

CURRICULUM VITAE BIOGRAPHICAL

Name:	Gregg E. Homanics, Ph.D.	Birth Date:	7/29/62
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EDUCATION AND TRAINING

Undergraduate

1980	Penn State University, Uniontown, PA	----	Pre-veterinary medicine
1981-1984	West Virginia University, Morgantown, WV	1984	Animal and veterinary science
		B.S.	
		<i>cum laude</i>	

Graduate

1986-1887	University of Kentucky, Lexington, KY	1987, M.S.	Animal Science Dr. William J. Silvia
1987-1991	North Carolina State University, Raleigh, NC	1991, Ph.D.	Animal Science, Biotechnology Dr. Clement L. Markert

Postgraduate

1991-1993	University of North Carolina, Chapel Hill, NC		Molecular Genetics Drs. N. Maeda / O. Smithies
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APPOINTMENTS AND POSITIONS

Academic

<u>Years Inclusive</u>	<u>Name and Location of Institution</u>	<u>Rank / Title</u>
2008-present	University of Pittsburgh School of Medicine Department of Anesthesiology and Perioperative Medicine	Professor with Tenure
2001-2008	University of Pittsburgh School of Medicine Department of Anesthesiology	Associate Professor with Tenure
1993-2001	University of Pittsburgh School of Medicine Department of Anesthesiology/CCM	Assistant Professor
1993-present	University of Pittsburgh School of Medicine Department of Pharmacology & Chemical Biol.	Secondary appointment
2017-present	University of Pittsburgh School of Medicine Department of Neurobiology	Secondary appointment

MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

Organization

- American Association for the Advancement of Science
- Society for Neuroscience
- Research Society on Alcoholism
- International Behavioral and Neural Genetics Society
- Genome Writers Guild

HONORS

- Distinguished Mentor Award, University of Pittsburgh, 1999
- Most Productive Scientist Award, University of Pittsburgh, Department of Anesthesiology, 2005
- National Institutes of Health MERIT (Method to Extend Research In Time) Award, 2010-2020
- Medical Student Research Mentoring Merit Award, University of Pittsburgh School of Medicine, 2016
- Pitt Innovator Award, University of Pittsburgh Innovation Institute, 2019

PUBLICATIONS

Original Peer Reviewed Articles:

1. Homanics, G.E. and W.J. Silvia. (1988). Effects of progesterone and estradiol-17 β on uterine secretion of prostaglandin F₂ α in response to oxytocin in ovariectomized ewes. *Biol. Reprod.* 38: 804-811.
2. Silvia, W.J. and G.E. Homanics. (1988). Role of phospholipase C in mediating oxytocin-induced release of prostaglandin F₂ α from ovine endometrial tissue. *Prostaglandins* 35: 535-548.
3. Didion, B.A., D. Pomp, G.E. Homanics, M.J. Martin, and C.L. Markert. (1990). Observations on the cooling and cryopreservation of pig oocytes at the germinal vesicle stage. *J. Anim. Sci.* 68: 2803-2810.
4. Jacobs, A.L., G.E. Homanics, and W.J. Silvia. (1991). Activity of phospholipase C in ovine luteal tissue in response to PGF₂ α , PGE₂, and luteinizing hormone. *Prostaglandins* 41: 495-500.
5. Homanics, G.E. (1991). Morphological abnormalities, neonatal mortality, and reproductive abnormalities in mice transgenic for diphtheria toxin genes that are driven by the promoter for adipocyte lipid binding protein. *Dev. Genet.* 12: 371-379.
6. Homanics, G.E., T.J. Smith, S. Zhang, D. Lee, S.G. Young, and N. Maeda. (1993). Targeted modification of the apolipoprotein B gene results in hypobetalipoproteinemia and developmental abnormalities in mice. *Proc. Natl. Acad. Sci. USA* 90: 2389-2393.
7. Homanics, G.E., N. Maeda, M.G. Traber, H.J. Kayden, D.B. Dehart, and K.K. Sulik. (1995). Exencephaly and hydrocephaly in mice with targeted modification of the apolipoprotein B (*ApoB*) gene. *Teratology* 51: 1-10.
8. Homanics, G.E., H.V. deSilva, J. Osada, S.H. Zhang, H. Wong, J. Borensztajn, and Maeda, N. (1995). Mild dyslipidemia produced in mice by targeted inactivation of the hepatic lipase gene. *J. Biol. Chem.* 270:2974-2980.
9. Mueller G.M., L. McKenzie, G.E. Homanics, S.C. Watkins, P.D. Robbins, and Paul, H.S. (1995). Complementation of defective leucine decarboxylation in fibroblasts from a maple syrup urine disease patient by retrovirus-mediated gene transfer. *Gene Therapy* 2:461-468.
10. Homanics, G.E., Ferguson, C., Quinlan, J.J., Daggett, J., Snyder, K., Lagenaur, C., Mi, X.-P., Grayson, D., Wang, X.-J., and Firestone, L.L. (1997). Gene knockout of the alpha 6 subunit of the GABA type A receptor: Lack of effect on responses to ethanol, pentobarbital, and general anesthetics. *Mol. Pharm.* 51:588-596.

11. Homanics, G.E., DeLorey, T.M., Firestone, L.L., Quinlan, J.J., Handforth, A., Harrison, N.L., Krasowski, M.D., Rick, C.E.M., Korpi, E.R., Mäkelä, R., Brilliant, M.H., Hagiwara, N., Ferguson, C., Snyder, K., and Olsen, R.W. (1997). Mice devoid of the γ -aminobutyrate type A receptor $\beta 3$ subunit have epilepsy, cleft palate, and hypersensitive behavior. *Proc. Natl. Acad. Sci. USA* 94:4143-4148.
12. Mäkelä, R., Uusi-Oukari, M., Homanics, G.E., Quinlan, J.J., Firestone, L.L., Wisden, W. and Korpi, E.R. (1997). Cerebellar γ -aminobutyric acid type A receptors: pharmacological subtypes revealed by mutant mouse lines. *Mol. Pharm.* 52:380-388.
13. Quinlan, J.J., Homanics, G.E., and Firestone, L.L. (1998). Anesthesia sensitivity in mice lacking the $\beta 3$ subunit of the GABA_A receptor. *Anesthesiology* 88:775-780.
14. Homanics, G.E., Le, N.Q., Kist, F., Mihalek, R., Hart, A.R., and Quinlan, J.J. (1998). Ethanol tolerance and withdrawal responses in GABA_A receptor alpha 6 subunit null allele mice and in inbred C57BL/6J and Strain 129/SvJ mice. *Alcohol. Clin. Exp. Res.* 22:259-265.
15. Krasowski, M.D., Rick, C.E., Harrison, N.L., Firestone, L.L., and Homanics, G.E. (1998). A deficit of functional GABA-A receptors in neurons of $\beta 3$ subunit knockout mice. *Neurosci. Lett.* 240:81-84.
16. DeLorey, T.M., Handforth, A., Anagnostaras, S.G., Homanics, G.E., Minassian, B.A., Asatourian, A., Fenslow, M.S., Delgado-Escueta, A., Ellison, G.D., and Olsen, R.W. (1998). Mice lacking the $\beta 3$ subunit of the GABA_A receptor have the epilepsy phenotype and many of the behavioral characteristics of Angelman syndrome. *J. Neurosci.* 18:8505-8514.
17. Homanics, G.E., Harrison, N.L., Quinlan, J.J., Krasowski, M.D., Rick, C.E.M., de Blas, A.L., Mehta, A.K., Mihalek, R.M., Aul, J.J., and Firestone, L.L. (1999). Normal electrophysiological and behavioral responses to ethanol in mice lacking the long splice variant of the $\beta 2$ subunit of the γ -aminobutyrate type A receptor. *Neuropharmacology* 38:253-265.
18. Homanics, G.E., Quinlan, J.J., and Firestone, L.L. (1999). Pharmacologic and behavioral responses of inbred C57BL/6J and Strain 129/SvJ mouse lines. *Pharmacol. Biochem. Behav.* 63:21-26.
19. Huntsman, M. M., Porcello, D. M., Homanics, G. E., DeLorey, T. M., and Huguenard, J. R. (1999). Reciprocal inhibitory connections control network synchrony in the mammalian thalamus. *Science* 283:541-543
20. Schwartz, D. R., Homanics, G. E., Hoyt, D. G., Kline, E., Abernathy, J., and Lazo, J. S. (1999). The neutral cysteine protease bleomycin hydrolase is essential for epidermal integrity and bleomycin resistance. *Proc. Natl. Acad. Sci. USA* 96:4680-4685.
21. Resnick, A., Homanics, G. E., Jung, B., and Peris, J. (1999). Increased acute cocaine sensitivity and decreased cocaine sensitization in GABA_A $\beta 3$ subunit knockout mice. *J. Neurochem.* 73:1539-1548.
22. Mihalek, R. M., DeLorey, T., Korpi, E., Quinlan, J. J., Firestone, L. L., Ming, Z.-P., Lagenaur, C., Tretter, V., Sieghart, W., Anagnostaras, S., Fanselow, M., Olsen, R. W., and Homanics, G. E. (1999). Attenuated sensitivity to neuroactive steroids in GABA type A receptor delta subunit knockout mice. *Proc. Natl. Acad. Sci. USA* 96:12905-12910.
23. Ugarte, S. D., Homanics, G. E., and Hammond, D. L. (1999). Sensory thresholds and the antinociceptive effects of GABA receptor agonists in mice lacking the $\beta 3$ subunit of the GABA_A receptor. *Neurosci.* 95:795-806.
24. Quinlan, J. J., Firestone, L. L., and Homanics, G. E. (2000). Mice lacking the long splice variant of the $\beta 2$ subunit of the GABA_A receptor are more sensitive to benzodiazepines. *Pharmacol. Biochem. Behav.* 66: 371-374.
25. Uusi-Oukari, M., Heikkila, J., Sinkkonen, S. T., Hauer, B., Homanics, G. E., Sieghart, W., Wisden, W., and Korpi, E. R. (2000). Long-range interactions in neuronal gene expression: evidence from gene targeting in the GABA_A receptor $\beta 2$ - $\beta 6$ - $\beta 1$ - $\beta 2$ subunit gene cluster. *Mol. Cell. Neurosci.* 16: 34-41.
26. Firestone, L.L., Korpi, E., Niemi, L., Rosenberg, P., Homanics, G.E., and Quinlan, J.J. (2000). Halothane and desflurane requirements in alcohol-tolerant and -nontolerant rats. *Brit. J. Anes.* 85:757-762.
27. Sinkkonen, S. T., Mihalek, R. M., Homanics, G. E., and Korpi, E. R. (2001). Altered coupling of γ -aminobutyric acid type A receptor agonist and convulsant binding sites in subunit-deficient mouse lines. *Mol. Brain Res.* 86: 179-183.

