DRG: Lessons from RNA Sequencing. Peripheral Nerve Society Annual Meeting. Montreal, Canada. June 23, 2024. Invited.
49. Molecular Mechanisms of Spine Pain – insights from human surgical and organ donor samples. European Federation of IASP Chapters Annual Meeting. Lyon, France. April 26, 2025. Invited.
50. Insights into Neuropathic Pain Mechanisms from Studies of Human Dorsal Root Ganglion and Spinal Cord. United States Association for the Study of Pain Annual Meeting. Chicago, IL, May 2, 2025. Invited Plenary Talk.
51. Mechanisms of Diabetic Neuropathic Pain: Lessons from Human DRG and Spinal Cord. Peripheral Nerve Society Annual Meeting. May 18, 2025. Edinburgh, Scotland. Peter J. Dyck Plenary Talk Invited.
52. Human DRG changes in neuropathic pain – transcriptomics and proteomics. NeuPSIG. August 30, 2025. Berlin, Germany. Invited.
53. Cross-Species Insights into Dorsal Root Ganglion Biology: Unraveling Mechanisms of Pain. Pain in Animals Workshop. September 25, 2025. NIH Campus, Bethesda MD. Michele Sharkey PAW Keynote Lecture, Invited.
54. What is in a name? Define the Boundaries of Neuronal Cell Types. Society for Neuroscience. Nov 16, 2025. San Diego, CA. Invited.

Seminars

1. RNA Binding Proteins in the Pain Pathway: Perspectives on RNA Transport and Local Translation. The University of Texas Health Science Center at San Antonio. June 24, 2005. *Invited*
2. RNA Transport and Local Translation in the Peripheral Nervous System. McGill Centre for Research on Pain / Astra Zeneca Research Meeting. December 20, 2005. *Invited*
3. Translational regulation in sensory neurons and the spinal cord: Implications for pain processing. University of Arizona Health Sciences Center: Depts of Pharmacology and Physiology. February 19, 2007. *Invited*

4. Translational regulation in sensory neurons and the spinal cord: Implications for pain processing. Harvard University Medical School: Dept of Anesthesia. March 12, 2007. *Invited*
5. Translational regulation in sensory neurons and the spinal cord: Implications for pain processing. Pittsburgh University Pain Center: Neurobiology Department. March 21, 2007. *Invited*
6. Is chronic pain a memory of pain? Translational regulation in the pain pathway. University of Texas at Dallas: Dept of Brain and Behavioral Sciences. April 30, 2007. *Invited*
7. What can Self-Injurious Behavior tell us about chronic pain? University of Arizona, Department of Neurology Grand Rounds. June 27, 2008.
8. Role of NKCC1 in pain and hyperalgesia. University of Helsinki, Finland. Department of Neurosciences. October 8, 2008. *Invited*
9. What can Self-Injurious Behavior tell us about chronic pain? University of Arizona, Department of Psychiatry Grand Rounds. October 22, 2008.
10. Translational control as a novel mechanism of nociceptive sensitization. Johnson and Johnson Pharmaceuticals R&D, Spring House, PA. November 13, 2008. *Invited*
11. Role of NKCC1 in Pain Processing. NeuroTherapeutics Pharma, Miami, FL. January 24, 2009. *Invited*
12. Chronic Pain: Found in Translation? Department of Pharmacology, University of Arizona Seminar Series. Tucson, AZ. March 10, 2010.
13. Translation Control of Nociceptive Sensitization. Washington University Department of Anesthesia and Washington University Pain Center Seminar Series. St. Louis, MO. Jan 18, 2011. *Invited*
14. Metformin for Neuropathic Pain. University of Arizona School of Medicine, Department of Endocrinology. Tucson, AZ. Jan 25, 2011.
15. PAR_2 Drug Discovery. University of Arizona School of Medicine, Department of Pharmacology. Tucson, AZ. Feb 16, 2011.
16. Translation Control of Nociceptive Sensitization. Indiana University School of Medicine, Department of Pharmacology Seminar Series. Indianapolis, IN. April 12, 2011. *Invited*
17. PKMζ in the control of persistent pain states. University of Helsinki, Department of Biological Sciences and Neurosciences Center. Helsinki, Finland. August 30, 2011. *Invited*
18. PKMζ in the control of persistent pain states. University of Arizona, Department of Physiology. Tucson, AZ. September 23, 2011
19. What can learning and memory mechanisms tell us about chronic pain? University of Arizona, Department of Neurosurgery. Tucson, AZ. October 5, 2011.
20. What can learning and memory mechanisms tell us about chronic pain? Veterans Administration Hospital Mental Health Division. Tucson, AZ. October 14, 2011. *Invited*
21. Maintenance Mechanisms of Nociceptive Sensitization. University of Innsbruck. Innsbruck, Austria. December 13, 2011. *Invited*
22. Protease Activated Receptor Type 2 (PAR_2) Drug Discovery for the Treatment of Pain. Frontiers in Biomedical Sciences Seminar Series. University of Arizona School of Medicine. January 31, 2012.

