

**R. Christopher Pierce, Ph.D.**  
Curriculum Vitae (abbreviated)  
April, 2021

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**Personal Information**

Date and Place of Birth: 21 November 1966 (Somerset, KY)  
Web Site: <http://www.piercelab.org>

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**Education**

Ph.D.	1993	Indiana University, Bloomington, IN (Neuroscience and Psychology)
B.A.	1988	University of Kentucky, Lexington, KY (Psychology)

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**Professional Experience**

2020 - present	Professor, Brain Heath Institute and Psychiatry, Rutgers Robert Wood Johnson Medical School
2013 - 2019	Professor of Neuroscience, Department of Psychiatry University of Pennsylvania School of Medicine
2008 - 2013	Associate Professor (with tenure) of Neuroscience, Department of Psychiatry University of Pennsylvania School of Medicine
2008	Visiting Scientist, Rudolf Magnus Neuroscience Institute, University of Utrecht, The Netherlands
2008	Professor, Departments of Pharmacology and Psychiatry Boston University School of Medicine
2003 - 2008	Associate Professor, Departments of Pharmacology and Psychiatry Boston University School of Medicine
1997 - 2003	Assistant Professor, Departments of Pharmacology and Psychiatry Boston University School of Medicine
1995 - 1997	Research Assistant Professor, Department of Veterinary Comparative Anatomy, Pharmacology and Physiology, Washington State University
1993 - 1995	Postdoctoral Fellow, Alcohol and Drug Abuse Program, Washington State University, Dr. Peter W. Kalivas, advisor
1989 - 1993	Graduate Studies, Department of Psychology/Program in Neural Science, Indiana University, Dr. George V. Rebec, advisor
1988 - 1989	Statistical Consultant/Laboratory Technician, Forestry Department, University of Kentucky, Dr. David Wagner, supervisor
1987 - 1988	Laboratory Technician, Psychology Department, University of Kentucky Dr. Michael Bardo, supervisor
1985 - 1987	Assistant Director, Standardbred Development Fund Kentucky Harness Racing Commission

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### Active Grants and Awards

R01 DA33641 R.C. Pierce (PI) 4/01/12-12/31/21  
NIH/NIDA "Transgenerational Inheritance of a Cocaine Resistance Phenotype"  
\$305,063 direct costs per year.

R21 DA46760 R.C. Pierce (PI) 4/01/19-3/31/21  
NIH/NIDA "Cocaine-induced axon migration in the nucleus accumbens"  
\$150,000/\$125,000 direct costs per year.

R21 DA47555 R.C. Pierce (PI) 7/01/19-6/30/21  
NIH/NIDA "Chromatin accessibility and transcriptional profiles associated with incubation of cocaine craving"  
\$150,000/\$125,000 direct costs.

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## Honors and Awards

- 2018 Distinguished Mentor Award, Biomedical Postdoctoral Program, University of Pennsylvania School of Medicine
- 2015 Distinguished Alumnus Award, Indiana University Program in Neuroscience (awarded on the occasion of the 50<sup>th</sup> anniversary of the program).
- 2013 Daniel H. Efron Research Award, American College of Neuropsychopharmacology (\$1,500 award)
- 2008 Jacob P. Waletzky Memorial Award for Innovative Research in Drug Addiction and Alcoholism, Society for Neuroscience (\$25,000 award)
- 2006 Joseph Cochin Young Investigator Award, College on Problems of Drug Dependence (\$1,500 award)
- 2001 Hall of Fame, Western Hills High School, Frankfort, KY.
- 1997 Travel Award, 1997 College on Problems in Drug Dependence meeting in Nashville, TN (\$750 travel award).
- 1995 NIDA Director's Travel Award for the 1995 College on Problems in Drug Dependence meeting in Scottsdale, AZ (\$750 travel award).
- 1992 J. Stewart and Dagmar K. Riley Dissertation Year Fellowship (\$10,000 fellowship awarded to the outstanding student in the Indiana University Graduate School).
- 1991 Omnitech Travel Fellowship (\$150 for the Society for Neuroscience meeting in New Orleans).
- 1991 Research Commendation, Indiana University Psychology Department.
- 1988 Graduate with Distinction, University of Kentucky College of Arts and Sciences.
- 1988 Graduate with Honors, University of Kentucky Department of Psychology.
- 1988 University of Kentucky Oswald Research and Creativity Scholarship (\$150).
- 1988 University of Kentucky Phi Beta Kappa Scholarly Research Award (\$750).
- 1988 Griffin Award (outstanding presentation - \$100), Kentucky Academy of Sciences.
- 1987 Sigma Xi (Scientific Research Honor Society)
- 1987 Omicron Delta Kappa (Leadership Honor Society)
- 1986 Psi Chi (Psychology Honor Society)

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## Memberships in Scientific Organizations and Committee Service

- American College of Neuropsychopharmacology (2013-present)
- College on Problems of Drug Dependence (2004-2009)
  - Awards Committee (2005-2008)
- European Behavioural Pharmacology Society (2005-present)
- Society for Neuroscience, USA (1989-present)
  - Newsworthy Abstract Committee (2012, 2013, 2015-19)

## Editorial Activities

### Associate Editor

Addiction Neuroscience (2021-present)

### Editor

Brain Research (2020-present)

### Editorial Boards

European Journal of Pharmacology (2008 – present)

Neuropsychopharmacology (2009 – present)

PLOS Biology (2019 – present)

### Advisory Editor (Behavioral Pharmacology in Laboratory Animals)

Psychopharmacology (2009 – 2013)

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## Grant Review

### Regular Member, NIH Study Section

Molecular Neuropharmacology and Signaling (MNPS) 2007 – 2011

### Temporary Member, NIH Study Sections

Biobehavioral Regulation, Learning and Ethology (BRLE)

Biobehavioral and Behavioral Processes-1 (BBBP-1)

Neurobiology of Motivated Behavior (NMB)

Molecular Neuropharmacology and Signaling (MNPS)

Training and Career Development Subcommittee (NIDA-K)

Numerous Special Emphasis Panels

NIDA Scientific Director's Innovative Partnership Program

### Non-NIH

The Netherlands Organisation for Health Research and Development (ZonMw)

New York University Intramural Grant Program

Veterans Administration (USA)

Medical Research Council (United Kingdom)

Royal Society of New Zealand Centres of Research Excellence Fund

Innovative Research Incentives Scheme, Netherlands Organisation for Scientific Research

European Science Foundation

Israel Science Foundation

Neurological Foundation of New Zealand

AXA Research Fund (France)

Israeli Ministry of Science and Technology

French National Research Agency

Member of the NIDA Intramural Program Board of Scientific Counselors (2015-present)

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## Major Administrative Service

University of Pennsylvania Neuroscience Graduate Group Admissions Committee (2009 – 2019)  
Chair (2011 – 2019)

This committee processes approximately 500 applications to the Neuroscience Graduate Group PhD program and interviews 45-50 of these students for 15-25 slots in the program per year.