28. Tretter, V., Hauer, B., Nusser, Z., Mihalek, R.M., Hoger, H., Homanics, G.E., Somogyi, P., and Sieghart, W. (2001). Targeted disruption of the GABA_A receptor delta subunit gene leads to upregulation of gamma2 subunit-containing receptors in cerebellar granule cells, *J. Bio. Chem.* 276: 10532-10538.
29. Vicini, S., Ferguson, C., Prybylowski, K., Kralic, J., Morrow, A. L., and Homanics, G. E. (2001). GABA_A receptor $\alpha 2$ subunit deletion prevents developmental changes of inhibitory synaptic currents in cerebellar neurons, *J Neurosci.* 21: 3009-3016.
30. Ugarte, S. D., Homanics, G. E., and Hammond, D. L. (2001). Effect of embryonic knock-down of GABA_A receptors on the levels of monoamines and their metabolites in the CNS of the mouse. *Brain Res.* 904:290-297.
31. Wong, S. M. E., Cheng, G., Homanics, G. E., and Kendig, J. J. (2001). Enflurane actions on spinal cords from mice that lack the $\alpha 2$ subunit of the GABA_A receptor. *Anesthesiology* 95:154-164.
32. Dellovade, T. L., Ross, E. D., Ferguson, C., Homanics, G. E., and Tobet, S. A. (2001). GABA influences the development of the ventromedial nucleus of the hypothalamus. *J. Neurobiol.* 49: 264-276.
33. Mihalek, R. M., Bowers, B. J., Wehner, J. M., Kralic, J. E., VanDoren, M. J., Morrow, A. L., and Homanics, G. E. (2001). GABA_A-receptor $\alpha 2$ subunit knockout mice have multiple defects in behavioral responses to ethanol. *Alcohol. Clin. Exp. Res.* 25: 1708-1718.
34. Nusser, Z., Kay, L. M., Laurent, G., Homanics, G. E., and Mody, I. (2001). Disruption of GABA_A receptor-mediated inhibition of GABAergic interneurons leads to increased synchrony of the olfactory bulb network. *J. Neurophys.* 86:2823-2833.
35. Laposky AD, Homanics GE, Basile A, Mendelson WB (2001) Deletion of the GABA_A receptor $\alpha 2$ subunit eliminates the hypnotic actions of oleamide in mice. *Neuroreport* 12:4143-4147.
36. Korpi, E. R., Mihalek, R. M., Sinkkonen, S. T., Hevers, W., Homanics, G. E., and Lüddens, H. (2002). Altered receptor subtypes in the forebrain of $\alpha 2$ subunit-deficient mice; recruitment of $\alpha 2$ subunits. *Neuroscience* 109:733-743.
37. Peng Z, Hauer B, Mihalek RM, Homanics GE, Sieghart W, Olsen RW, Houser CR (2002). GABA_A receptor changes in delta subunit-deficient mice: Altered expression of alpha-4 and gamma-2 subunits in forebrain. *J. Comp. Neurol.* 446:179-197.
38. Koo J-W, Homanics GE, Balaban CD (2002) Hypoplasia of spiral and Scarpa's ganglion cells in GABA_A receptor $\alpha 3$ subunit knockout mice. *Hearing Res.* 167: 71-80.
39. Spigelman I, Li Z, Banerjee PK, Mihalek RM, Homanics GE, Olsen RW (2002) Behavior and physiology of mice lacking the GABA_A-receptor delta subunit. *Epilepsia* 43 Suppl 5:3-8.
40. Quinlan JJ, Ferguson C, Jester K, Firestone LL, Homanics GE (2002) Mice with glycine receptor subunit mutations are both sensitive and resistant to volatile anesthetics. *Anesth Analg* 95: 578-582.
41. Kralic JE, Korpi ER, O'Buckley, Homanics GE, Morrow AL (2002) Molecular and pharmacologic characterization of GABA_A receptor alpha-1 subunit knockout mice. *J. Pharmacol. Exp. Ther.* 302: 1037-1045.
42. Kralic JE, O'Buckley TK, Khisti RT, Hodge CW, Homanics GE, Morrow AL (2002) GABA_A receptor alpha-1 subunit deletion alters benzodiazepine receptor assembly, pharmacological properties and behavioral responses. *Neuropharmacology* 43: 685-694.
43. Vicini S, Losi G, Homanics GE (2002) GABA_A receptor $\alpha 2$ subunit deletion prevents neurosteroid modulation of inhibitory synaptic currents in cerebellar neurons. *Neuropharmacology* 43: 646-650.
44. Wisor JP, DeLorey TM, Homanics GE, Edgar DM (2002) Sleep states and sleep electroencephalographic spectral power in mice lacking the $\alpha 3$ subunit of the GABA_A receptor. *Brain Res* 955: 221-228.
45. Goldstein PA, Elsen FP, Ying S-W, Ferguson C, Homanics GE, Harrison NL (2002) Prolongation of hippocampal synaptic inhibition in mice lacking the GABA_A receptor $\alpha 1$ subunit. *J Neurophysiol* 88: 3208-3217.
46. Ramadan E, Fu Z, Losi G, Homanics GE, Neale JH, Vicini S. (2003). GABA_A receptor $\alpha 3$ subunit deletion decreases $\alpha 2$ subunit expression and accelerates inhibitory synaptic currents in cortical neurons in culture. *J Neurophysiol* 89: 128-134.
47. Kralic JE, Wheeler M, Renzi K, Ferguson C, O'Buckley TK, Grobin AC, Morrow AL, Homanics GE (2003) Deletion of GABA_A receptor alpha-1 subunit-containing receptors alters responses to ethanol and other anesthetics. *J Pharmacol Exp Ther* 305: 600-607.