23. Maintenance Mechanisms of Chronic Pain. Johns Hopkins University, Blaustien Pain Seminar Series. Baltimore, MD. March 9, 2012.
24. Maintenance Mechanisms of Chronic Pain. Dartmouth University, Department of Pharmacology. Hanover, NH. March 21, 2012.
25. Maintenance Mechanisms of Chronic Pain. University of Illinois, Neuroscience Program. Champaign-Urbana, IL. April 3, 2012.
26. Targeting AMPK for Chronic Pain. University of Arizona Cancer Center Collaborative Grand Rounds. Tucson, AZ. April 6, 2012.
27. Making a career of hypothesis testing. University of Texas at Dallas. Senior Launch. Dallas, TX. Sept 26, 2012
28. PKMζ maintains chronic pain. University of Texas at Dallas. Brain and Behavior Sciences School Seminar Series. Dallas, TX. Sept 28, 2012.
29. Mechanisms of chronic pain maintenance. Gillette Children's Hospital Pain Conference. Minneapolis, MN. Nov 1, 2012
30. PAR_2 Drug Discovery. Theravance. San Francisco, CA. Nov 8, 2012
31. The role of atypical protein kinase Cs in maintenance of chronic pain states. University of Heidelberg, Heidelberg, Germany. March 2, 2013
32. AMPK as a novel target for pain. University of Heidelberg, Heidelberg, Germany. March 2, 2013
33. Plasticity mechanisms of chronic pain. University of Texas at Dallas. Brain and Behavioral Sciences School Seminar Series. Dallas, TX. March 22, 2013
34. Maintenance mechanisms of chronic pain. National Institutes of Health. Bethesda, MD. April 17, 2013
35. Targeting translation control mechanisms for the development of novel pain therapeutics. UTHSCSA. San Antonio, TX. October 25, 2013.
36. Maintenance mechanisms of chronic pain. University of Maryland School of Dentistry. Baltimore, MD. April 18, 2013
37. Targeting AMPK for chronic pain. MD Anderson Cancer Center. Houston, TX. July 26, 2013.
38. Targeting translation control mechanisms to Ease Pain. Pain Research Forum Webinar. January 14, 2014.
39. Targeting translation control mechanisms to alleviate chronic pain. Cornell Burke Rehabilitation Center. White Plains, NY. January 27, 2014.
40. Targeting AMPK for the alleviation of chronic pain. Rigel INC. South San Francisco, CA. February 12, 2014.
41. Mechanisms of chronic pain, from translation control to descending circuits. Gulf Coast Pain Consortium, MD Anderson Cancer Center. Houston, TX. April 4, 2014.
42. Targeting translation control for the treatment of chronic pain. University of Cincinnati, Cincinnati, OH. April 17, 2014.
43. Mechanisms of Chronic Pain, from translation control to descending circuits. Baylor College of Dentistry, Dallas, TX. January 7, 2015.
44. Mechanisms controlling the transition to a chronic pain state. UTMB, Galveston, TX, January 28, 2015.
45. Descending Control of the Transition to a Chronic Pain Sate. University of Kentucky, Lexington, KY. March 4, 2015
46. Mechanisms controlling the transition to a chronic pain state. Texas Tech Health Sciences Center, Lubbock, TX. March 24, 2015.

47. Hypothalamic dopaminergic projections to the dorsal horn control the transition to chronic pain. UTSW, Division of Hypothalamic Research, Dallas, TX, July 21, 2015.
48. Translation Control of Chronic Pain. Texas Women's University, Department of Biology. Denton, TX, September 18, 2015.
49. An Update on AMPK and Pain. Rigel Pharmaceuticals, San Francisco, CA, September 6, 2015.
50. Mechanisms of the transition from acute to chronic pain. University of Calgary, Calgary, AB, Canada. February 26, 2016.
51. Targeting mRNA translation control mechanisms to understand chronic pain. Duquesne University. Department of Biology. Pittsburgh, PA, April 15, 2016.
52. Comparative transcriptomic analysis of human and mouse DRG: implications for translational research. Merck. Department of Neuroscience. West Point, PA, August 26, 2016.
53. Mechanisms of neuropathic pain; from preclinical models to human transcriptomics. University of Albany, Albany, NY, Oct 15, 2016.
54. From neuropathic pain to hyperalgesic priming to human transcriptomics: searching for novel pain targets. University of Iowa Pain Interest Group. Iowa City, IA, Nov 8, 2016.
55. Targeting pain plasticity to create next generation analgesics. Thomas Jefferson University, Department of Neuroscience. Philadelphia, PA, Dec 6, 2016.
56. Translation regulation in chronic pain: therapeutic targets and new insight from next generation sequencing. University of Maryland School of Medicine. Baltimore, MD, Feb 21, 2017.
57. Translation regulation in chronic pain: therapeutic targets and new insight from next generation sequencing. University of California San Francisco. San Francisco, CA, Mar 9, 2017.
58. Mechanisms of chronic pain: from switching circuits to human transcriptomics. University of California San Francisco. San Francisco, CA, Mar 9, 2017.
59. Translation regulation in chronic pain: therapeutic targets and new insight from next generation sequencing. University of Texas Medical Branch. Galveston, TX, Mar 21, 2017.
60. Mechanisms that promote chronic pain. University of Copenhagen. Copenhagen, Denmark, September 6, 2017.
61. Drivers and targets for neuropathic pain. Texas Tech University Health Science Center in El Paso, TX. Oct 18, 2017.
62. Mechanisms governing the transition to chronic pain. University of Connecticut Medical School and Jackson Laboratories Center for Human Genetics. Farmington, CT. Nov 30, 2017.
63. Translating Ribosome Affinity Purification (TRAP) for target identification for pain. MundiPharm. London, UK. Dec 7, 2017.
64. Translation regulation in peripheral neuropathies, from mice to humans. Duke University, Department of Anesthesia. Raleigh NC. March 15, 2018.
65. RNA-seq-based insights into neuropathic pain pathology in human DRG. Eli Lilly and Company, London, UK. March 26, 2018.
66. Sex differences in mechanisms of chronic pain. University of Minnesota, School of Veterinary Medicine. Minneapolis MN. March 28, 2018.