University of Pennsylvania Neuroscience Graduate Group Seminar Committee (2013 – 2014)

Organizer: Translational Research Labs Animal Users Group (2016 – 2019)

Member APAC-SOMARC (2016 – 2019)

President, Philadelphia chapter of the Society for Neuroscience (2015 – 2019)

Vice President, Philadelphia chapter of the Society for Neuroscience (2014 – 2015)

Judging newsworthy abstracts for the Society for Neuroscience (2012 – present)

Temple University Center for Substance Abuse Research Training Program external advisory board member (2013 – present)

Medical University of South Carolina Neurobiology of Addiction Research Center external advisory board member (2015 – present).

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## Organizer of Annual Lecture at the University of Pennsylvania in honor of Dr. Charles P. O'Brien

Speakers:

Dr. Yavin Shaham (October, 2013)

Dr. Markus Heilig (October, 2014)

Dr. Peter Kalivas (March, 2016)

Dr. Marina Picciotto (February, 2017)

Dr. Elliot Stein (November, 2017)

Dr. Jon-Kar Zubieta (October, 2019)

## Publications

109. Guercio, L.A., M.E. Wimmer, H.D. Schmidt, S.E. Swinford-Jackson, **R.C. Pierce** and F.M. Vassoler, F.M. (2020). Deep brain stimulation of the infralimbic cortex attenuates cocaine priming-induced reinstatement of drug seeking. *Brain Research* 1746:147011.
108. Swinford-Jackson, S.E., C.P. O'Brien, P.J. Kenny, L. Vanderschuren, E.M. Unterwald and **R.C. Pierce** (2020). The Persistent Challenge of Developing Addiction Pharmacotherapies, Cold Spring Harbor Perspectives in Medicine.
107. Qian, X., Y. Su, C.D. Adam, A.U. Deutschmann, S.R. Pather, E.M. Goldberg, K. Su, S. Li, L. Lu, F. Jacob, P.T.T. Nguyen, S. Huh, A. Hoke, S.E. Swinford-Jackson, Z. Wen, X. Gu, **R.C. Pierce** H. Wu, L.A. Briand, H.I. Chen, J.A. Wolf, H. Song and G.L. Ming (2020). Sliced human cortical organoids for modeling distinct cortical layer formation. *Cell Stem Cell* 26:766-781.
106. Carpenter, M.D., Q. Hu, A.M. Bond, S.I. Lombroso, K.S. Czarnecki, C.J. Lim, H. Song, M.E. Wimmer, **R.C. Pierce** and E.A. Heller (2020). Nr4a1 suppresses cocaine-induced behavior via epigenetic regulation of homeostatic target genes. *Nature Communications* 11:504.
105. Fant, B., M.E. Wimmer, S.E. Swinford-Jackson, J. Maurer, D. Van Nest D and **R.C. Pierce** (2019). Preconception maternal cocaine self-administration increases the reinforcing efficacy of cocaine in male offspring. *Psychopharmacology* 236:3429-3437.
104. Wimmer, M.E., B. Fant, S.E. Swinford-Jackson, A. Testino, D. Van Nest, T. Abel, **R.C. Pierce** (2019). H3.3 barcoding of nucleus accumbens transcriptional activity identifies novel molecular cascades associated with cocaine self-administration in mice. *Journal of Neuroscience* 39:5247-5254.
103. Wimmer, M.E., F.M. Vassoler, S.L. White, H.D. Schmidt, S. Sidoli, Y. Han, B.A. Garcia and **R.C. Pierce** (2018). Impaired cocaine-induced behavioral plasticity in the male offspring of cocaine-experienced sires. *European Journal of Neuroscience* 49:1115-1126.
102. Swinford-Jackson, S.E. and **R.C. Pierce** (2018). Harmony and heresy of an L-type calcium channel inhibitor: suppression of cocaine seeking via increased dopamine transmission in the nucleus accumbens. *Neuropsychopharmacology* 43:2335-2336.
101. **Pierce, R.C.**, B. Fant, S.E. Swinford-Jackson, E.A. Heller, W.H. Berrettini and M.E. Wimmer (2018). Environmental, Genetic and Epigenetic Contributions to Cocaine Addiction. *Neuropsychopharmacology* 43:1471-1480.
100. Guercio, L.A., M.E. Hofmann, S.E. Swinford-Jackson, J.S. Sigman, M.E. Wimmer, M.L. Dell'Acqua, H.D. Schmidt and **R.C. Pierce** (2018). A-Kinase Anchoring Protein 150 (AKAP150) Promotes Cocaine Reinstatement by Increasing AMPA Receptor Transmission in the Accumbens Shell. *Neuropsychopharmacology* 43:1395-1404.
99. Wimmer M.E., L.A. Briand, B. Fant, L.A. Guercio, A.C. Arreola, H.D. Schmidt, S. Sidoli, Y. Han, B.A. Garcia and **R.C. Pierce** (2017). Paternal cocaine taking elicits epigenetic remodeling and memory deficits in male progeny. *Molecular Psychiatry* 22:1641-1650.
98. Gannon, P.J., C. Akay-Espinoza, A.C. Yee, L.A. Briand, M.A. Erickson, B.B. Gelman, Y. Gao, N.J. Haughey, M.C. Zink, J.E. Clements, N.S. Kim, G. Van De Walle, B.K. Jensen, R. Vassar, **R.C. Pierce**, A.J. Gill, D.L. Kolson, J.A. Diehl, J.L. Mankowski and K.L. Jordan-Sciutto (2017). HIV protease inhibitors alter amyloid precursor protein processing via  $\beta$ -site amyloid precursor protein cleaving enzyme-1 translational up-regulation. *American Journal of Pathology* 187:91-109.
97. Van Nest, D., N.S. Hernandez, H.R. Kranzler, **R.C. Pierce** and H.D. Schmidt (2017). Effects of LY466195, a selective kainite receptor antagonist, on ethanol preference and drinking in rats. *Neuroscience Letters* 639:8-12.
96. White, S.L., F.M. Vassoler, H.D. Schmidt, **R.C. Pierce** and M.E. Wimmer (2016). Enhanced anxiety in the male offspring of sires that self-administered cocaine. *Addiction Biology* 21:802-810.
95. White, S.L., P.I. Ortinski, S.H. Friedman, L. Zhang, R.L. Neve, R.G. Kalb, H.D. Schmidt and **R.C. Pierce** (2016). A critical role for the GluA1 accessory protein, SAP97, in cocaine seeking. *Neuropsychopharmacology* 41:735-750.
94. Jensen, B.K., H. Monnerie, M.V. Mannell, P.J. Gannon, C.A. Espinoza, M.A. Erickson, A.J. Bruce-Keller, B.B. Gelman, L.A. Briand, **R.C. Pierce**, K.L. Jordan-Sciutto and J.B. Grinspan (2015)