48. Porcello DM, Huntsman MM, Mihalek RM, Homanics GE, Huguenard JR (2003) Intact fast synaptic GABAergic inhibition and altered neurosteroid modulation of thalamic relay neurons in mice lacking the delta subunit. *J Neurophysiol* 89: 1378-1386.
49. Sinkkonen ST, Homanics GE, Korpi ER (2003) Mouse models of Angelman syndrome, a neurodevelopmental disorder, display different brain regional GABAA receptor alterations. *Neurosci Lett* 340: 205-208.
50. Spigelman I, Li Z, Liang J, Cagetti E, Samzadeh S, Mihalek RM, Homanics GE, Olsen RW (2003) Reduced inhibition and sensitivity to neurosteroids in hippocampus of mice lacking the GABA_A receptor α 5 subunit. *J Neurophysiol* 90: 903-910.
51. Findlay GS, Phelan R, Roberts MT, Homanics GE, Bergeson S, Lopreato G, Mihic SJ, Blednov YA, Harris RA (2003) Glycine receptor knock-in mutant mice exhibit a more dramatic hyperekplexia-like phenotype compared to a null mutation. *J Neurosci* 23, 8051-8059.
52. Uusi-Oukari M, Kosonen P, Homanics GE, Korpi ER (2004) Brain regional heterogeneity of pH effects on GABA_A receptor-associated [³⁵S]TBPS binding. *Neurochem Res* 29:771-780.
53. Shannon EE, Shelton KL, Vivian JA, Yount I, Morgan AR, Homanics GE, Grant KA (2004) Discriminative stimulus effects of ethanol in mice lacking the γ -aminobutyric acid type A receptor α 5 subunit. *Alcohol Clin Exp Res* 28: 906-913.
54. Panzanelli P, Homanics GE, Ottersen OP, Fritschy J-M, Sassoe-Pognetto M (2004) Pre- and postsynaptic GABA_A receptors at reciprocal dendrodendritic synapses in the olfactory bulb. *Eur J Neurosci* 20:2945-2952.
55. Homanics GE, Elsen FP, Jenkins A, Ferguson C, Sloat B, Yuditskaya S, Kralic J, Morrow AL, Harrison NL (2005) A gain-of-function mutation in the GABA_A receptor produces behavioral and synaptic defects in the mouse. *Genes Brain Behav* 4:10-19.
56. Kralic JE, Criswell HE, Osterman J, O'Buckley TK, Matthews DB, Hamre K, Breese GR, Homanics GE, Morrow AL (2005) Genetic essential tremor in γ -aminobutyric acid_A receptor α 1 subunit knockout mice. *J Clin Invest* 115:774-779.
57. Wiltgen BJ, Sanders MJ, Ferguson C, Homanics GE, Fanselow MS (2005) Trace fear conditioning is enhanced in mice lacking the α 5 subunit of the GABA_A receptor. *Learn Mem* 12: 327-333.
58. Liljelund P, Handforth RA, Homanics GE, Olsen RW (2005) GABA_A receptor α 3 subunit gene-deficient heterozygous mice show parent-of-origin and gender-related differences in α 3 subunit levels, EEG, and behavior. *Dev Brain Res* 157: 150-161.
59. Sonner JM, Cascio M, Xing Y, Fanselow MS, Kralic JE, Morrow AL, Korpi ER, Hardy S, Sloat B, Eger EI, Homanics GE (2005) α 1 subunit-containing GABA type A receptors in forebrain contribute to the effect of inhaled anesthetics on conditioned fear. *Mol Pharmacol* 68: 61-68.
60. Chandra D, Korpi ER, Miralles CP, De Blas AL, Homanics GE (2005) GABA_A receptor α 2 subunit knockdown mice have enhanced anxiety-like behavior but unaltered hypnotic response to benzodiazepines. *BMC Neurosci* 6: 30.
61. Handforth RA, DeLorey TM, Homanics GE, Olsen RW (2005) Pharmacologic evidence for absence seizure-like abnormal thalamocortical functioning in GABA_A receptor β 3 subunit-deficient mice, a model of Angelman syndrome. *Epilepsia* 46: 1860-1870.
62. Liljelund P, Ferguson C, Homanics GE, Olsen RW (2005) Long-term effects of diazepam treatment of epileptic GABA_A receptor β 3 subunit knockout mouse in early life. *Epilep Res* 66: 99-115.
63. Smith S, Ruderman Y, Frye C, Homanics G, Yuan M (2006) Steroid withdrawal in the mouse results in anxiogenic effects of 3 α ,5 β -THP: a possible model of premenstrual dysphoric disorder. *Psychopharmacology* 186: 323-333.
64. Ogris W, Lehner R, Fuchs K, Furtmuller B, Hoyer H, Homanics GE, Sieghart W (2006) Investigation of the abundance and subunit composition of GABA_A receptor subtypes in the cerebellum of α 1-subunit deficient mice. *J Neurochem* 96: 136-147.
65. Kochanek P, Vagni VA, Janesko KL, Washington CB, Crumrine PK, Garman RH, Jenkins LW, Clark RSB, Homanics GE, Dixon CE, Schnermann J, Jackson EK (2006) Adenosine A1 receptor knockout mice develop lethal status epilepticus after experimental traumatic brain injury. *J Cereb Blood F Met* 26: 565-575.

66. Kralic JE, Sidler C, Parpan F, Homanics GE, Morrow AL, Fritschy JM (2006) Compensatory alteration of inhibitory synaptic circuits in cerebellum and thalamus of GABA_A receptor $\alpha 1$ subunit knockout mice. *J Comp Neurol* 495: 408-421.
67. Elsen FP, Liljelund P, Werner DF, Olsen RW, Homanics GE, Harrison NL (2006) GABA_A-R $\alpha 1$ subunit knockin mutation leads to abnormal EEG and anesthetic-induced seizure-like activity in mouse. *Brain Res* 1078: 60-70.
68. Boehm II SL, Homanics GE, Blednov YA, Harris RA (2006) δ -subunit containing GABA_A receptor knockout mice are less sensitive to the actions of 4,5,6,7-tetrahydroisothiazolo-[5,4-c]pyridin-3-ol. *Eur J Pharmacol* 541: 158-162.
69. Maison SF, Rosahl TW, Homanics GE, Liberman C (2006) Functional role of the cochlea's GABAergic innervation: phenotypic analysis of mice lacking GABA(A) receptor subunits $\alpha 1$, $\alpha 2$, $\alpha 5$, $\alpha 6$, $\beta 2$, $\beta 3$, or δ . *J Neurosci* 26: 10315-10326.
70. Homanics GE, Skvorak K, Ferguson C, Watkins SC, Paul HS (2006) Production and characterization of murine models of classic and intermediate maple syrup urine disease. *BMC Med Genet* 7: 33.
71. Ponomarev I, Maiya R, Harnett MT, Schafer GL, Ryabinin AE, Blednov YA, Morikawa H, Boehm II SL, Homanics GE, Berman A, Lodowski KH, Bergeson S, Harris RA (2006) Transcriptional signatures of cellular plasticity in mice lacking the $\alpha 1$ subunit of GABA_A receptors. *J Neurosci* 26: 5673-5683.
72. Borghese CM, Elsen FP, Werner DF, Topf N, Baron NV, Henderson LA, Boehm II SL, Saad A, Dai S, Pearce RA, Harris RA, Homanics GE, Harrison NL (2006) An isoflurane- and alcohol-insensitive mutant GABA_A receptor $\alpha 1$ subunit with near normal apparent affinity for GABA: characterization in heterologous systems and production of knock-in mice. *J Pharmacol Exp Ther* 319: 208-218.
73. Werner DF, Blednov YA, Borghese CM, Henderson LA, Ariwodola OJ, Silberman Y, Logan E, Berry RB, Matthews DB, Weiner JL, Harrison NL, Harris RA, Homanics GE (2006) Knockin mice harboring ethanol insensitive $\alpha 1$ -containing GABA_A receptors display selective alterations in behavioral responses to ethanol. *J Pharmacol Exp Ther* 319: 219-227.
74. Skvorak K, Vissel B, Homanics GE (2006) Production of conditional point mutant knockin mice. *Genesis* 44: 345-353.
75. Chandra D, Jia F, Liang J, Peng Z, Suryanarayanan A, Werner DF, Spigelman I, Houser CR, Olsen RW, Harrison NL, Homanics GE (2006) GABA_A receptor $\alpha 4$ subunits mediate extrasynaptic inhibition in thalamus and dentate gyrus and the action of gaboxadol. *Proc Natl Acad Sci USA* 103: 15230-15235.
76. Sonner JM, Werner DF, Elsen FP, Xing Y, Liao M, Harris RA, Harrison NL, Fanselow MS, Eger EI, Homanics GE (2007) Effect of isoflurane and other potent inhaled anesthetics on minimum alveolar concentration, learning, and the righting reflex in mice engineered to express $\alpha 1$ GABA_A receptors unresponsive to isoflurane. *Anesthesiology* 106:107-113.
77. June Sr. HL, Foster KL, Eiler WJ, Goergen J, Cook JB, Johnson N, Mensah-Zoe B, Simmons JO, June Jr. HL, Yin W, Cook JM, Homanics GE (2007) Dopamine and benzodiazepine-dependent mechanisms regulate the ethanol-enhanced locomotor stimulation in GABA_A $\alpha 1$ subunit null mutant mice. *Neuropsychopharmacology* 32: 137-152.
78. Glykys J, Peng Z, Chandra D, Homanics GE, Houser CR, Mody I (2007) A novel naturally occurring GABA_A receptor partnership with high sensitivity to ethanol. *Nat Neurosci* 10:40-48.
79. Winsky-Sommerer R, Vyazovskiy V, Homanics GE, Tobler I (2007) The EEG effects of THIP (Gaboxadol) on sleep and waking are mediated by the GABA_A δ -subunit containing receptors. *Eur J Neurosci* 25: 1893-1899.
80. Kim JB, Atherley R, Werner DF, Homanics GE, Carstens E, Antognini JF (2007) Isoflurane depression of spinal nociceptive processing and minimum alveolar anesthetic concentrations are not attenuated in mice expressing isoflurane resistant γ -aminobutyric acid type A receptors. *Neurosci Lett* 420: 209-212.
81. Ferguson C, Hardy SL, Werner DF, Hileman SM, DeLoey TM, Homanics GE (2007) New insight into the role of the $\beta 3$ subunit of the GABA_A-R in development, behavior, body weight regulation, and anesthesia revealed by conditional gene knockout. *BMC Neurosci* 8: 85.
82. DeLoey TM, Sahbaie P, Hashemi E, Homanics GE, Clark JD (2008) Gabrb3 gene deficient mice exhibit

impaired social and exploratory behaviors, deficits in non-selective attention and hypoplasia of cerebellar vermal lobules: a potential model of autism spectrum disorder. *Behav Brain Res* 187: 207-220.