67. Translation regulation in neuropathic pain from mice to humans. University of Pittsburgh. Center for Pain Research. Pittsburgh PA. April 11, 2018.
68. Translation regulation in neuropathic pain from mice to humans. McGill University Frontiers in Pain Research Seminar Series. Montreal QC. May 22, 2018.
69. Translation regulation in neuropathic pain from mice to humans. Laval University CERVO Brain Research Center. Quebec City, QC. May 25, 2018.
70. Harnessing next generation sequencing for the identification of new pain targets. University of Toronto. Toronto, ON. Aug 30, 2018.
71. Harnessing next generation sequencing for the identification of new pain targets. University of Buffalo. Buffalo, NY. Oct 12, 2018.
72. Mechanisms of cognitive dysfunction in neuropathic pain. MD Anderson Cancer Center. Houston, TX. Dec 18, 2018.
73. RNA sequencing technologies reveal new mechanisms of neuropathic pain from mice to humans. Nottingham University Medical Center. Nottingham, UK. Feb 13, 2019.
74. RNA Sequencing in mice and patients and how to use these findings in neuropathic pain drug development. University College London. London, UK. May 7, 2019
75. RNA Sequencing in mice and patients and how to use these findings in neuropathic pain drug development. MundiPharma Research. Cambridge, UK. May 8, 2019
76. RNA Sequencing in mice and patients and how to use these findings in neuropathic pain drug development. University of Essen Medical School, Department of Neurology. Essen, Germany. June 25, 2019.
77. Using RNA sequencing to gain new insight into neuropathic pain mechanisms and therapeutic targets. Aachen Medical School, Department of Pharmacology and Physiology. Aachen, Germany. June 26, 2019.
78. Using RNA sequencing to gain new insight into neuropathic pain mechanisms and therapeutic targets. Grunenthal GmBH, Aachen, Germany. June 27, 2019.
79. Using RNA sequencing to identify and validate neuropathic pain mechanisms and targets. University of Kansas Medical Center, Midwest Regional Pain Interest Group Meeting, Keynote speaker. Kansas City, KS. Aug 11, 2019.
80. Using RNA sequencing to identify and validate neuropathic pain mechanisms and targets. Escient Pharmaceuticals. San Diego, CA. Aug 22, 2019.
81. Using RNA sequencing to identify and validate neuropathic pain mechanisms and targets. Michigan State Department of Physiology. East Lansing, MI. Sept 5, 2019.
82. Using RNA sequencing to identify and validate neuropathic pain mechanisms and targets. UTSW Department of Endocrinology Grand Rounds. Dallas, TX. Oct 4, 2019.
83. Using RNA sequencing to identify and validate neuropathic pain mechanisms and targets -Gunn-Lok Memorial Lecture. University of Washington Department of Anesthesia. Seattle, WA. Oct 29, 2019
84. Targeting AMPK for pain treatment. MD Anderson Department of Symptom Research. Houston, TX. Nov 14, 2019
85. Molecular profiling of the human dorsal root ganglion from organ donors to neuropathic pain patients. Medical College of Wisconsin. Milwaukee, WI. March 4, 2020.

86. Progress in identifying new pain targets from human molecular neuroscience. Grunenthal. Aachen, Germany (online webinar). May 13, 2020.
87. Human dorsal root ganglion transcriptomics for pain mechanism discovery and therapeutic development. Anabios Corporation. San Diego, CA (online webinar). May 28, 2020.
88. CGRP in chronic pain -and- developing pain targets from molecular profiling of human tissues. Lundbeck Corporation, Copenhagen, Denmark (online webinar). June 23, 2020.
89. Understanding pain mechanisms: RNA expression analysis of peripheral nervous system. Biotechne (online webinar). June 24, 2020.
90. Molecular profiling of the human peripheral nervous system in chronic pain states. Washington University St. Louis Department of Anesthesiology. Sept 17, 2020.
91. Molecular profiling of the human peripheral nervous system in chronic pain states. University of Cincinnati Department of Anesthesiology. Oct 22, 2020.
92. Molecular profiling of the human peripheral nervous system in chronic pain states. Virginia Commonwealth University Pain Center. Nov 19, 2020.
93. Molecular profiling of the human peripheral nervous system in chronic pain states. University of California San Francisco PARC Program. Dec 7, 2020.
94. Molecular profiling of the human peripheral nervous system in chronic pain states. Northwestern University Pain Center. Jan 15, 2021.
95. Molecular profiling of the human peripheral nervous system in chronic pain states. Grunenthal, Aachen Germany. March 1, 2021
96. Molecular profiling of the human peripheral nervous system in chronic pain states. University of Texas Southwestern Medical School. PMNR Dept. March 3, 2021.
97. Molecular profiling of the human peripheral nervous system in chronic pain states. University of Mexico City Medical School and CINVESTAV. March 10, 2021.
98. Molecular profiling of the human peripheral nervous system in chronic pain states. North Carolina State University School of Veterinary Medicine. March 17, 2021.
99. VISIUM profiling of the human DRG. Biogen, Boston, MA. March 19, 2021.
100. Molecular profiling of the human DRG in chronic pain states. Genentech, online seminar. May 4, 2021.
101. Molecular characterization of human nociceptors – insights into chronic pain mechanisms in patients. University of Sheffield. Sheffield, UK. October 21, 2021
102. Unraveling pain mechanisms and targets – a human molecular neuroscience approach. UTHSCSA. San Antonio, TX. October 15, 2021
103. Molecular characterization of human nociceptors – Insights into chronic pain mechanisms in patients. New Orleans, LA. Jan 20, 2022.
104. Molecular characterization of the human DRG and its implications for pain therapeutic development. 10X Genomics online seminar. April 12, 2022.
105. Unique pain targets and mechanisms emerging from single cell and spatial sequencing of the human DRG. NIH NINDS clinical research working group seminar. July 28, 2022.