- Altered oligodendrocyte maturation and myelin maintenance: The role of antiretrovirals in HIV-associated neurocognitive disorders. *Journal of Neuropathology and Experimental Neurology* 74:1093-118.
93. Schmidt, H.D., K.N. McFarland, S.B. Darnell, M.N. Huizenga, J.-H.J. Cha, **R.C. Pierce** and G. Sadri-Vakili (2015). ADAR2-dependent GluA2 editing regulates cocaine seeking. *Molecular Psychiatry* 20:1460-1466.
  92. Ortinski, P.I., L.A. Briand, **R.C. Pierce** and H.D. Schmidt (2015). Cocaine seeking is associated with PKC-dependent reduction of excitatory signaling in accumbens shell D2 dopamine receptor-expressing neurons. *Neuropharmacology* 92:80-89.
  91. Guercio L.A., Schmidt H.D. and **Pierce R.C.** (2015). Deep brain stimulation of the nucleus accumbens shell attenuates cue-induced reinstatement of both cocaine and sucrose seeking in rats. *Behavioural Brain Research* 281:125-30.
  90. Schmidt, H.D., B.A. Kimmey, A.C. Arreola and **R.C. Pierce** (2015). Group I metabotropic glutamate receptor-mediated activation of PKC gamma in the nucleus accumbens core promotes the reinstatement of cocaine seeking. *Addiction Biology* 20:285-296.
  89. Polter, A.M., R.A. Bishop, L.A. Briand, N.M. Graziane, **R.C. Pierce** and J.A. Kauer (2014). Poststress block of kappa opioid receptors rescues long-term potentiation of inhibitory synapses and prevents reinstatement of cocaine seeking. *Biological Psychiatry* 76:785-793.
  88. Ting, J.H., D.R. Marks, S.S. Schleidt, J.N. Wu, J.W. Zyskind, K.A. Lindl, J.A. Blendy, **R.C. Pierce** and K.L. Jordan-Sciutto (2014). Targeted gene mutation of E2F1 evokes age-dependent synaptic disruption and behavioral deficits. *Journal of Neurochemistry* 129:850-863.
  87. Rasakham, K., H.D. Schmidt, K. Kay, M.N. Huizenga, N. Calcagno, **R.C. Pierce**, T.L. Spires-Jones and G. Sadri-Vakili (2014). Synapse density and dendritic complexity are reduced in the prefrontal cortex following seven days of forced abstinence from cocaine self-administration. *PLoS One* 9:e102524
  86. Mietlicki-Baase, E., P.I. Ortinski, D. Reiner, C. Sinon, J. McCutcheon, **R.C. Pierce**, M. Roitman, and M.R. Hayes (2014). Glucagon-like peptide-1 receptor activation in the nucleus accumbens core suppresses feeding by increasing glutamatergic AMPA/kainate signaling. *Journal of Neuroscience* 34:6985-6992.
  85. Akay, C., M. Cooper, A. Odeleye, B.K. Jensen, M.G. White, F. Vassoler, P.J. Gannon, J. Mankowski, J.L. Dorsey, A.M. Buch, S.A. Cross, D.R. Cook, M.M. Peña, E.S. Andersen, M. Christofidou-Solomidou, K.A. Lindl, M.C. Zink, J. Clements, **R.C. Pierce**, D.L. Kolson, K.L. Jordan-Sciutto (2014). Antiretroviral drugs induce oxidative stress and neuronal damage in the central nervous system. *Journal of Neurovirology* 20:39-53.
  84. Briand, L.A., B.A. Kimmey, P. Ortinski, R.L. Hujanir and **R.C. Pierce** (2014). Disruption of glutamate receptor interacting protein in nucleus accumbens enhances vulnerability to cocaine relapse. *Neuropsychopharmacology* 39:759-769. PMID: PMC3895254
  83. **Pierce, R.C.** and F.M. Vassoler (2014). Reduced cocaine reinforcement in the male offspring of cocaine-experienced sires. *Neuropsychopharmacology*\* 39:238  
\*Published as a "Hot Topic"
  82. Mietlicki-Baase, E.G., P. Ortinski, L.A. Rupperecht, D.R. Olivos, A. Alhadeff, **R.C. Pierce** and M.R. Hayes (2013). The food intake-suppressive effects of glucagon-like peptide-1 receptor signaling in the ventral tegmental area are mediated by AMPA/kainate receptors. *American Journal of Physiology – Endocrinology and Metabolism* 305:1376-1374.
  81. Schmidt, H.D., R.L. Schassburger, L.A. Guercio and **R.C. Pierce** (2013). Stimulation of mGluR5 in the accumbens shell promotes cocaine seeking by activating PKC gamma. *Journal of Neuroscience* 33:14160-14169.
  80. Vassoler, F.M., S.L. White, T.J. Hopkins, L.A. Guercio, J. Espallergues, O. Berton, H.D. Schmidt and **R.C. Pierce** (2013). Deep brain stimulation of the nucleus accumbens shell attenuates cocaine reinstatement through local and antidromic activation. *Journal of Neuroscience* 33:14446-14454.