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84. Peden DR, Petitjean CM, Herd MB, Durakoglugil M, Rosahl TW, Wafford KA, Homanics GE, Belelli D, Fritschy JM, Lambert JJ (2008) Developmental plasticity of thalamocortical synaptic and extrasynaptic GABA_A receptors. *J Physiol* 586: 965-987.
85. Chandra D, Werner DF, Olsen RW, Harrison NL, Homanics GE (2008) Normal acute behavioral responses to ethanol in GABA_A receptor $\alpha 4$ subunit knockout mice. *Alcohol Clin Exp Res* 32: 10-18.
86. Liang J, Suryanarayanan A, Chandra D, Homanics GE, Olsen RW, Spigelman I (2008) Functional consequences of GABA_A receptor $\alpha 4$ subunit deletion on synaptic and extrasynaptic currents in mouse dentate granule cells. *Alcohol Clin Exp Res* 32: 19-26.
87. Herd MB, Haythornthwaite AR, Rosahl TW, Wafford KA, Homanics GE, Lambert JJ, Belelli D (2008) The expression of GABA_A β subunit isoforms in synaptic and extrasynaptic receptor populations of mouse dentate gyrus granule cells. *J Physiol* 586: 989-1004.
88. Jia F, Yue M, Chandra D, Goldstein PA, Homanics GE, Harrison NL (2008) Isoflurane is a potent modulator of extrasynaptic GABA_A receptors in the thalamus. *J Pharmacol Exp Ther* 324: 1127-1135.
89. Jia F, Chandra D, Homanics GE, Harrison NL (2008) Ethanol modulates synaptic and extrasynaptic GABA_A receptors in the thalamus. *J Pharmacol Exp Ther* 326: 475-482.
90. Berry RB, Werner DF, Wang XF, Mittleman G, Jablonski MM, Homanics GE, Matthews DB (2008) Mice with targeted genetic reductions of GABA_A receptor $\alpha 1$ subunits display performance differences in Morris water maze tasks. *Neurobiol Learn Mem* 90: 580-583.
91. Werner DF, Swihart AR, Ferguson C, Lariviere WR, Harrison NL, Homanics GE (2009) Alcohol-induced tolerance and physical dependence in mice with ethanol insensitive $\alpha 1$ GABA_A receptors. *Alcohol Clin Exp Res* 33: 289-299.
92. Ying S-W, Werner DF, Homanics GE, Harrison NL, Goldstein PA (2009) Isoflurane modulates excitability in the mouse thalamus via GABA-dependent and GABA-independent mechanisms. *Neuropharmacology* 56: 438-447.
93. Zinnanti W, Lazovic J, Griffin K, Skvorak KJ, Paul HS, Homanics GE, Bewely M, Cheng KC, LaNoue K, Flanagan JM (2009) Dual mechanisms of brain injury and novel treatment strategy in maple syrup urine disease. *Brain* 132: 903-918.
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10. Homanics GE, Firestone LL (2002) Genetic dissection of anesthetic action. In: *Contemporary Clinical Neuroscience: Neural Mechanisms of Anesthesia* (Antognini J, Carstens, Raines D, eds), pp 249-261. Totowa, NJ: Humana Press Inc.
11. Homanics GE, Xu Y, Tang P (2002) Integrated approaches to the action of general anesthetics and alcohol. *Physiology and Behavior* 77:495-499.
12. Homanics GE (2002) Dissection of putative anesthetic targets with genetically engineered mice. In: *Molecular and Basic Mechanisms of Anesthesia* (Urban B, Barann M, eds), pp 526-527. Berlin: Pabst Science Publishers.
13. Sonner JM, Antognini JF, Dutton RC, Flood P, Gray AT, Harris RA, Homanics GE, Kendig J, Orser B, Raines DE, Trudell J, Vissel B, Eger EI (2003) Inhaled anesthetics and immobility: Mechanisms, mysteries, and MAC. *Anesth Analg*: 97: 718-740.
14. Werner DF, Chandra D, Homanics GE (2004) Genetically engineered animals in alcohol research. In: *Comprehensive Handbook of Alcohol Related Pathology* (Preedy VR, Watson RR, eds), p 1583-1596. London: Elsevier Science.
15. Osterman JL, Kralic JE, O'Buckley TK, Homanics GE, Morrow AL (2005) GABA_A receptor $\alpha 1$ subunit knockout mice: A novel model of essential tremor: A novel model of essential tremor. In: *Animal Models of Movement Disorders* (LeDoux MS, ed), pp 369-376. San Diego: Elsevier, Inc.
16. Lovinger D, Homanics GE (2007) Tonic for what ails us? High affinity GABA_A receptors and alcohol. *Alcohol* 41: 139-143.
17. Horn CC, Wallisch WJ, Homanics GE, Williams JP (2014) Pathophysiological and neurochemical

- mechanisms of postoperative nausea and vomiting. *Eur J Pharmacol* 722:55-66. PMID: PMC3915298.
18. Belmonte JC, Callaway EM, Churchland P, Caddick, SJ, Feng G, Homanics GE, Lee KF, Leopold DA, Miller CT, Mitchell JF, Matalipov S, Moutri AR, Movshon JA, Okano H, Reynolds JH, Ringach D, Sejnowski TJ, Silva AC, Strick PL, Wu J, Zhang F (2015). Brains, Genes, and Primates. *Neuron* 86, 617-631. PMC4425847.
 19. Finegersh A, Rompala GR, Martin DI, Homanics GE (2015) Drinking beyond a lifetime: New and emerging insights into paternal alcohol exposure on subsequent generations. *Alcohol* 49:461-470. PMC4469624.
 20. Mahnke AH, Miranda RC, Homanics GE (2017) Epigenetic mediators and consequences of excessive alcohol consumption. *Alcohol* 60:1-6. PMC5439216.
 21. Rompala GR, Homanics GE (2019) Intergenerational effects of alcohol: a review of paternal preconception ethanol exposure studies and epigenetic mechanisms in the male germline. *Alcohol Clin Exp Res* 43:1032-1045. PMC6551262.
 22. Homanics GE (2019) Gene-edited CRISPy Critters for alcohol research. *Alcohol* 74:11-19. PMC6334660.
 23. Baratta, A.M., Rathod, R.S., Plasil, S.L., Seth, A., and Homanics, G.E. (2021). Exposure to drugs of abuse induce effects that persist across generations. *Int Rev Neurobiol* 156: 217-277. PMC8167819.
 24. Homanics, G. E., Neuhaus, S. C. F., eds. (2021). *Methods and Model Organisms Editor's Pick 2021*. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88966-966-0.