106. Molecular characterization of the human DRG and its implications for pain therapeutic development. University of Minnesota Pain Interest Group. Online. April 22, 2022. *Invited.*
107. A human molecular neuroscience approach to understanding pain. UTSW O'Donnell Brain Institute. Dallas, TX. Oct 12, 2022. *Invited*.
108. Pain Target Identification in Human DRG and Spinal Cord Studies. NIH Pain Center. Bethesda, MD. Dec 8, 2022. *Invited*.
109. Exploring the human dorsal root ganglion and spinal cord for new pain mechanisms and targets. Washington University in St. Louis. St. Louis, MO. Jan 25, 2023. Invited.
110. Exploring the human dorsal root ganglion and spinal cord for new pain mechanisms and targets. University of Iowa. Iowa City, IA. May 2, 2023. Invited.
111. A human molecular neuroscience approach to understanding pain. Vertex Pharma. San Diego, CA. July 11, 2023. Invited.
112. Mechanisms of neuropathic pain– insights from studies of human dorsal root ganglion. Laval University, Quebec City, QC, Canada. July 26, 2023. Invited.
113. Mechanisms of neuropathic pain– insights from studies of human dorsal root ganglion. Tulane University, Department of Neuroscience. Oct 3, 2023. Invited.
114. Mechanisms of neuropathic pain– insights from studies of human dorsal root ganglion. UT Austin, Wagonner Center. Oct 11, 2023. Invited.
115. Mechanisms of neuropathic pain– insights from studies of human dorsal root ganglion. Northwestern University, Pharmacology Department. Nov 2, 2023. Invited.
116. Mechanisms of neuropathic pain– insights from studies of human dorsal root ganglion. Kings College, London (online). Nov 9, 2023. Invited.
117. Mechanisms of neuropathic pain– insights from studies of human dorsal root ganglion. Rush University, Chicago, IL. Dec 4, 2023. Invited.
118. New insight into neuropathic pain mechanisms from human dorsal root ganglion studies. Aarhus University. Jan 22, 2024. Invited.
119. New insight into neuropathic pain mechanisms from human dorsal root ganglion studies. McGill University. McGill Pain Centre. Jan 25, 2024. Invited
120. New insight into neuropathic pain mechanisms from human dorsal root ganglion studies. Kansas State University School of Veterinary Medicine, Manhattan KS. Feb 27, 2024. Invited
121. New insight into neuropathic pain mechanisms from human dorsal root ganglion studies. University of California at Davis, Davis, CA. Mar 7, 2024. Invited
122. New insight into neuropathic pain mechanisms from human dorsal root ganglion studies. University of Aachen, Aachen, Germany. March 20, 2024. Invited.
123. New insight into neuropathic pain mechanisms from human dorsal root ganglion studies. Grünenthal, Aachen, Germany. March 21, 2024. Invited
124. Mechanisms of diabetic neuropathic pain: lessons from human DRG and peripheral nerve. University of Wurzburg. Wurzburg, Germany. March 22, 2024. Invited.
125. Mechanisms of diabetic neuropathic pain: lessons from human DRG and peripheral nerve. University of Michigan Department of Neurology. Ann Arbor, MI. April 4, 2024. Invited.

126. Mechanisms of neuropathic pain: lessons from human DRG and peripheral nerve. GSK, online seminar. April 25, 2024. Invited.
127. Mechanisms of neuropathic pain: lessons from human DRG and peripheral nerve. Abbvie, Irvine, CA. June 14, 2024. Invited.
128. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. University of Colorado School of Medicine, Department of Rheumatology. Sept 24, 2024. Invited.
129. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. University of Texas Health San Antonio, Department of Physiology. Sept 30, 2024. Invited.
130. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. Harvard Medical School. January 22, 2025. Invited.
131. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. University of California at San Diego Department of Anesthesiology. Feb 6, 2025. Invited.
132. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. New York University School of Dentistry. Feb 19, 2025. Invited.
133. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. University of New Mexico Medical School Department of Anesthesiology. Feb 28, 2025. Invited.
134. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. University of Pennsylvania Department of Neuroscience. March 27, 2025. Invited.
135. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. University of Alberta Medical School Department of Anesthesiology. April 4, 2025. Invited.
136. Chronic pain mechanisms – insight from studies of human nociceptors from organ donors and rare surgeries. University of Texas at Austin Department of Neuroscience. April 14, 2025. Invited.
137. What biological mechanisms drive the transition from acute and maintenance of chronic pain?. Pacira Biosciences. July 31, 2025. Invited.
138. Insights into Neuropathic Pain Mechanisms from Studies of Human Dorsal Root Ganglion and Spinal Cord. Queensland University Australia. Sept 11 2025. Virtual, Invited.
139. Insights into Neuropathic Pain Mechanisms from Studies of Human Dorsal Root Ganglion and Spinal Cord. Rockefeller University. October 8 2025. Invited.
140. Insights into Pain Mechanisms from Studies of Human Dorsal Root Ganglion and Spinal Cord. Anabios Online Webinar. October 9, 2025. Invited.
141. Insights into Pain Mechanisms from Studies of Human Dorsal Root Ganglion and Spinal Cord. Medical College of Wisconsin. October 16, 2025. Invited.
142. Insights into Pain Mechanisms from Studies of Human Dorsal Root Ganglion and Spinal Cord. UTSW Department of Endocrinology. December 12, 2025. Invited.
143. Insight into pain mechanisms from studies of human DRG. Mayo Clinic Department of Neurology. January 12, 2026. Invited.

