

RAYMOND GEORGE BOOTH

CURRICULUM VITAE [ABBREVIATED]

RESEARCH SYNOPSIS

Drug Discovery and Development for Neuropsychiatric Disorders

The laboratory is on track to an Investigational New Drug (IND) Application regarding novel drug(s) that target brain serotonin receptors for treatment of neuropsychiatric disorders and neurological disorders, including, autism spectrum disorder, fragile X syndrome (most common known genetic cause of autism), epilepsy, and substance use disorder. Development will proceed under the auspices of the National Institutes of Health (NIH) and Boston-based pharmaceutical industry partners, including the Northeastern start-up biotech, Seropeutics. In addition to structure-based design and synthesis of new chemical entities, laboratory drug discovery and development technology includes computational chemistry and molecular modeling, molecular neuropharmacology, pharmacokinetics, and preclinical in vivo behavioral methodologies for development of drug candidates.



EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Year	FIELD OF STUDY
Northeastern University, Boston, Massachusetts	BS	06/1983	Clinical Pharmacy
University of California at San Francisco	PhD	01/1989	Pharmaceutical Chemistry
Harvard Medical School/McLean Hospital, Boston, MA	Postdoc	07/1990	Neuroscience/Psychiatry

PROFESSIONAL EXPERIENCE

- 1990-1997: Assistant Professor, Medicinal Chemistry, University of North Carolina at Chapel Hill
- 1997-2005: Associate Professor (tenured), Medicinal Chemistry (School of Pharmacy) and Toxicology (School of Medicine), University of North Carolina at Chapel Hill
- 2005-2007: Associate Professor (tenured), Medicinal Chemistry, University of Florida, Gainesville, FL
- 2007-current: Professor (tenured), Medicinal Chemistry (College of Pharmacy) and Pharmacology & Therapeutics (College of Medicine), University of Florida; from 2012 to current, my status at UF is Adjunct Professor in the Department of Medicinal Chemistry;
- 2012-current: Professor (tenured), Department of Pharmaceutical Sciences (Bouvé College of Health Sciences), Interim Chair, Jan-Jun 2017
- Professor (tenured) Department of Chemistry & Chemical Biology (College of Science), and, Center for Drug Discovery (Associate Director), Northeastern University, Boston;

RESEARCH FUNDING

Active

Source: NIH (National Institute on Drug Abuse, NIDA)
 Number: RO1 DA047130
 Project Name: *Delineating the role of serotonin 5-HT2 receptors in opioid use disorders: Development of novel 5-HT2 modulators with translational studies in rodents and primates*
 Role: MPI (lead)
 Funding Period: 10/01/18-11/30/23
 Total Costs: \$4,019,296.00

Source: Department of Defense Congressionally Directed Medical Research Programs Peer Reviewed Medical Research Program
 Number: W81XWH-17-1-0322
 Project Name: *Development of Novel Drugs Targeting Serotonin Receptors to Treat Motor, Social, Cognitive, and Sensory Domains of Autism Spectrum Disorder Using Mouse Models*
 Role: MPI (lead)
 Funding Period: 09/01/2017-08/31/2021
 Total costs: \$923,384

Source: NIH (National Institute on Drug Abuse, NIDA)
 Number: T32 DA050564
 Project Name: Training Program on Medications Development for Substance Use Disorder
 Role: MPI
 Funding Period: 07/01/2022–06/30/2027
 Total Costs: \$3,007,370

Pending

Source: NIH (National Institute of Neurological Disorders and Stroke)
 Number: 1 R01 NS128402-01
 Project Name: Serotonin Receptor Modulators for Treating Neuronal Hyperexcitability in the Rare Disease Fragile X Syndrome
 Role: MPI (contact)
 Funding Period: 07/01/23-06/30/27
 Total Costs: \$ 3,846,147

Completed

Source: Department of Defense Congressionally Directed Medical Research Programs Peer Reviewed Medical Research Program
 Number: W81XWH-15-1-0247
 Project Name: *Translation of Novel Serotonin 5-HT7 Agonist Drug Candidates in Rodent Models of Fragile X Syndrome*
 Role: MPI with Dr. Clint Canal
 Funding Period: 09/01/2015-08/31/2017
 Total Costs: \$309,000

Source: NIH (National Institute on Drug Abuse, NIDA)
 Number: RO1 DA030989
 Project Name: *Functionally-Selective Serotonin 5HT2 Drugs for Amphetamines Abuse/Disorders*
 Role: MPI (contact)
 Funding Period: 09/01/12-08/31/17
 Total Costs: \$1,802,016

Source: NIH (National Institute on Drug Abuse, NIDA)
 Number: T32 DA07312
 Project Name: Training Program in Medications Development for Drugs of Abuse
 Role: co-Principal Investigator (Makriyannis, PI)
 Funding Period: 07/01/1999 - 06/30/2014
 Total Costs: \$2,396,693.00