79. Challis, C., J. Boulden, A. Veerakumar, J. Espallergues, F.M. Vassoler, **R.C. Pierce**, S.G. Beck and O. Berton (2013). Raphe GABAergic neurons mediate the acquisition of avoidance after social defeat. *Journal of Neuroscience* 33:13978-13988.
78. **R.C. Pierce** and F.M. Vassoler (2013). Deep brain stimulation for the treatment of addiction: Basic and clinical studies and potential mechanisms of action. *Psychopharmacology*\* 229:487-491. \*Special issue devoted to the 10<sup>th</sup> anniversary of the Waletzky Award
77. Vassoler, F.M., E. Byrnes and **R.C. Pierce** (2013). The impact of exposure to addictive drugs on future generations: Physiological and behavioral effects. *Neuropharmacology*\* 16:42-47. PMID:PMC3531046 \*Special issue devoted to the 40<sup>th</sup> anniversary of NIDA
76. Ortinski, P., J. Turner and **R.C. Pierce** (2013). Extrasynaptic targeting of NMDA receptors following D1 dopamine receptor activation and cocaine self-administration. *Journal of Neuroscience* 33:9451-9561. PMID: PMC3715961
75. Mietlicki-Baase, E.G., L.A. Rupprecht, D.R. Olivos, D.J. Zimmer, M.D. Alter, **R.C. Pierce**, H.D. Schmidt and M.R. Hayes (2013). Amylin receptor signaling in the ventral tegmental area is physiologically relevant for the control of food intake. *Neuropsychopharmacology* 38:1685-1697.
74. White, S.L., H.D. Schmidt, F.M. Vassoler and **R.C. Pierce** (2013) Acute cocaine increases phosphorylation of CaMKII and GluA1 in the dorsolateral striatum of drug naïve rats, but not cocaine-experienced rats. *Neuroscience Letters* 537:71-76. PMID:PMC3586238
73. Graziane, N., A. Polter, L.A. Briand, **R.C. Pierce** and J.A. Kauer (2013). Kappa opioid receptors regulate stress-induced cocaine-seeking and synaptic plasticity. *Neuron* 77:942-954.
72. Vassoler, F.M., S. White, H.D. Schmidt, G. Sadri-Vakili and **R.C. Pierce** (2013). Epigenetic inheritance of a cocaine resistance phenotype. *Nature Neuroscience* 16:42-47. PMID: PMC3531046  
Accompanying News and Views: M.D. Scofield and P.W. Kalivas (2013). Forgiving the sins of the fathers. *Nature Neuroscience* 16:4-5.
71. Ortinski P.I., F.M. Vassoler, G.C. Carlson and **R.C. Pierce** (2012). Temporally dependent changes in cocaine-induced synaptic plasticity in the nucleus accumbens shell are reversed by D1-like dopamine receptor stimulation. *Neuropsychopharmacology* 37:1671-1682. PMID: PMC3358735
70. Gandal, M.J., J. Sisti, K. Klook, P.I. Ortinski, V. Leitman, Y. Liang, T. Thieu, R. Anderson, **R.C. Pierce**, G. Jonak, R.E. Gur, G. Carlson, S.J. Siegel (2012). GABA(B)-mediated rescue of altered excitatory-inhibitory balance, gamma synchrony and behavioral deficits following constitutive NMDAR-hypofunction. *Translational Psychiatry* 2:e142.
69. Briand, L.A., F.S. Lee, J.A. Blendy and **R.C. Pierce** (2012). Enhanced extinction of cocaine seeking in brain-derived neurotrophic factor Val66Met knock-in mice. *European Journal of Neuroscience* 35:932-939. PMID: PMC3626276.
68. Schmidt, H.D., G.R. Sangrey, S.B. Darnell, R.L. Schassburger, J.-H.J. Cha, **R.C. Pierce** and G. Sadri-Vakili (2012). Increased BDNF expression in the ventral tegmental area during cocaine abstinence is associated with increased histone acetylation at BDNF exon I-containing promoters. *Journal of Neurochemistry* 120:202-209. PMID: PMC3243782
67. Chen, Y.I., K. Famous, H. Xu, J.-K. Choi, J. Mandeville, H.D. Schmidt, **R.C. Pierce** and B.G. Jenkins (2011). Cocaine self-administration leads to alterations in limbic and motor circuitry. *European Journal of Neuroscience* 34:800-815.
66. Yee, J., K.R. Famous, T.J. Hopkins, M.C. McMullen, **R.C. Pierce** and H.D. Schmidt (2011). Muscarinic acetylcholine receptors in the nucleus accumbens core and shell contribute to cocaine priming-induced reinstatement of drug seeking. *European Journal of Pharmacology* 650:596-604.
65. Briand, L., F.M. Vassoler, **R.C. Pierce**, R. Valentino, J. Blendy (2010). Ventral tegmental area afferents in stress-induced reinstatement: The role of CREB. *Journal of Neuroscience* 30:16149-16159.
64. Sadri-Vakili, G., V. Kumaresan, H.D. Schmidt, K.R. Famous, P. Chawla, F.M. Vassoler, R.P. Overland, E. Xia, C.E. Bass, E.F. Terwilliger, **R.C. Pierce** and J.-H.J. Cha (2010). Cocaine-induced chromatin remodeling increases brain-derived neurotrophic factor transcription in the rat