Refereed talks/presentations at professional meetings; refereed performances or exhibitions, etc.:
Contributed (unrefereed) talks/presentations at professional meetings; contributed performances or exhibitions; contributed entries at film festivals, etc.:
Self-initiated exhibitions, lectures, or performances:

International / U.S. Patents awarded:

1. **Price TJ,** Dussor G, Tillu D, Lian B. Topical application of AMPK activators for pharmacological prevention of chronic pain. US9,233,085B1. January 12, 2016.
2. Boitano S Vagner J, **Price TJ**. PAR2 mimetic peptides and uses thereof. WO2017173347. Oct 6, 2017.
3. Pyun D, **Price TJ**, Dussor G, Tillu D, Lian B. Methods and compositions using AMPK activators for pharmacological prevention of chronic pain. US10,016,486B1. July 10, 2018.
4. Boitano SA, Vagner J, **Price TJ.** PAR2 Mimetic Peptides and Uses Thereof. US2019/0117785A1. April 25, 2019
5. Boitano SA, Vagner J, **Price TJ,** Dussor GO**.** PAR3 Mimetic Peptides and Uses Thereof. US2019/0119349A1. April 25, 2019
6. **Price TJ**, Shiers SI. Inhibitor of MNK for the treatment of neuropathic pain. WO2020/237167A1. Nov 26, 2020.

International / U.S. Patents provisional applications:

Other activities not documented in a publication: lectures, speeches, presentations, public and internet-based media projects, etc.:

External funding for original investigations:
(list in chronological order within each separate subsection; omit this section if not pertinent)

Proposals submitted:

[project title]
[principal and co-investigator(s) as listed on title page]
[funding organization]
[start date-stop date], [amount requested for the period listed]
[current status: funded, recommended for funding, rejected, or under review]

Grants/contracts awarded:

Federal

ACTIVE

*Title: Anatomic, physiologic and transcriptomic mechanisms of neuropathic pain in human DRG
*Major Goals: The goal of this project is to use electrophysiology and RNA sequencing on human DRG to understand causes of neuropathic pain in human patients.
*Status of Support: Active
Project Number:

R01NS111929
Name of PD/PI: Price and Patrick Dougherty (Contact) mPI
*Source of Support: NIH/NINDS
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 04/15/2020 – 02/28/2026; NCE Requested
* Total Award Amount (including Indirect Costs): $1,339,504
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2021	2.0 calendar
2. 2022	2.0 calendar
3. 2023	2.0 calendar
4. 2024	2.0 calendar
5. 2025	1.0 calendar
6. 2026	1.0 calendar

*Title: Validation of Fibroblast-Derived PI16 as a Novel Target for Pain Treatment
*Major Goals: The goal of this project is to describe PI16 expression in human nerves and DRG, including in diabetic neuropathy.
*Status of Support: Active
Project Number:
R01NS116704
Name of PD/PI: Annemieke Kavelaars
*Source of Support: NIH/NINDS
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/30/2020 – 08/31/2025 (NCE Requested)
* Total Award Amount (including Indirect Costs): $771,802
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2021	0.5 calendar
2. 2022	0.5 calendar
3. 2023	0.5 calendar
4. 2024	0.5 calendar
5. 2025	0.5 calendar

*Title: Mechanisms of cough in M. tuberculosis transmission
*Major Goals: The goal of this project is to form insights into the functions of Mtb nociceptive molecules and their host receptors in cough induction and transmission.
*Status of Support: Active
Project Number:
R01AI158688 Name of
PD/PI: Michael Shiloh
*Source of Support: NIH/NINDS
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 03/08/2021 – 02/28/2026
* Total Award Amount (including Indirect Costs): $557,111
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2022	0.6 calendar
2. 2023	0.6 calendar
3. 2024	0.6 calendar
4. 2025	0.6 calendar
5. 2026	0.6 calendar

*Title: Identifying novel therapeutic targets for chronic neck pain: RNA-sequencing in human painful atlanto-axial arthropathy
*Major Goals: We will use RNA sequencing on joint and nerve tissues of patients with chronic and acute neck pain coupled with computational biology methods and careful patient phenotyping to examine how molecules produced in the diseased tissue drive chronic pain. Our work has the potential to reveal new molecular targets for future drug development.
*Status of Support: Active
Project Number:
R01AR078192
Name of PD/PI: Michele Curatolo (PI Contact), Christoph Hofstetter (MPI), Theodore Price (MPI)
*Source of Support: NIH
*Primary Place of Performance: University of Washington
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/01/2021 – 8/31/2026
Total Award Amount (including Indirect Costs): $1,359,571 subaward
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2022	1.0 calendar
2. 2023	1.0 calendar
3. 2024	1.0 calendar
4. 2025	0.76 calendar
5. 2026	0.76 calendar

*Title: Human Nociceptor and Spinal Cord Molecular Signature Center
*Major Goals: The goal of this project is to create the scientific foundation that will empower pain researchers around the world to approach the problem of treating pain in a new way, deeply rooted in a fundamental understanding of the first neurons and first synapses in the human pain pathway
*Status of Support: Active
Project Number: 1U19NS130608-01
Name of PD/PI: Price (contact), Curatolo, Dougherty
*Source of Support: NIH
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/2022 – 08/2027
* Total Award Amount (including Indirect Costs): $11,378,670
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2023	1.8 calendar
2. 2024	1.8 calendar
3. 2025	1.8 calendar
4. 2026	1.8 calendar
5. 2027	1.8 calendar

*Title: Neuromodulatory regulation of synaptic plasticity in spinal nociceptive circuits
*Major Goals: The goal of this project is to understand how spinal dopamine signaling regulates nociceptive plasticity in the dorsal horn.
*Status of Support: Active
Project Number: 1R37NS122141-
01A1 Name of PD/PI: Mark Baccei
*Source of Support: NIH
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 04/01/2022 – 03/31/2027
* Total Award Amount (including Indirect Costs): $523,710 subaward Y2-Y5
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2023	0.0 calendar
2. 2024	0.36 calendar
3. 2025	0.36 calendar
4. 2026	0.36 calendar
5. 2027	0.36 calendar