PROFESSIONAL ACTIVITIES

• **Teaching, Lectures** (1-2 hours/course/year):

1993	University of Pittsburgh, Comprehensive Immunology MS MIC 2360 (Graduate Students)
1993	University of Pittsburgh, Advanced Molecular Genetics MS MIC 2355 (Graduate Students)
1997	Children's Hospital of Pittsburgh Unified Fellowship Course (Medical Students)
1998	University of Pittsburgh, Eukaryotic Molecular Genetics (Graduate Students)
1998, 1999	University of Chicago, Foundations of Modern Pharmacology (Graduate Students)
2002	University of Pittsburgh, Molecular Pharmacology (Graduate Students)
2003-present	University of Pittsburgh, Cellular and Molecular Neurosci (Graduate Students)
2001-present	University of Pittsburgh, Biology of Signal Transduction (2360; Graduate Students)
2001-2010	University of Pittsburgh, Course Director: Research Elective in Anesthesiology(5840: Medical)
2005	University of Pittsburgh, Neuropharmacology (2390; Graduate Students)
2005	University of Pittsburgh, Body Fluid Homeostasis, Pulmonary block (MS2 students)
2006-2011	University of Pittsburgh, Neuroscience, (MS1 students)
2011-13	University of Pittsburgh, Scientific Ethics and Responsible Conduct of Research (INTBP2290)
2011-12	University of Pittsburgh, Summer Undergraduate Research Program, Pharmacology
2012-13	University of Pittsburgh, Summer Undergraduate Research Program, Neuroscience
2015	University of Pittsburgh, Neurobiology of Disease
2017-present	University of Pittsburgh, CNUP Responsible Conduct of Research (Animal Experimentation)

• **Teaching, Facilitator** (3-12 hours/course/year):

93-00, 16-18	Molecular and Human Genetics, Problem Based Learning (Medical Students)
99-20, 17-18	Molecular and Human Genetics, Problem Solving Conference (Medical Students)
1994, 1996	Integrated Case Studies, Problem Based Learning (Medical Students)
96-00, 07	General Pharmacology, Problem Based Learning (Medical Students)
1998, 06-10	General Pharmacology, Conference (Medical Students)
98-04, 07	Cell Structure, Metabolism, and Nutrition, Problem Based Learning (Medical Students)

Theses completed

Co-major advisor to Donald R. Schwartz

PhD in Molecular Pharmacology, 1999

Thesis Title: Bleomycin hydrolase knockout mice: creation and phenotypic characterization

Major advisor to David F. Werner

PhD in Molecular Pharmacology, 2007

Thesis Title: Elucidation of the role of α 1-containing GABA_A receptors in ethanol action

Major advisor to Dev Chandra

PhD in Molecular Pharmacology, 2008

Thesis Title: Extrasynaptic GABA_A receptors in the mechanism of action of ethanol and other sedative hypnotic drugs

Major advisor to Kristen Skvorak

PhD in Biochemistry & Molecular Genetics, 2008

Thesis Title: Investigation of gene and cellular therapies to cure Maple Syrup Urine Disease (MSUD) in a genetically engineered mouse model

Major advisor to Sangeetha Iyer

PhD in Molecular Pharmacology, 2010

Thesis Title: Role of the α 4-containing GABA_A receptors in anesthetic and ethanol antagonist effects: Insights from a global knockout mouse model

Co-major advisor to Mark Zimmerman

PhD in Molecular Pharmacology, 2013

Thesis Title: Targeted deletion of Ptp4A3 inhibits colon carcinogenesis and angiogenesis

Major advisor to Andrey Finegersh

PhD in Molecular Pharmacology, 2014

Thesis Title: Epigenetic effects of ethanol

Major advisor to Gregory Rompala

PhD, Center for Neuroscience, 2018

Thesis Title: Role of paternal preconception environment in ethanol- and stress-related phenotypes

Service on Graduate Student / Postdoctoral Fellow Committees

Terre Constantine-Sharma, Department of Pharmacology, PhD 1998

Naxin Wu, Department of Molecular Genetics and Biochemistry, PhD 1998

Susanna Montoya, Department of Human Genetics, MS 1998

Diane Zeleski, Department of Pharmacology, MS 1998

Donald Schwartz, co-major advisor, Molecular Pharmacology, PhD 1999

Joelle Scanlon, Molecular Pharmacology, PhD 2000

Mike Vallor, Biochemistry and Molecular Genetics, PhD 2001

Corina Howell, Department of Biological Sciences, PhD 2000

Bradley Andresen, Molecular Pharmacology, PhD 2002

Bonnie Reinhart, Department of Biological Sciences, PhD 2003

Susanna Montoya, Molecular Pharmacology, PhD 2004

David Werner, PhD, major advisor, Molecular Pharmacology, PhD 2007

Nicole Kotchey, Molecular Pharmacology, MS 2007

Dev Chandra, PhD, major advisor, Molecular Pharmacology, PhD 2008

Jamie Maldonado-Aviles, Center for Neuroscience, PhD 2008

Kristen Skvorak, PhD, chair and major advisor, Biochemistry and Molecular Genetics (2006-2008)

Mao Ye, Biochemistry and Molecular Genetics (2006-2010)

Carolyn Kitchens, Molecular Pharmacology, Comprehensive Examination Committee (2007)

Tanxing Cui, Chair, Molecular Biophysics Structural Biology (2007-2010)
 Sangeetha Iyer, PhD candidate, major advisor, Molecular Pharmacology, PhD (2005-2010)
 Amy Furda, Molecular Pharmacology, Comprehensive Examination Committee Chair (2008)
 Nicole Edgar, Center for Neuroscience, PhD 2011
 Andrew Sammuelson, Center for Neuroscience, Thesis Advisory Committee (2009-2012)
 Chris DiVito, Center for Neuroscience, Comprehensive Examination Committee Chair (2009)
 Mark Zimmerman, Molecular Pharmacology, Thesis Advisory Committee and Co-Major Advisor (2009-2013)
 Hillary Stevenson, Molecular Pharmacology, Comprehensive Examination Committee (2010)
 Li-Chun (Queenie) Li, Center for Neuroscience, Thesis Advisory Committee Chair (2011-2014); Comprehensive Examination Committee (chair; 2011)
 Marianne Seney, PhD, Department of Psychiatry, Committee to Review Mentored K Proposals (2011-2013)
 Andrey Finegersh, Molecular Pharmacology, Thesis Advisory Committee and Major Advisor (2012-2014)
 Ryan Logan, PhD, Department of Psychiatry, Postdoc Career Development Committee (2012-2016)
 Angela Osborne, PhD, Department of Psychiatry, Committee to Review Mentored K Proposals (2012-2014)
 Monica Kinde, MD, Department of Anesthesiology, Postdoc Career Development Committee (2012-2016)
 Megan Brady, PhD, Department of Pharmacology, Postdoc Career Development Committee (2014-2017)
 Gregory Rompala, Center for Neuroscience, Thesis Advisory Committee (2015-2018)
 Nicholas Kunz, Center for Neuroscience, Reprint Exam Committee (2015)
 Cody Wolfe, Environmental and Occupational Health, Comprehensive Examination Committee (2016)
 Josh Lorenz-Guertin, Molecular Pharmacology, Comprehensive Examination Committee (2016), Thesis Advisory Committee (2016-2019)
 Chatchanan Doungkamchan, Molecular Genetics and Developmental Biology, Comprehensive Examination Committee (2016), Thesis Advisory Committee (2016-2020)
 Nicholas Todd, Molecular Pharmacology, Comprehensive Examination Committee (2018)
 Darius Becker-Krail, Center for Neuroscience, Thesis Advisory Committee (chair; 2018-2020)
 Ana Almeida Rojo, Center for Neuroscience, Reprint (2019), Comprehensive (2020) Exam, and Thesis Advisory (2021-present) Committees
 Sonja Plasil, Molecular Pharmacology, Comprehensive Examination Committee (2019), Thesis Advisory Committee and Major Advisor (2019-present)
 Anna Baratta, Center for Neuroscience, Comprehensive Examination Committee (2020), Thesis Advisory Committee and Major Advisor (2019-present)
 Sydney Lamerand, Center for Neuroscience, Predoctoral Fellowship Training Committee (2021-present); Comprehensive Examination Committee (chair; 2021-2022), Thesis Advisory Committee (chair; 2022-present)
 Caitlyn Chapman, Molecular Pharmacology, Comprehensive Examination Committee (chair; 2021), Thesis Advisory Committee (2021-present)
 Tracey Myers, Center for Neuroscience, Comprehensive Examination Committee (Chair; 2022), Thesis Advisory Committee (chair; 2022-present)

Trainees: Postdoctoral Scientists:

Robert M. Mihalek, PhD	1995-2000
Steven Hardy, PhD	2003-2004
Andrew Swihart, MD	2006-2007
Rodrigo Benevides, MD	2007-2008
Mark Zimmerman, PhD	2013
Richa Rathod, PhD	2018-2020
Stephanie Myal, MD	2023

Trainees: Predoctoral Students:

Renee Brown (rotation, Molecular Genetics and Biochemistry), September - December 1993
 Fan-Li Chou (rotation, Molecular Genetics and Biochemistry), September - December 1994