- medial prefrontal cortex, which alters the reinforcing efficacy of cocaine. *Journal of Neuroscience* 30:11735-11744.
63. **Pierce, R.C.** and L.J.M.J. Vanderschuren (2010). Kicking the habit: The neural basis of ingrained behaviors in cocaine addiction. *Neuroscience and Biobehavioral Reviews* 35:212-219. PMID: PMC2903634
  62. Schmidt, H.D. and **R.C. Pierce** (2010). Cocaine-induced neuroadaptations in glutamate transmission: Potential therapeutic targets for craving and addiction. *Annals of the New York Academy of Sciences* 1187:35-75.
  61. Vanderschuren, L.J.M.J. and **R.C. Pierce** (2010). Sensitization processes in drug addiction. Behavioral Neuroscience of Drug Addiction, D.W. Self and J.K. Staley (Eds.). *Current Topics in Behavioral Neurosciences* 3:179-195.
  60. Schmidt, H.D., F.R. Famous and **R.C. Pierce** (2009). The limbic circuitry underlying cocaine seeking encompasses the PPTg/LDT. *European Journal of Neuroscience* 30:1358-1369. PMID: PMC2875792
  59. Kumaresan, V., M. Yuan, J. Yee, K.R. Famous, S.M. Anderson, H.D. Schmidt and **R.C. Pierce** (2009). Metabotropic glutamate receptor 5 (mGluR5) antagonists attenuate cocaine priming- and cue-induced reinstatement of cocaine seeking. *Behavioural Brain Research* 202: 238-244. PMID: PMC2844436
  58. Sadri-Vakili, G., G.C. Janis, **R.C. Pierce**, T.T. Gibbs and D.H. Farb (2008). Nanomolar concentrations of pregnenolone sulfate enhance striatal dopamine overflow *in vivo*. *Journal of Pharmacology and Experimental Therapeutics* 327:840-845. PMID: PMC2864155
  57. Famous, K.R., V. Kumaresan, G. Sadri-Vakili, H.D. Schmidt, D.F. Mierke, J.-H.J. Cha and **R.C. Pierce** (2008). Phosphorylation-dependent trafficking of GluR2-containing AMPA receptors in the nucleus accumbens plays a critical role in the reinstatement of cocaine seeking. *Journal of Neuroscience* 28:11061-11070. PMID: PMC2601563
  56. Vassoler, F.M., H.D. Schmidt, M.E. Gerard, K.R. Famous, D.A. Ciraulo, C. Kornetsky, C.M. Knapp and **R.C. Pierce** (2008). Deep brain stimulation of the nucleus accumbens shell attenuates cocaine priming-induced reinstatement of drug seeking in rats. *Journal of Neuroscience* 28:8735-8739. PMID: PMC2585378
  55. Anderson, S.M., K.R. Famous, G. Sadri-Vakili, V. Kumaresan, H.D. Schmidt, D.F. Mierke, J.-H.J. Cha and **R.C. Pierce** (2008). CaMKII: a biochemical bridge linking accumbens dopamine and glutamate systems in cocaine seeking. *Nature Neuroscience* 11:344-353.
  54. Famous, K.R., H.D. Schmidt, and **R.C. Pierce** (2007). When administered into the nucleus accumbens core or shell, the NMDA receptor antagonist AP-5 reinstates cocaine-seeking behavior in the rat. *Neuroscience Letters* 420:169-173. PMID: PMC2713683
  53. Yamamoto, N., **R.C. Pierce** and J.J. Soghomonian (2006). Subchronic administration of l-DOPA to adult rats with unilateral 6-hydroxydopamine lesion of dopamine neurons results in a sensitization of enhanced GABA release in the substantia nigra, pars reticulata. *Brain Research* 1123:196-200.
  52. Schmidt, H.D. and **R.C. Pierce** (2006). Systemic administration of a dopamine, but not a serotonin or norepinephrine, transporter inhibitor reinstates cocaine seeking in the rat. *Behavioral Brain Research* 175:189-194. PMID: 16978714
  51. Schmidt, H.D. and **R.C. Pierce** (2006). Cooperative activation of D<sub>1</sub>-like and D<sub>2</sub>-like dopamine receptors in the nucleus accumbens shell is required for the reinstatement of cocaine-seeking behavior in the rat. *Neuroscience* 142:451-461. PMID: 16844308
  50. Schmidt, H.D., S.M. Anderson and **R.C. Pierce** (2006). Stimulation of D1-like or D2 dopamine receptors in the shell, but not the core, of the nucleus accumbens reinstates cocaine-seeking behavior in the rat. *European Journal of Neuroscience* 23:219-228.
  49. **Pierce, R.C.** and V. Kumaresan (2006). The mesolimbic dopamine system: the final common pathway for the reinforcing effect of drugs of abuse? *Neuroscience and Biobehavioral Reviews* 30:215-238.

48. Anderson, S.M., H.D. Schmidt and **R.C. Pierce** (2006). Administration of the D2 dopamine receptor antagonist sulpiride into the shell, but not the core, of the nucleus accumbens attenuates cocaine priming-induced reinstatement of drug seeking. *Neuropsychopharmacology* 31:1452-1461.
47. Schmidt, H.D., S.M. Anderson, K.R. Famous, V. Kumaresan, and **R.C. Pierce** (2005). Anatomy and pharmacology of cocaine priming-induced reinstatement of drug seeking. *European Journal of Pharmacology* 526:65-76.
46. Bari, A.A. and **Pierce, R.C.** (2005). D1-like and D2 dopamine receptor antagonists administered into the shell subregion of the rat nucleus accumbens decrease cocaine, but not food, reinforcement. *Neuroscience* 135:959-968.
45. Anderson, S.M. and **R.C. Pierce** (2005). Cocaine-induced alterations in dopamine receptor signaling: implications for reinforcement and reinstatement. *Pharmacology and Therapeutics* 106:389-403.
44. Dunn, J.M, B.R. Inderwies, S.C. Licata, S.C. and **R.C. Pierce** (2005). Repeated administration of AMPA or a metabotropic glutamate receptor agonist into the rat ventral tegmental area augments the subsequent behavioral hyperactivity induced by cocaine. *Psychopharmacology* 179:172-180.
43. Licata, S.C. and **R.C. Pierce** (2004). Repeated cocaine injections have no influence on tyrosine hydroxylase activity in the rat nucleus accumbens core or shell. *Brain Research* 1012:119-126.
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24. Cha, X.-Y., **R.C. Pierce**, P.W. Kalivas and S. Mackler (1997). NAC-1, a rat brain mRNA, is increased in the nucleus accumbens three weeks after chronic cocaine self-administration. *Journal of Neuroscience* 17:6864-6871.
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14. **Pierce, R.C.**, A.J. Clemens, L.A. Shapiro and G.V. Rebec (1994). Repeated treatment with ascorbate or haloperidol, but not clozapine, elevates extracellular ascorbate in the neostriatum of freely moving rats. *Psychopharmacology* 116:103-109.
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12. Rebec, G.V. and **R.C. Pierce** (1994). A vitamin as neuromodulator: ascorbate release into the extracellular fluid of the brain regulates dopaminergic and glutamatergic transmission. *Progress in Neurobiology* 43:537-565.
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5. **Pierce, R.C.** and G.V. Rebec (1990). Stimulation of both D-1 and D-2 dopamine receptors increases behavioral activation and ascorbate release in the neostriatum of freely moving rats. *European Journal of Pharmacology* 191:295-302.
4. Bardo, M.T., S.L. Bowling and **R.C. Pierce** (1990). Changes in locomotion and dopamine neurotransmission following amphetamine, haloperidol, and exposure to novel environmental stimuli. *Psychopharmacology* 101:338-343.
3. **Pierce, R.C.**, C.A. Crawford, A.J. Nonneman, B.A. Mattingly and M.T. Bardo (1990). Effect of forebrain dopamine depletion on novelty-induced place preference behavior in rats. *Pharmacology, Biochemistry and Behavior* 36:321-325.
2. Neisewander, J.L., **R.C. Pierce** and M.T. Bardo (1990). Naloxone enhances the expression of morphine-induced conditioned place preference. *Psychopharmacology* 100:201-205.