*Title: Development of positive TMEM97 modulators for treating neuropathic pain
*Major Goals: The goal of this project is to develop small molecules that target TMEM97/Sigma2 receptor as analgesics for neuropathic pain.
*Status of Support: Active
Project Number: 1 UG3 NS131304-01
Name of PD/PI: Martin (contact), Sahn, Yousuf, Price
*Source of Support: NIH (UG3/UH3)
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 08/2023 – 07/2026
* Total Award Amount (including Indirect Costs): $611,126
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2024	0.2 calendar
2. 2025	0.2 calendar
3. 2026	0.2 calendar

*Title: Targeting methylglyoxal-induced diabetic neuropathic pain through the integrated stress response
*Major Goals: The goal of this project is to create a path to an entirely new therapeutic strategy for diabetic neuropathic pain where patients can be identified via a plasma biomarker linked to methylglyoxal and treated with therapeutics that inhibit the ISR to decrease neuropathic pain.
*Status of Support: Active
Project Number: 1R01DK134893-01
Name of PD/PI: Yousuf (contact)
*Source of Support: NIH (R01 NIDDK)
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): - 09/2023 – 07/2028
* Total Award Amount (including Indirect Costs): $ 3,143,587
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (##.##)
1. 2024	0.4 calendar
2. 2025	0.4 calendar
3. 2026	0.4 calendar
4. 2027	0.4 calendar
5. 2028	0.4 calendar

*Title: Targeting MNK signaling to prevent and reverse chronic pain caused by complex traumatic injury
*Major Goals: To test the hypothesis that MNK is a key signaling factor driving HO and HO-evoked chronic pain using transgenic mice, military relevant injury models involving burn and tendon injury and near-clinical pharmacological interventions. We will also study the effects of the HO microenvironment on human sensory neuron sprouting and excitability.
*Status of Support: Active Project Number: HT94252410849 / CP230145P1
Name of PD/PI: Levi,
Benjamin
*Source of Support: DoD
*Primary Place of Performance: UT Southwestern Medical Center
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/2024 - 08/2028
* Total Award Amount (including Indirect Costs): $701,946 (UTD)
* Person Months (Calendar/Academic/Summer) per budget period:

Year (YYYY)	Person Months (##.##)
1. 2025	0.3 calendar
2. 2026	0.3 calendar
3. 2027	0.3 calendar
4. 2028	0.3 calendar

*Title: A role for pharmaceutical control of protease-activated receptor-2 for the treatment of asthma
*Major Goals: To use several *in vitro* and i*n vivo* approached to uncover vital roles for epithelial- and neuronal-expressed PAR2 in allergic asthma. Further, to evaluate the efficacy of novel PAR2 antagonists in a humanized mouse model (i.e., expresses human PAR2 and not mouse PAR2) both of which were developed in our laboratory to provide prophylactic and therapeutic control of asthma in established and unique allergen-induce asthma models.
*Status of Support: Active
Project Number: R01AI174540
Name of PD/PI: Boitano, Scott
*Source of Support: NIH
*Primary Place of Performance: University of Arizona
Project/Proposal Start and End Date: (MM/YYYY) (if available): 07/2024 - 05/2029
* Total Award Amount (including Indirect Costs): $1,048,451 (UTD)
* Person Months (Calendar/Academic/Summer) per budget period:

Year (YYYY)	Person Months (##.##)
1. 2025	0.5 calendar
2. 2026	0.5 calendar
3. 2027	0.5 calendar

4. 2028	0.5 calendar
5. 2029	0.5 calendar

*Title: Validation of a non-opioid analgesic pathway in human sensory ganglia and spinal cord
*Major Goals: Identification and validation of a non-opioid analgesic pathway that is effective in high impact chronic pain states in humans can lead to new therapies for civilians and veterans suffering from chronic pain.
*Status of Support: Active
Project Number: HT9425-24-1-1006
Name of PD/PI: Patwardhan, Amol
*Source of Support: DoD
*Primary Place of Performance: UT Southwestern Medical Center
Project/Proposal Start and End Date: (MM/YYYY) (if available): 5/2024 – 4/2028

* Total Award Amount (including Indirect Costs): $292,500 (UTD)
* Person Months (Calendar/Academic/Summer) per budget period:

Year (YYYY)	Person Months (##.##)
1. 2025	0.3 calendar
2. 2026	0.3 calendar
3. 2027	0.3 calendar
4. 2028	0.3 calendar

*Title: Dissection of NTSR2/calcium channel signaling as a non-opioid spinal analgesic mechanism for the treatment of high impact chronic pain
*Major Goals: Assess the expression of neurotensin receptors in relation to ion channels such as voltage gated sodium and calcium channels. Assess Ca2+ imaging and signaling in human DRG neurons and CGRP release from human spinal cord.
*Status of Support: Active
Project Number: 1R01NS139492-01A1
Name of PD/PI: Patwardhan, Amol
*Source of Support: NINDS
*Primary Place of Performance: UT Southwestern
Project/Proposal Start and End Date: (MM/YYYY) (if available): 02/2025 – 11/2029
* Total Award Amount (including Indirect Costs): $478,835
Person Months (Calendar/Academic/Summer) per budget period:

Year (YYYY)	Person Months (##.##)
1. 2025	0.1 calendar
2. 2026	0.1 calendar
3. 2027	0.1 calendar
4. 2028	0.1 calendar
5. 2029	0.1 calendar

*Title: A fully humanized functional genomic screen to identify and validate pain therapeutic targets
*Major Goals: Further our understanding of the basic molecular regulation of human nociceptors. Identify targets that can be used broadly to manipulate nociceptor function with specificity. Find new targets for treatment of pain by interfering with pain transduction or sensitization pathways that have already been established as driving acute and chronic pain patients.