Laura Sheehan (rotation, Molecular Genetics and Biochemistry), September - December 1993
 Jerome Aul (medical student research project) January - February 1997
 Donald Schwartz (Molecular Pharmacology), January 1994-April 1999
 Bridget Colvin (rotation, Interdisciplinary Biomedical Graduate Program) September 1998-January 1999
 Bradley Andresen (rotation, Interdisciplinary Biomedical Graduate Program), January 1999-May 1999
 Dev Chandra (Mol. Pharm. Grad Student), 2000-2008
 Dave Werner (grad student, Mol Pharm) 2002-2007
 Kristen Skvorak (Biochem. Mol. Genetics Grad. Student) 2004-2008
 Bowen Liu, (rotation, Interdisciplinary Biomedical Graduate Program), September 2005-January 2006
 Sangeetha Iyer, (Grad student, Mol Pharm), 2006-2010
 Rakshita Charan (rotation, Interdisciplinary Biomedical Graduate Program), 2007
 Nichole Edgar (rotation, Center for Neuroscience) 2007
 Mark Zimmerman (grad student, Mol Pharm), 2008-2013
 Ylva Ekdahl (visiting grad student from Stockholm University), June-September 2010
 Andrey Finegersh (MD/PhD grad student, Mol Pharm) 2011-2014
 Gregory Rompala (grad student, Center for Neuroscience) 2013-2018
 Nicholas Kunz (grad student, Center for Neuroscience) 2015-2016
 Spencer Edelstein (grad student, Center for Neuroscience) 2017-2018
 Brooke Bender (rotation, Center for Neuroscience) 2017
 Erik Beeler (Biomedical Master's Program) 2017-2018
 Sonja Plasil (grad student, Mol Pharm), 2018-present
 Lana Balsan (Biomedical Master's Program) 2018
 Amit Seth (Biomedical Master's Program) 2018-2019
 Annalisa Baratta (grad student, Center for Neuroscience) 2019-present
 Uchenna Nwokeji (Biomedical Master's Program) 2019-2020
 Valerie Collins (Biomedical Master's Program) 2020-2021
 Rachel Rice (grad student, Center for Neuroscience) 2021-present
 Yangxi (Claudia) Sun (rotation, Interdisciplinary Biomedical Graduate Program), 2022

Trainees: Undergraduate Students:

Mike Kelly, 1996	Erik Bennet (2009-2010)
Jan R. Urso, 1996	Stephanie Stras (2011-2013)
Chetan Mehta, 1997	Alex Blummer (2012)
Katie Jester, 1999-2000	Adam Zhang (2012)
Brian Sloat, 2000-2003	Alexandra Bova (2013)
Karen Renzi, 2000-2003	Seth Maxwell (2013-2014)
Matthew Wheeler, 2000-2003	Michelle Slater (2014-2016)
Dan Jacobs, 2002-2003	Zachary Nobile (2015-2020)
Michael Bykowski, 2003-2004	Allison Simons (2016-2017)
Edith Hayden, 2005	Brooke Kihle (2016-2018)
Matthew Graber, 2005	Andrew Iker (2022-present)
Benjamin Cook, 2006-2007	Remy Frawley (2023-present)
Molly Lauver (2008-2010)	
Michelle Larzelere (2008-2011)	

Trainees: Medical Students:

Jerome Aul, 1997	David Mazariegos, 2011-2013
Susan Yuditsky, 2003	Andrey Finegersh, 2011-2015
Kevin Vilsaint, 2006	Daniel Farrell, 2013-2016

RESEARCH**Research Grant Awards****• Active**

Grant #	Source	Title	Role: effort	Yrs inclusive	Total \$
U19 AG074866	NIH	Generation, characterization, and validation of marmoset models of Alzheimer's Disease	Co-I: 3.0 Cal. Mo. PI: Silva, Rizzo & Carter	2022-2027	\$32,484,984
U01 AA020889	NIH	Epigenetic regulation of neuroimmune pathways	MPI: 3.9 Cal. Mo. Contact PI: Farris	2022-2027	\$3,054,187
R01 AA030257	NIH	LncRNA regulation of gene expression and behavior	Co-I: 2.4 Cal. Mo. PI: Farris	2022-2027	\$2,763,585
xxxxxx	Bridging Connections in Addiction Research (Univ. Pitt.)	Cross-generational epigenetic effects of pre-conception alcohol use on genetic variants associated with cancer susceptibility	MPI: 0.6 Cal. Mo. MPI: Hill	2022-2024	\$100,000
R01 NS113957	NIH	Genetics of stroke vulnerability in C57BL/6 mouse substrains	Co-I: 0.24 Cal. Mo. PI: Novak	2023-2024	subcontract: \$39,918
R03 NS119664	NIH	Developing a murine TPI Df model	Co-I: 0 Cal. Mo. PI: Palladino	2021-2023	\$157,750
R01 HD104346	NIH	High content screening for TPI deficiency therapeutics	Co-I: 0.6 Cal. Mo. PI: Palladino	2021-2026	\$2,919,513
R01 HD105311	NIH	Developing the first TPI Df therapeutics	Co-I: 0.6 Cal. Mo. PI: Palladino	2021-2026	\$2,032,676

• Pending

Grant #	Source	Title	Role	Yrs inclusive	Total \$
R01GM118801	NIH	Anesthetic suppression of memory through disinhibitory circuits in hippocampus	Co-I: 0.6 Cal. Mo. PI: Pearce (U Wisc)	2023-2026	Subcontract: \$66,911
R21 AAxxxxx	NIH	Role of Cell Type-Specific Molecular Rhythm Disruption in Alcohol Use Disorder	Co-I: 0.3 Cal. Mo. PI: Seney	2023-2025	\$457,227

• **Previous**

Grant #	Source	Title	Role	Yrs inclusive	Total \$
U01 AA020889	NIH	Role of noncoding RNA in alcohol action	PI: 3.6 Cal. Mo.	2017-2022	\$2,345,078
R37 AA10422	NIH	Ethanol mechanisms in GABAA-R gene targeted mice	PI: 3.6 Cal. Mo.	2010-2021	\$4,821,789
xxxxx	UPMC	Genetically engineered marmoset model of early onset Alzheimer's Disease	Co-I: 3.6 Cal. Mo. PI: Strick	2019-2021	\$4,000,000
U01 AA020889	NIH Administrative Supplement	Genetically Engineered Rodents Core (INIA West)	PI: 3.6 Cal. Mo.	8/16-2/17	\$129,310
U01 AA020889	NIH	Genetically Engineered Rodents Core (INIA West)	PI: 30%	2011-2016	\$1,571,590
R21 AA022753	NIH	Transgenerational epigenetic effects induced by paternal preconception ethanol	Collaborator 5% (PI=DIK Martin)	2014-2016	\$449,670
RO1 AA06399	NIH	Alcohol Actions-Molecular Targets on Brain Proteins	Collaborator 5% (PI=RA Harris)	2014-2016	Pitt subcontract=\$135,576
R21 MH100612	NIH	Single molecule detection of ion channels in neurons	Collab. 0.6 Cal. Mo. (PI=Barth)	2013-2015	\$419,609 Pitt subcontract=\$57,341
U01 AA17857-04	NIH	G protein modulation of glycine receptor function and ethanol action	PI / 25%	2008-2014	\$1,082,831
-----	NeuroTherapeutics Pharma, Inc.	GABA _A -R $\alpha 2$ knockout study	PI	2011-2012	\$50,859
R01 AA006399	NIH	Alcohol actions-molecular targets on brain proteins	PI:Harris Collab.: 0.24 cal. mo.	2010-2012	\$70,000
R01 AA10422	NIH	Ethanol mechanisms in GABA _A -R gene targeted mice	PI / 25%	2004-2010	\$1,541,932
P01 GM47818	NIH	<u>PPG title:</u> Sites and mechanisms of inhaled anesthetic action <u>Subproject title:</u> Genetic dissection of anesthetic mechanisms	PI of subproject (PI=Eger) 25%	2004-2010	\$972,413
R01 AA13044	NIH	GABA _A -R alpha 4 subunit in ethanol-related behaviors	PI / 30%	2002-2007	\$1,912,192
---	MSUD Support Group / Scott C. Foster Metabolic	MSUD gene therapy	PI	2005-2006	\$44,750