1. Bardo, M.T., J.L. Neisewander and **R.C. Pierce** (1989). Novelty-induced place preference behavior in rats: Effects of opiate and dopaminergic drugs. *Pharmacology, Biochemistry and Behavior* 32:683-689.

#### Books Edited

1. **Pierce, R.C.** and P.J. Kenny, editors (2013) *Addiction*. Cold Spring Harbor Press.
  2. **Pierce, R.C.**, P.J. Kenny and E.A. Unterwald, editors (2020) *Addiction*. Cold Spring Harbor Press.
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#### Book Chapters

6. Guercio, L.A. and R.C. Pierce The circuitry underlying the reinstatement of cocaine seeking: Modulation by deep brain stimulation. In: J.-J. Soghomonian (Ed.) *The Basal Ganglia*. Springer International Publishing.
  5. **Pierce, R.C.** and M.E. Wolf. Psychostimulant-induced neuroadaptations in nucleus accumbens AMPA receptor transmission. In: **Pierce, R.C.** and P.J. Kenny (Eds.) *Addiction*. Cold Spring Harbor Press.
  4. **Pierce, R.C.**, C.P. O'Brien, P.J. Kenny and L.J. Vanderschuren. Rational development of addiction pharmacotherapies: successes, failures, and prospects. In: **Pierce, R.C.** and P.J. Kenny (Eds.) *Addiction*. Cold Spring Harbor Press.
  3. Famous, K.R. and **R.C. Pierce**. (2008). The role of nucleus accumbens glutamate in cocaine craving and addiction. In: H.N. David (Ed.) *The Nucleus Accumbens: Neurotransmitters & Related Behaviours*.
  2. **Pierce, R.C.** and P.W. Kalivas (1997, revised 2007). Locomotor behavior. In: J. Crawley (Ed.) *Current Protocols in Neuroscience*.
  1. Rebec, G.V., **R.C. Pierce**, and E.A. Kiyatkin (1997). Modulation of glutamate-induced excitation of striatal neurons by dopamine iontophoresis in awake, unrestrained rats. *The Basal Ganglia V*.
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## Invited Seminars (2008-present):

February 12, 2020	<i>Vanderbilt University Center for Addiction Research, Nashville, TN</i>
April 4, 2019	Department of Neuroscience, <i>Rowan University, Stratford, NJ</i>
September 25, 2018	Brain Health Institute, <i>Rutgers University, Piscataway, NJ</i>
August 7, 2018	McLean Hospital, <i>Harvard University, Belmont, MA</i>
April 18, 2018	Pharmacy Program, <i>University of Kentucky, Lexington, KY</i>
March 28, 2018	Department of Biobehavioral Health, <i>Penn State University, State College, PA</i>
January 29, 2018	Center for Neuroscience, <i>University of Pittsburgh, Pittsburgh, PA</i>
November 9, 2017	15 <sup>th</sup> Anniversary of the Waletzky Award Symposium, <i>NIDA Intramural Program, Baltimore, MD</i>
March 2, 2017	Neuroscience Program, <i>Michigan State University, East Lansing, MI.</i>
May 12, 2016	Neuroscience Program, <i>Penn State School of Medicine, Hershey, PA</i>
September 18, 2015	Indiana University Program in Neuroscience 50 <sup>th</sup> Anniversary Seminar
May 19, 2015	Department of Pharmacology and Physiology, <i>Drexel University, Philadelphia</i>
February 24, 2015	Department of Neuroscience, <i>University of Puerto Rico, San Juan, PR</i>
April 24, 2014	Department of Neuroscience, <i>University of California San Francisco.</i>
March 10, 2014	Seattle Children's Research Institute, <i>University of Washington, Seattle, WA.</i>
February 28, 2014	Department of Pharmaceutical Sciences, <i>Northeastern University, Boston, MA.</i>
October 12, 2013	Festschrift in honor of George V. Rebec, <i>Indiana University Program in Neuroscience, Bloomington, IN.</i>
September 27, 2013	Keynote Speaker, Annual Neuroscience Research Day, <i>Buffalo Chapter of the Society for Neuroscience/University of Buffalo, Buffalo NY</i>
August 10, 2013	Cellular Biology of Addiction Course, <i>Cold Spring Harbor Laboratory, Cold Spring Harbor, NY</i>
February 21, 2013	Department of Basic Medical Sciences, <i>University of Arizona College of Medicine Phoenix, Phoenix, AZ</i>
June 14, 2012	Department of Anatomy and Neurobiology, <i>University of Maryland School of Medicine, Baltimore, MD</i>
April 13, 2012	Departments of Physiology and Cell Biology, <i>Pontificia Univerisidad Catolica de Chile, Santiago, Chile</i>
March 7, 2012	Department of Neuroscience, <i>Johns Hopkins University School of Medicine, Baltimore, MD</i>
December 22, 2011	Center for Substance Abuse Research, <i>Temple University School of Medicine, Philadelphia, PA</i>
May 2, 2011	NIDA's Neuroscience Consortium Cutting Edge Symposium, <i>NIDA, Rockville, MD</i>
April 21, 2011	Department of Pharmacology, <i>Mt. Sinai School of Medicine, New York, NY</i>
November 4, 2010	Department of Neurology & Neuroscience, <i>Weill Cornell Medical College, New York, NY</i>
September 16, 2010	Department of Physiology and Pharmacology, <i>Wake Forest University School of Medicine, Winston-Salem, NC</i>
June 23, 2010	Department of Pharmacology, <i>Penn State College of Medicine, Hershey PA</i>
March 30, 2010	Department of Neuroscience, <i>Univ. of Connecticut Health Center, West Hartford, CT</i>
April 29, 2009	Department of Pharmacology, <i>University of Memphis, Memphis TN</i>
February 24, 2009	Division of Intramural Research, <i>Addiction Research Center, Baltimore, MD.</i>
April 30, 2008	Department of Pharmacology, <i>Rosalind Franklin University, Chicago, IL</i>