*Status of Support: Pending
Project Number: 1R01NS142703-01
Name of PD/PI: Price, Theodore; Neely, Greg
*Source of Support: NIH
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/2025 – 08/2030
* Total Award Amount (including Indirect Costs): $6,980,255
Person Months (Calendar/Academic/Summer) per budget period:

Year (YYYY)	Person Months (##.##)
1. 2026	2.0 calendar
2. 2027	2.0 calendar
3. 2028	2.0 calendar
4. 2029	2.0 calendar
5. 2030	2.0 calendar

*Title: Site-directed RNA editing of Nav1.7 as a novel analgesic
*Major Goals: The goal of this research project is to develop a non-addictive analgesic based on SORE of the Nav1.7 channel that increases its permeability to K+ ions
*Status of Support: Active
Project Number: U19NS126038
Name of PD/PI: Joshua Rosenthal (Contact), Sulayman Dib-Hajj, Gregory Dussor, and Eli Esienberg mPI
*Source of Support: NIH
*Primary Place of Performance: The University of Texas at Dallas
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/2021 - 8/2026
* Total Award Amount (including Indirect Costs): $557,463
* Person Months (Calendar/Academic/Summer) per budget period.

Year (YYYY)	Person Months (t#f..t#f.)
1. 2022	0.0 calendar
2. 2023	0.75 calendar
3. 2024	0.75 calendar
4. 2025	1.0 calendar
5. 2026	1.0 calendar

Completed

09/2023 – 08/2025
NIH: UC2AR082186
Mapping the joint-nerve interactome of the knee
Co-I: Price

03/2019 – 01/2025
NIH: R01NS065926
Translation Control of Pain Plasticity
PI: Price

12/2019 – 11/2024

NIH: R01NS115441
Novel Mechanisms Regulating Protein Interaction and Pain
mPI: Price

09/2019 – 07/2024
NIH: R01NS111976
Extracellular mechanisms regulating synaptic function and pain plasticity
mPI: Price

04/2018 – 12/2023
NIH: R01NS102161
Sex-specific regulation of local translation and chronic pain mechanisms in females
mPI: Price

08/2017 – 04/2023
NIH: R01NS098826
Protease Activated Receptor Type 2 Targeting for Migraine Pain
PI: Price

2/2015 - 2/2020
R13 National Institutes of Health / NINDS and NCCIH
R13NS092293/R13AT009161
Young investigator travel support for the 2015 - 2020 APS annual scientific meeting
PI: Price

4/2013 - 2/2017
R01 National Institutes of Health / NIGMS R01GM102575
AMPK activators as a novel therapeutic for post-surgical pain
MPI: Price and Dussor

10/2011 - 10/2016
R01 National Institutes of Health / NINDS R01NS073664
PAR-2 targeted drug discovery for the treatment of pain
MPI: Boitano, Vagner and Price

03/2010 – 03/2014
NIH: R01NS065926
Axonal translation as a novel mechanism of nociceptor plasticity
PI: Price

3/2005 - 11/2007
Individual National Research Service Award Postdoctoral: NINDS
Cation Chloride-Cotransporters and Hyperalgesic States
PI: Price

10/1/2000 - 9/30/2003

Individual National Research Service Award Predoctoral: NIDA
Peripheral Mechanisms of Cannabinoid Antinociception
PI: Price

State
Completed

04/2024 – 07/2025
Trauma Research and Combat Casualty Care Collaborative (TRC4)
Targeting Nerve Growth Factor-driven MNK Signaling to Prevent Pain and Promote Tissue Recovery in Complex Trauma
PI: Price

2/2008 - 2/2009
University of Arizona Foundation Small Grant
Carbonic Anhydrase Inhibitors as Novel Analgesics
PI: Price

Industry
Active

03/2024 – 02/2026
Evommune
Role of MrgprX2 in Sensory Neurons
PI: Price

02/2025 – 02/2026
Glaxo Smith Klein (GSK)
Characterization of P2X3 expression and function in human nodose/jugular ganglia or related tissues.
PI: Price

12/2021 – 12/2026
AbbVie
Transcriptional and functional effects of BoNT/A1 in human Dorsal Root Ganglia (DRG) and Trigeminal Ganglia (TG) neurons
PI: Price

11/2025 -04/2027
Septerna
Long-read RNA sequencing
PI: Price

Completed

10/2025 – 12/2025
4E Therapeutics

Assessment of eIF4E Phosphorylation via Western Blot and Immunofluorescence in Samples
PI: Price

12/2023 – 12/2025
Eli Lilly
Synaptic Omics of the Human Dorsal Horn
PI: Price

01/2022 – 12/2023
Bellus Health
P2RX2 and P2RX3 expression in human gustatory neurons
PI: Price

09/2022 – 08/2023
Doloromics
Human DRG Target Validation
PI: Price

03/2021 – 02/2024
Grunenthal
Advancement of translational pain research through the transcriptomic analysis of the dorsal root ganglia using cutting edge sequencing technologies.
PI: Price

10/2021 – 12/2023
Hoba Therapeutics
Profiling of human Meteorin (HB-086) activity in human DRGs
PI: Price

1/2018 - 6/2020
Merck
Human DRG in situ hybridization
PI: Price

8/2014 - 12/2015
Rigel Pharmaceuticals
Complex I Inhibitors for the treatment of pain
MPI: Price and Dussor

12/2010 - 12/2012
MedImmune Corporation
Anti-NGF and –IL-6 therapies for pain
MPI: Price and Porreca