	Disease Fund				
P01 GM47818	NIH	<u>PPG title:</u> Sites and mechanisms of inhaled anesthetic action <u>Subproject title:</u> Genetic dissection of anesthetic mechanisms	PI of subproject (PI=Eger)	2001-2004	\$547,236
---	MSUD Support Group	MSUD mouse model	PI	2003-2004	\$38,000
R01 AA10422	NIH	Ethanol mechanisms in GABAA-R gene targeted mice	PI	1999-2003	\$1,501,383
R01 GM52035	NIH	Anesthetic mechanisms in GABAA-R gene targeted mice	PI	1998-2002	\$1,555,297
R01 HL32154	NIH	Metallothionein and reactive oxygen and nitrogen species	Collaborator (PI=B. Pitt)	1997-2002	\$32,900
R01 CA43917	NIH	Biochemical regulators of bleomycin-induced tumors	Collaborator (PI=Lazo)	1997-2002	\$65,914
R43 DK57956	NIH	Conditional murine model of maple syrup urine disease	Collaborator (PI=H. Paul)	2000-2001	\$15,025
R43 DK57386	NIH	Gene therapy for maple syrup urine disease	Collaborator (PI=H. Paul)	2000-2001	\$7,707
R44 DK51960 (Phase II)	NIH	Murine model of maple syrup urine disease	Collaborator (PI=H. Paul)	1998-1999	\$47,273
R01 AA10422	NIH	Ethanol mechanisms in GABAA-R gene targeted mice	PI	1995-1998	\$601,610
R01 GM52035	NIH	Anesthetic mechanisms in GABAA-R gene targeted mice	Co-investigator (PI=Firestone)	1995-1998	\$526,397
R43 DK51960 (Phase I)	NIH	Murine model of maple syrup urine disease	Collaborator (PI=H. Paul)	1996-1997	\$3,586
R29 GM52021	NIH	Regulation of the human iNOS gene in sepsis and trauma	Collaborator (PI=Geller)	1994-1999	\$0
R21 GM52035	NIH	Anesthetic mechanisms in GABAA-R gene targeted mice	Collaborator (PI=Firestone)	1995	\$90,450
F32 HL08639	NIH	Making hepatic lipase and lipoprotein lipase deficient mice	PI	1992-1993	\$44,300

Invited Lectures / Seminars

1987	University of Kentucky / Department of Animal Science, Lexington, KY
1991	North Carolina State University / Department of Animal Science, Raleigh, NC
1991	University of North Carolina / Department of Pathology, Chapel Hill, NC
1992	Roswell Park Cancer Institute / Department of Biochemistry and Molecular Genetics, Buffalo, NY
1992	Miles Pharmaceuticals, West Haven, CT
1992	Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
1993	University of Pittsburgh / Department of Molecular Genetics and Biochemistry, Pittsburgh, PA
1993	University of Pittsburgh / Department of Pharmacology, Pittsburgh, PA
1994	Pittsburgh Experimental Mammalian Embryology Minisymposium, Pittsburgh, PA
1996	University of Pittsburgh / Anesthesiology/CCM Research Minisymposium, Pittsburgh, PA
1996	University of Pittsburgh / Fourth Annual Department of Pharmacology Retreat, Seven Springs, PA
1997	University of California, San Francisco / Anesthesia Research Group, San Francisco, CA
1997	University of Pittsburgh / Department of Neurology, Pittsburgh, PA
1997	The Fifth International Conference on Molecular and Cellular Mechanisms of Anesthesia, Calgary Canada
1997	Allegheny Univ. of the Health Sciences / Department of Neurobiology and Anatomy, Philadelphia, PA
1998	University of Connecticut / Department of Physiology and Neurobiology, Storrs, CT
1998	University of Chicago / Department of Anesthesia, Chicago, IL
1998	Applications of Gene Knockout Techniques to Alcohol Research, Satellite Symposium to the Annual Society for Neuroscience Meeting, Los Angeles, CA
1998	Winter Conference on Brain Research, Snowbird, UT
1999	International Society for Neurochemistry, Berlin Germany
1999	American Society for Biochemistry and Molecular Biology Fall Symposium on Ethanol and Cell Signaling, Granlibakken Resort, Tahoe City, Lake Tahoe, CA
1999	University of California, San Francisco, First Annual W.K. Hamilton Basic Science and Clinical Research Symposium: Frontiers in Ion Channels, San Francisco, CA
1999	University of Colorado, Institute of Behavioral Genetics, Boulder, CO
1999	University of California, San Francisco / Anesthesia Research Group, Mendocino, CA
1999	University of Turku, Department of Pharmacology, Turku Finland
1999	University of North Carolina at Chapel Hill, Dept. of Psychiatry and Pharmacology, Chapel Hill, NC
1999	Wake Forest University, Center for the Neurobehavioral Study of Alcohol, Winston-Salem, NC
2000	University of Pittsburgh, Department of Environmental and Occupational Health, Pittsburgh, PA
2000	University of California, Los Angeles, Dept. of Molecular and Medical Pharmacology, Los Angeles, CA
2000	University of Pittsburgh, Department of Pharmacology, Pittsburgh, PA
2000	University of Pittsburgh, Department of Neurobiology, Pittsburgh, PA
2000	Winter Conference on Brain Research, Session organizer for: New Insights Into GABA _A Receptor Function Revealed By Gene Knockout; Breckenridge, CO
2000	GABA 2000, Cairns, Australia
2001	Sixth International Conference on Molecular and Basic Mechanisms of Anesthesia, Bonn, Germany
2001	Winter Conference on Brain Research, Steamboat Springs, CO
2001	Weill Medical College of Cornell University, Department of Anesthesiology, New York, NY
2001	West Virginia University, Department of Physiology, Morgantown, WV
2001	University of Texas @ Austin, Waggoner Center for Alcohol & Addiction Research, Austin, TX
2001	Senior Vice Chancellor's Seminar Series, University of Pittsburgh School of Medicine, Pittsburgh, PA
2001	Molecular Mechanisms of Alcohol and Anesthetic Action, Philadelphia, PA
2004	Winter Conference on Brain Research, Copper Mountain, CO
2004	Research Society on Alcoholism, Vancouver, Canada (session organizer)

- 2005 The Sixth International Conference on Molecular and Cellular Mechanisms of Anesthesia, Nara, Japan
(invited speaker, session organizer and chair)
- 2005 University of Pittsburgh, Department of Pharmaceutical Sciences, Pittsburgh, PA
- 2005 West Virginia University, Department of Neuroscience, Morgantown, WV
- 2006 University of Pittsburgh, Pain Research Conference, Pittsburgh, PA
- 2007 Children's Hospital of Pittsburgh, Molecular Medicine, Pittsburgh, PA
- 2008 Postgraduate Summer Course: Recent Progress in Central Nervous System Receptors: Functions and Applications, University of Concepcion, Concepcion, Chile (invited speaker)
- 2008-2009 Course in Scientific Management and Leadership, University of Pittsburgh (invited panelist "Smoothing the transition from mentee to mentor"), Pittsburgh, PA
- 2008 Applied Research Principles; lecture on Grantsmanship, Pittsburgh, PA
- 2009 California Institute of Regenerative Medicine, Autism Workshop, San Francisco, CA
- 2010 The Seventh International Conference on Molecular and Cellular Mechanisms of Anesthesia, Toronto, Canada (invited speaker)
- 2011 Postgraduate Summer Course: Recent Progress in Central Nervous System Receptors: Functions and Applications, University of Concepcion, Concepcion, Chile (invited speaker)
- 2012, 13 Tenure Track Checkpoint: Strategies to Stay on Target, University of Pittsburgh (invited panelist)
- 2012 University of North Carolina at Chapel Hill, Chapel Hill, NC
- 2013 University of Tennessee Health Science Center, Neuroscience Institute, Memphis, TN
- 2014, 17 Student Science Literacy Workshop-PA Society for Biomedical Research and the University of Pittsburgh, Pittsburgh, PA (invited speaker)
- 2015 University of Pittsburgh, Department of Psychiatry, Pittsburgh, PA
- 2016 SUNY Binghamton, Department of Psychology, Binghamton, NY
- 2016 West Virginia University, Department of Physiology & Pharmacology, Morgantown, WV
- 2016 Epigenetics Symposium; Society of Analytical Chemists and Pittsburgh Spectroscopy Society, Pittsburgh, PA (invited speaker)
- 2016 Research Society on Alcoholism, New Orleans, LA (session organizer and chair)
- 2017 University of Pennsylvania, Center for Neurobiology and Behavior, Philadelphia, PA
- 2017 Oregon National Primate Research Center, Division of Neurosciences, Portland, OR
- 2017 Research Society on Alcoholism, Denver, CO (invited speaker)
- 2017 Society of Analytical Chemists of Pittsburgh, Duquesne University, Pittsburgh, PA (invited speaker)
- 2018 Winter Conference on Brain Research, Whistler, Canada (invited speaker)
- 2018 Gordon Research Conference on Alcohol and the Nervous System, Galveston, TX (invited speaker)
- 2018 Developmental Neurotoxicology Society Meeting, Clearwater, FL (invited speaker)
- 2018 University of Illinois, Chicago, Center for Alcohol Research in Epigenetics, Chicago, IL
- 2019 Purdue University, Neuroscience, West Lafayette, IN
- 2019 NIDA-NIAAA Mini-Convention, Frontiers in Addiction Research, Chicago, IL (invited speaker)
- 2019 University of North Carolina at Chapel Hill, Bowles Center for Alcohol Research, Chapel Hill, NC
- 2019 Penn State College of Medicine, Department of Neural and Behavioral Neuroscience, Hershey, PA
- 2020 Winter Conference on Brain Research, Big Sky, MT
- 2020 West Virginia University, Department of Neuroscience, Morgantown, WV
(invited and scheduled, however canceled secondary to the COVID19 Pandemic)
- 2020 International Behavioral Neuroscience Society, Glasgow, Scotland
(invited and scheduled, however canceled secondary to the COVID19 Pandemic)