**Professional Meetings: Program Organization and Invited Presentations (2006-2018)**

- Pierce, R.C.** (participant), D. Dow-Edwards (organizer and chair). Transgenerational Effects of Abuse Substances on Behavior: The Epigenetic Link and What the Clinician Needs to Know. *Developmental Neurotoxicology Society, 42<sup>nd</sup> Annual Meeting*; Clearwater, FL (July, 2018).
- Pierce, R.C.** (participant), W. Wimmer (organizer and chair), F. Vassoler, G. Homanics. The Apple Never Falls Far: Parental Exposure to Alcohol and Other Drugs of Abuse has Deleterious Consequences on Progeny. *Winter Conference on Brain Research, 51<sup>st</sup> Annual Meeting*; Vancouver, BC (January, 2018).
- Pierce, R.C.** (participant), E. Calipari and P. Mews (organizers and chairs), M. Wood. Crosstalk Between the Epigenome and Neural Circuits in Drug Addiction. *Winter Conference on Brain Research, 51<sup>st</sup> Annual Meeting*; Vancouver, BC (January, 2018).
- Pierce, R.C.** (organizer and chair), M. Wimmer, Y. Hurd, E. Byrnes, D. Walker. It's All Your Parents' Fault! Maternal and Paternal Exposure to Drugs of Abuse or Stress Produces Maladaptive Effects on Descendant Behavior. *American College of Neuropsychopharmacology*, Hollywood, FL (December, 2016).
- Pierce, R.C.** (keynote speaker). *Philadelphia Chapter of the Society for Neuroscience*, Philadelphia, PA (April, 2015).
- Pierce, R.C.** (organizer and participant), E. Nestler, A. Rodgers, D. Chan. It's all in the sperm! Paternal epigenetic mechanisms underlying transgenerational programming of neuropsychiatric disease risk and resilience. *American College of Neuropsychopharmacology*, Phoenix, AZ (December, 2014).
- Pierce, R.C.** (participant), M. De Biasi, N. Stella, etc. *Society for Neuroimmune Pharmacology*, New Orleans, LA (March 2014).
- Pierce, R.C.** (participant), J. Pollack (organizer), A. West, etc. *World Congress of Psychiatric Genetics*. Boston, MA (October, 2013).
- Pierce, R.C.** (participant), M. Lynch (organizer), J. Rutter, L. Bierut, P. Kenny, J. Stitzel. *CPDD satellite meeting: Fundamental genetics in drug abuse and addiction*. Hollywood, FL (June, 2011).
- Pierce, R.C.** (participant), C. O'Brien (organizer), G. Koob, P. Piazza, T. Crowley. The impact of animals on the definition of addiction. *Winter Conference on Brain Research, 43<sup>rd</sup> Annual Meeting*; Keystone, CO (January, 2011).
- Pierce, R.C.** (participant), James McCutcheon (organizer), C. Bellone, K. Szumlinski. Metabotropic glutamate receptor regulation of AMPA receptors in addiction: From physiology to behavior. *Winter Conference on Brain Research, 43<sup>rd</sup> Annual Meeting*; Keystone, CO (January, 2011).
- Pierce, R.C.** (participant). U.S.-Netherlands workshop on binational research collaboration on drug abuse and addiction. Washington, D.C. (October 2009).
- Pierce, R.C.** (participant), T. De Vries (organizer), R. LaLumiere, M. Wolf, S. Spijker. Too much excitement? Role of glutamate signaling in relapse to drug seeking. *Winter Conference on Brain Research, 42<sup>nd</sup> Annual Meeting*; Copper Mountain, CO (January, 2009).
- Pierce, R.C.** (participant), J. McGinty (organizer), G. Snyder, D. Sibley. Under construction: Phospho-bridges integrate dopamine and glutamate signaling in the striatal cytoskeleton. *Winter Conference on Brain Research, 42<sup>nd</sup> Annual Meeting*; Copper Mountain, CO (January, 2009).
- Pierce, R.C.** (presentation of Jacob P. Waletzky Memorial Lecture); Introduction by NIDA Director Nora D. Volkow; Co-chairs: Catharine Sasek and Rita Liu; CaMKII: a biochemical bridge linking accumbens dopamine and glutamate systems in cocaine seeking. *Frontiers in Addiction Research: 2008 NIDA Mini-Convention*; Washington, DC (November, 2008).
- Pierce, R.C.** (organizer and participant), C. Colvis (co-organizer), G. Sadri-Vakili, A. West, C. Ferris. Epigenetics of cocaine addiction. *Winter Conference on Brain Research, 40<sup>th</sup> Annual Meeting*; Snowmass, CO (January, 2007).
- Pierce, R.C.** (organizer), P. Mermelstein, H. Schmidt, A. Rajadhyaksha, X.-T. Hu. Psychostimulants, L-type calcium channels and the 'Yin and Yang' of PKA signaling in the nucleus accumbens. *Winter Conference on Brain Research, 39<sup>th</sup> Annual Meeting*; Steamboat, CO (January, 2006).



## Thesis Advisees

### Doctoral

Antoinette Y. Freeman (PhD, 2002) "The role of endogenous BDNF and NT-3 in cocaine-induced behavioral sensitization: an immunohistochemical and behavioral analysis"

Honors/Awards: NIDA Minority Student Fellowship.

Current position: Assistant Professor, Huston-Tillotson University (Austen, TX).

Stephanie C. Licata (PhD, 2003) "Neurochemical mechanisms within the mesolimbic dopamine system of sensitization to the locomotor-stimulating effect of cocaine in rodents"

Honors/Awards: NIDA NRSA predoctoral fellowship, Russek Student Achievement Award.

Current position: Associate Medical Director, Global Medicine at Biogen

Ghazaleh Sadri-Vakili (PhD, 2003) "Neurosteroids modulate ionotropic glutamate receptor-induced dopamine release and locomotor activity in the rat"

Student advised jointly by Chris Pierce and David Farb.

Current position: Assistant Professor of Neurology, Massachusetts General Hospital, Harvard Medical School (Charlestown, MA)

Ausaf A. Bari (PhD, 2004) "The role of nucleus accumbens glutamate and dopamine receptors in cocaine reward" (completing the PhD portion of the combined MD-PhD degree).