Private Foundations
Completed

6/2009 through 5/2012

Rita Allen Foundation / American Pain Society Scholars in Pain Award
Translation regulation as a novel paradigm for understanding nociceptor sensitization and developing analgesic targets
PI: Price

5/2010 through 5/2012

IASP Scan|Design Foundation BY INGER & JENS BRUUN travel grant
Carbonic anhydrases as novel targets for neuropathic pain
MPI: Price and Kaila (University of Helsinki)

10/2006 through 11/2007

American Pain Society Future Leaders in Pain Research Award
Role of RNA Transport and Local Translation in Nociceptive Processing
PI: Price

Teaching:

Doctoral advisement/direction:

Name of doctoral graduate	Date degree awarded	Title of dissertation/thesis
Dhanjay Naik	November 2025	ACTIONS OF MYCOBACTERIUM TUBERCULOSIS LIPIDS ON MOUSE AND HUMAN SENSORY NEURONS
Eric David	May 2024	Ephrin-B2 Mediation of EphB Dependent Nociceptive Plasticity Through the MNK-eIF4E Signaling Axis
Hajira Elahi	December 2023	Mechanisms of Oncotatin M signalin in the human dorsal root ganglion – implications for neuropathic pain
Juliet Mwirigi	December 2023	An Examination of the Role of Vertebrate Lonesome Kinase in Pain
Moeno Kume	May 2023	The role of protease-activated receptor 2 in chemotherapy-indduced peripheral neuropathy
Ishwarya Sankaranarayanan	May 2022	Role of Inducible Co-stimulatory Molecule (ICOS) in the Resolution of Paclitaxel-Induced Peripheral Neuropathy
Candler Paige	Spring 2021	Mechanistic Sex Differences Underlying the Development of Chronic Pain
Andi Wangzhou	Spring 2021	Identification of Novel Pharmacological Targets for Pain Treatment Using Computational Analysis of RNA-SEQ Data
Stephanie Shiers	May 2020	The Impact of Chronic Pain on the Medial Prefrontal Cortex: Mechanisms and Treatments
Kufreobong Inyang	December 2019	The Role of AMPK Activation in the Attenuation of Chronic Pain

Jamie Moy	Spring 2017	Translation Regulation in Central and Peripheral Pain Plasticity
Adia Shy	Spring 2015	University of Arizona PhD Student
Ji-Young Kim	Spring 2015	University of Arizona PhD Student
Dipti Tillu	Fall 2013	University of Arizona PhD Student
Marina Asiedu	Spring 2012	University of Arizona PhD Student

Masters advisement/direction:

[name of doctoral graduate]	[date degree awarded]	[title of dissertation/thesis]
(repeat as appropriate)		

Classroom teaching:

Year	Semester	Course Number	Course Name
2014	Fall	NSC 4352.001	Cellular Neuroscience
2015	Spring	NSC 4358.001	Neuroscience of Pain
2015	Fall	NSC 1100.006	First Year Seminar
2015	Fall	NSC 4352.001	Cellular Neuroscience
2016	Spring	HCS 8v50.004	Doctoral Readings and Research Seminar
2016	Spring	NSC 4358.001	Neuroscience of Pain
2016	Fall	HCS 7121.001	Graduate Seminar in Systems Neuroscience
2016	Fall	NSC 4352.001	Cellular Neuroscience
2017	Spring	HCS 7121.001	Graduate Seminar in Systems Neuroscience
2017	Spring	NSC 4358.001	Neuroscience of Pain
2017	Fall	NSC 4352.001	Cellular Neuroscience
2018	Spring	NSC 4358.001	Neuroscience of Pain
2019	Spring	NSC 4358.001	Neuroscience of Pain
2019	Fall	NSC 4352.001	Cellular Neuroscience
2020	Spring	NSC 4358.001	Neuroscience of Pain
2020	Fall	HCS 7372.002	Seminar in Neuroscience: Res. Methods & Professional Development
2021	Spring	NSC 4358.001	Neuroscience of Pain
2021	Fall	HCS 6342.001	Research Methods & Professional Development in Neuroscience
2022	Spring	NSC 4358.001	Neuroscience of Pain
2023	Spring	NSC 4358.001	Neuroscience of Pain
2024	Spring	NSC 4358.001	Neuroscience of Pain
2025	Spring	NSC 4358.001	Neuroscience of Pain
2026	Spring	NSC 4358.001	Neuroscience of Pain

Other:

Service – reviewing, refereeing and administrative work with professional societies and organizations (e.g. editorship, associate editorship, officer, etc.); departmental, college, university committees; community service, etc.:

- Academic Editor, PLoS One: 2012-2017
- Pharmacology Section Editor, European Journal of Pain: 2013-2018
- Contributing Editor: European Journal of Neuroscience, 2008-2017
- Associate Editor: Pain, 2008-2019
- Editorial Board, Molecular Pain: 2012-2019
- Associate Editor, Journal of Neuroscience, 2017 – 2022
- Neurobiology Section Editor, PAIN, 2018 – 2020
- Chair of Editorial Board for IASP Pain Research Forum, 2018 – 2021
- Editor in Chief – *Neurobiology of Pain,* 2019 - present
- Dr. Price reviews approximately 2 papers per week for a variety of different journals
- Dr. Price serves on approximately 2 NIH study sections per year on an ad-hoc basis
- Member NIH standing panel: Neurobiology of Pain and Itch study section 2014-2020
- Dr. Price serves as an outside examiner of 1-2 PhD thesis committees per year, usually for a Canadian, UK or European University.
- Executive Committee for IASP Neuropathic Pain Special Interest Group (NeuPSIG) 2019-present.
- Co-Chair of Neuropathic Pain SIG for Peripheral Nerve Society 2021-present.