Study Section Service:

Medical Research Council, 2005-2006
 National Institute on Alcohol Abuse and Alcoholism, Regular Member, AA-1, 2001-2005
 NIH: NIMH Board of Scientific Counselors, *ad hoc* reviewer, 2005
 National Institute on Alcohol Abuse and Alcoholism, Special Emphasis Panels, 1996, 1997, 2001-present
 NIH: Molecular, Developmental, and Cellular Neuroscience-4, *Ad Hoc* reviewer, 1999, 2000
 National Science Foundation, grant reviewer, 1998-1999
 NIH: NIDA Cutting-Edge Basic Research Awards (CEBRA) reviewer, 2002
 NIH, NIAAA Alcohol Center Grant Review Panel, 2007, 2012
 NIH, Neurotoxicology and Alcohol (NAL) Study Section, *ad hoc* reviewer, 2009
 NIH, Neurotoxicology and Alcohol (NAL) Study Section, regular member, 2010-2014 (chair, 2012-2014)
 Neurological Foundation of New Zealand, grant reviewer, 2013
 Biotechnology and Biological Sciences Research Council, United Kingdom, grant reviewer, 2014
 NIH: NIAAA, Regular Member, Neuroscience & Behavior Study Section (AA-4), 2018-2022

Reviewer for Journals:

<i>Alcohol</i>	<i>Journal of Neurochemistry</i>
<i>Alcoholism: Clinical and Experimental Research</i>	<i>Journal of Neuroscience</i>
<i>Alcohol Research and Health</i>	<i>Journal of Neuroscience Research</i>
<i>American Journal of Primatology</i>	<i>J. Pharmacology and Experimental Therapeutics</i>
<i>Anesthesiology</i>	<i>JOVE</i>
<i>Behavior Genetics</i>	<i>Life Sciences</i>
<i>Behavioral Brain Research</i>	<i>Molecular Medicine Today</i>
<i>Biochemical Pharmacology</i>	<i>Molecular Metabolism</i>
<i>Biological Psychiatry</i>	<i>Neurochemical Research</i>
<i>Biology</i>	<i>Neurochemistry International</i>
<i>Biomed Central (multiple journals)</i>	<i>Neuron</i>
<i>Brain Research</i>	<i>Neuropharmacology</i>
<i>Brain Research Bulletin</i>	<i>Neuropsychopharmacology</i>
<i>Drug and Alcohol Dependence</i>	<i>Pharmacology Research & Perspectives</i>
<i>EMBO</i>	<i>Pharmacology and Therapeutics</i>
<i>Epigenetics</i>	<i>PLoS ONE</i>
<i>European Neuropsychopharmacology</i>	<i>Proceedings of the National Academy of Sci., USA</i>
<i>Frontiers in Genetics</i>	<i>Psychoneuroendocrinology</i>
<i>Frontiers in Neuroscience</i>	<i>Scientific Reports</i>
<i>Frontiers in Pharmacology</i>	<i>Stress</i>
<i>Gene Therapy</i>	<i>The Scientific World</i>
<i>Genes, Brain and Behavior</i>	<i>Translational Psychiatry</i>
<i>Journal of Animal Science</i>	
<i>Journal of Inherited Metabolic Diseases</i>	

SERVICE

University and Medical School:

Search Committee for IACUC Director, 2021
 Search Committee for Department of Laboratory Animal Research Sr. Executive Director, 2018-2019
 Non-Tenured Faculty Promotions and Appointments Committee, 2017-2020
 Department of Anesthesiology and Perioperative Medicine Tenure Promotions Committee, 2019-present
 Pittsburgh Brain Institute, executive committee member, 2015-present
 Faculty Advisory Committee on DLAR Operations, 2016-present
 Clinical and Translational Science Institute, Judge for the 30, 300, 3000 Pain Research Challenge, 2015
 Department of Laboratory Animal Resources Scientific Advisory Committee, 2014-2015
 UPMC Competitive Medical Research Fund, grant reviewer, 2013, 2015
 Medical School Neuroscience Course Design Committee (MED5133), 2010-2012
 Standing Committee for Tenured Faculty Promotions and Appointments, 2010-2013
 UPSOM Scholarly Project Executive Committee, 2005-2009
 Chancellor's Distinguished Research Fund Subcommittee, 2006
 UPSOM Medical Student Summer Research Program Committee, 2005-2014
 Interdisciplinary Biomedical Graduate Program Curriculum Committee, 2005-2006
 Transgenic and Chimeric Mouse Core Advisory Committee, 2004-2012
 Institutional Animal Care and Use Committee (IACUC), 1999-present
 Chair, 2001-2004; Vice chair, 2000-2001
 Rodents I subcommittee, chair, 2000-2001
 Subcommittee member: rodent breeding/weaning; renovation/new site approval; genotyping; training
 Course Director, Research Elective in Anesthesiology/CCM, 2001-2010
 Pharmacology Graduate Executive Committee, 1999-2000, 2003-present
 Department of Anesthesiology Scientific Affairs Committee, 2002-present
 Health Sciences Animal Research Advisory Committee, 2001-2014
 Center for Neuroscience at the Univ. of Pittsburgh Annual Retreat, Co-chair, 1999-2000, 2009-2010, 2012-present
 Pharmacology Graduate Curriculum Committee, 1999-2000
 Neurobiology Faculty Admissions Committee, 1996-1999
 Pharmacology Annual Retreat Committee, 1998
 Center for Neuroscience at the University of Pittsburgh, Student Travel and Fellowship, 1996-1997
 Evaluator, South Biomedical Science Tower Animal Facilities Committee, 1996

Other Activities:

- Marmoset-AD (Marmoset Alzheimer's Disease) Consortium (2022-present), Co-leader Administrative Core, Leader Genetic Engineering Core.
- Co-Chief Editor, Methods and Model Organisms specialty section of *Frontiers in Molecular Neuroscience* (2021-present)
- Editorial Board Member, *Brain Sciences* (2020-present)
- External Consultant, Indiana Alcohol Research Center (Indiana University School of Medicine, Indianapolis, IN; 2020-present)
- Scientific Advisory Board Member, Neurobiology of Adolescent Drinking in Adulthood Consortium (NADIA; University of North Carolina at Chapel Hill; 2019-present)
- Scientific Advisory Board Member, Center for Alcohol Research in Epigenetics (CARE; University of Illinois, Chicago; 2019-present)
- Nominations Committee Member (2018-2020): Research Society on Alcoholism
- Grand Awards Judge, Intel International Science and Engineering Fair, Pittsburgh, PA 2015
- Scientific Co-Director, Integrative Neuroscience Initiative on Alcoholism (INIA) - Neuroimmune (2014-present)
- Executive Committee Member, Integrative Neuroscience Initiative on Alcoholism (INIA) – Neuroimmune (2014-present)
- Steering Committee Member and co-chair, Integrative Neuroscience Initiative on Alcoholism (INIA) – Neuroimmune (2014-present)
- Member, Research Society on Alcoholism, Animal Research and Ethics Committee (2015-2019)
- Scientific Advisory Board, Blue California, Rancho Santa Margarita, CA (2012-2014)
- Program Committee Member (2009-2010, 2015-2016, co-chair 2016-2017): Research Society on Alcoholism
- Travel Fellows Mentor, Winter Conference on Brain Research, 2019-present
- Associate Editor: *Genes, Brain and Behavior* (2016-present)
- Review Editor, *Frontiers in Neuropharmacology* (2010-present)
- Associate Editor, *Frontiers in Molecular Neuroscience* (2015-present)
- Review Editor, *Frontiers in Molecular Neuroscience* (2008-2014)
- Editorial Board Member, *Alcohol* (2006-present)
 - Guest editor for special issue of *Alcohol* on "GABA_A-Rs and Alcohol Action" (2006-2007)
 - Guest editor for special issue of *Alcohol* on "Epigenetic Effects of Alcohol" (2016-2017)
- Editorial Board Member, *Neuroscience Bulletin* (2019-present)
- Faculty of 1000 Medicine, Evaluation Board Member, Anesthesiology and Pain Management, 2005-2019
- IUPHAR Nomenclature Committee, GABA Receptor Nomenclature Subcommittee, 2001-2007
- Consultant, Biomed Research and Technologies, Inc., Wexford, PA, 1996-2004