Honors/Awards: NIDA NRSA predoctoral fellowship; American Academy of Neurology research scholarship; Wotiz family MD/PhD fellowship; Norris Cotton graduate student award, 31<sup>st</sup> Annual New England Pharmacologists meeting, Russek Student Achievement Award (second place).

Current position: Neurosurgery Faculty, UCLA Medical Center.

Sharon M. Anderson (PhD, 2005) "The role of dopamine receptor signaling in the rat nucleus accumbens in cocaine-induced reinstatement"

Honors/Awards: NIDA NRSA predoctoral fellowship, Russek Student Achievement Award.

Current position: Lab Manager, Eastern Virginia Medical School

Heath Schmidt (PhD, 2006) "The neuronal circuitry underlying the reinstatement of cocaine-seeking behavior in rats"

Honors/Awards: NIDA NRSA predoctoral fellowship, Russek Student Achievement Award.

Current position: Assistant Professor, University of Pennsylvania School of Nursing (Philadelphia, PA)

Katie Famous (PhD, 2007; MD, 2010) "The contributions of ionotropic glutamate receptors and CaMKII to the reinstatement of cocaine-seeking behavior in rats"

Honors/Awards: NIDA NRSA predoctoral fellowship, Russek Student Achievement Award.

Current position: Associate Program Director at Kaiser Permanente Northern California

Fair Vassoler (PhD, 2011) "Deep brain stimulation in cocaine reinstatement and the inheritance of a cocaine-resistance phenotype"

Current position: Assistant Professor at Tufts School of Veterinary Medicine

Samantha White (PhD, 2013) "Cocaine self-administration: Adaptations to the glutamatergic system and consequences for offspring emotional control"

Honors/Awards: NIDA NRSA predoctoral fellowship

Current position: Science Communication and Coordination Specialist, NINDS

Leonardo Guercio (PhD, 2016) "Influence of local and circuit-wide modulation of the mesocorticolimbic reward system on the reinstatement of cocaine seeking"

Honors/Awards: NIDA NRSA predoctoral fellowship

Current Position: Manager of Scientific Engagements, Blackfynn, Philadelphia, PA

Advisees continued

Post-Doctoral Fellows:

Woo-Kyu Park (2000-2001).

Current position: Senior Research Scientist, Pharmaceutical Screening Research Team, Korea Research Institute of Chemical Technology.

Ruth Reeves (2003-2004).

Current position: Safety Pharmacologist at Sepracor, Inc.

Honors/awards: NIDA post-doctoral fellowship.

Vidhya Kumaresan (2004-2008).

Current position: Research Assistant Professor, Department of Pharmacology, Boston University School of Medicine

Fair Vassoler (2011-2012)

Current position: Assistant Professor, Tufts University.

Lisa Briand (2009-2013)

Current Position: Assistant Professor, Department of Psychology, Temple University, Philadelphia, PA.

Honors/awards: NIDA K99/R00 award

Mathieu Wimmer (2012-2016)

Current Position: Assistant Professor, Department of Psychology, Temple University, Philadelphia, PA.

Honors/awards: NIDA K01 award

Bruno Fant (2015-2017)

Current Position: Senior Bioinformatician, myNEO, Brussels Belgium.

Sarah Swinford-Jackson (current)

Matthew Rich (current)

Research Associates and Research Assistant Professors (junior faculty):

Heath Schmidt (Research Associate 2008 – 2011, Research Assistant Professor 2011 – 2015)

Current Position: Associate Professor, University of Pennsylvania School of Nursing, Philadelphia, PA.

Honors/awards: NIDA K01 award

Pavel Ortinski (Research Associate 2009 – 2012, Research Assistant Professor 2012 – 2014)

Current Position: Assistant Professor, Department of Pharmacology, Physiology and Neuroscience, University of South Carolina School of Medicine, Columbia, SC.

Honors/awards: NIDA K01 award

Lisa Briand (Research Associate, 2013 – 2014)

Current Position: Assistant Professor, Department of Psychology, Temple University, Philadelphia, PA.

Honors/awards: NIDA K99/R00 award

Mackenzie Hofmann (Research Associate, 2015-2017)

Current Position: Research Scientist, Merck & Co., West Point, PA.

## Teaching

### University of Pennsylvania

#### Course Manager

Neuropharmacology/Neurochemistry (Graduate Students) – Spring 2010

Managed Neurotransmitters Part II section of course

Neuropsychopharmacology (Graduate Students) – Fall 2010

Managed Addiction section of course

Neuroscience Core III

One of four course managers who revised and updated the course

Manage Limbic System section (Graduate Students) – Spring, 2012-2019

Lectures on Reward Learning and Addiction

Neurotransmitter Signaling and Pharmacology (Graduate Students)

Fall 2012, Spring 2014, Spring 2015, Spring 2017, Spring 2018

One of three course managers who revised and updated the course previously called

Neuropharmacology/Neurochemistry

Manage Excitatory Neurotransmission section (Graduate Students)

Present Introductory Lecture and Lectures on Dopamine

#### Lecturer

Neuropharmacology/Neurochemistry (Graduate Students) – Spring 2009, 2010

Lectures on Dopamine and Behavioral Methods

Neuroscience, Core III (Graduate Students) – Spring 2009-2014 (Lectures on Addiction)

Neuropsychopharmacology (Graduate Students) – Fall 2010, Spring 2013

(Lecture on Addiction)

Behavioral Neuroscience (Graduate Students) – Fall 2010 (Lecture on Addiction)

Foundations of Clinical Neuroscience (Psychiatry Residents) – Spring 2009-2017

Lecture on Addiction

## Other

#### Lecturer

Short Course on the Genetics of Addiction, Johns Hopkins University (October, 2015)

Short Course on the Genetics of Addiction, Jackson Lab, Bar Harbor, ME (September, 2014;

August, 2015, September 2016, September 2017, September 2018)

Summer School of Neuroscience (focusing on dopamine, in honor of Professor Umberto

Scapagnini), University of Catania, Sicily (July, 2015)

Neuroscience Public Lecture, University of Pennsylvania (March, 2014)

Cellular Biology of Addiction Course, Cold Spring Harbor Laboratory, New York (August, 2013)

Utrecht Summer School on Addiction, Utrecht, Netherlands (July 2016, August 2017, August 2018)