Source: NIH (National Institute on Mental Health, NIMH)
 Number: R01MH081193
 Project Name: *Serotonin 5HT_{2C} Agonist Ligands with 5HT_{2A/B} Antagonist Activity*
 Role: Principal Investigator
 Funding Period: 04/01/08-02/28/14
 Total Costs: \$1,841,323

Source: NIH (Rapid Access to Interventional Development, RAID)
 Number: R01MH081193-W1
 Project Name: *Novel Anxiolytic Agents Targeting Serotonin 5HT_{2A/2C} Receptors*
 Role: Principal Investigator
 Funding Period: 10/01/09-02/28/14
 Total Costs: \$73,250

Source: NIH (NIDA)
 Number: R01DA023928
 Project Name: *Novel 5HT_{2C} Agonist Drugs with 5HT_{2A} Antagonist Activity for Cocaine Addiction*
 Role: Principal Investigator
 Funding Period: 09/15/07-09/14/12
 Total Costs: \$1,475,130

Source: NIH (NIDA)
 Number: R01DA023928-03S109
 Project Name: *International Collaborative Research to Develop Cocaine Abuse Pharmacotherapy*
 Role: Principal Investigator
 Funding Period: 08/01/09-09/14/12
 Total Costs: \$91,563

Source: University of Florida Research Foundation Commercialization Fund (Project 100721)
 Project Name: *Commercialization of Drug Candidate for Schizophrenia*
 Role: Principal Investigator
 Funding Period: 03/01/12-09/01/12
 Total Costs: \$25,311

Source/Number: NIH (Mental Health, NIMH) R01MH068655
 Project Name: *Functional Probes for Brain Histamine H₁ Receptors*
 Role: Principal Investigator
 Funding Period: 04/01/04-03/31/09
 Total Costs: \$1,055,113

Source/Number: UF Opportunity Fund 65651
 Project Name: *Preclinical Development of Drugs for Obesity and Cocaine Addiction*
 Role: Principal Investigator
 Funding Period: 07/01/07-06/30/09
 Total Costs: \$81,550

Source/Number: NIH (Neurological Disorders and Stroke, NINDS) R-29-NS35216
Project Name: *Novel Sigma Ligands in Neurodegeneration*
Role: Principal Investigator
Funding Period: 04/01/97-03/31/02
Total Costs: \$502,855

Source/Number: Pharmacy Foundation of North Carolina 6-68379-4501
Project Name: *Evaluation of NMDA receptor-active compounds using primary glial cell cultures*
Role: Principal Investigator
Funding Period: 07/01/00-06/30/02
Total Costs: \$20,000

Source/Number: Otsuka Pharmaceuticals 6-68347-4281
Project Name: *Biochemical Effects of Novel Quinoline Compounds at Brain Sigma Receptors*
Role: Co-Principal Investigator (Richard B. Mailman, Co-PI)
Funding Period: 09/01/98-12/31/01
Total Costs \$97,0000

Source/Number: Environmental Protection Agency
Project Name: *Neurotoxicity of Polychlorinated Biphenyls*
Role: Principal Investigator
Funding Period: 08/01/97-09/31/99
Total Costs: \$45,000

Source/Number: NIMH RO1 MH34006
Project Name: *Pharmacology of Dopamine Receptors in CNS*
Role: Investigator (Ross Baldessarini, PI)
Funding Period: 07/01/95-06/30/99
Total Costs: \$1,200,000

Source/Number: Pharmacy Foundation of North Carolina
Project Name: *Putative Sigma-3 Receptors in Mammalian Brain*
Role: Principal Investigator
Funding Period: 01/01/95-12/31/97
Total Costs: \$10,000

Source/Number: Environmental Protection Agency 4D-1882
Project Name: *Polychlorinated Biphenyls Effects on Brain Dopamine Synthesis*
Role: Principal Investigator
Funding Period: 08/01/94-07/31/96
Total Costs: \$5,000

Source/Number: UNC-CH Faculty Research Grant 5-44786
Project Name: *Adenosine and Sigma Receptor-Mediated Regulation Dopamine Synthesis*
Role: Principal Investigator
Funding Period: 07/01/93-06/30/95
Total Costs: \$2,970

Source/Number: Otsuka Pharmaceuticals 6-68347
Project Name: *Novel Quinoline Inhibitors of Tyrosine Hydroxylase*
Role: Co-Principal Investigator (Richard B. Mailman, Co-PI)
Funding Period: 07/01/93-06/30/97
Total Costs: \$24,000

Source/Number: NIMH RO1 MH40537
Project Name: *A Novel Molecular Site for Antidopaminergic Action*
Role: Investigator (Richard B. Mailman, PI)
Funding Period: 04/01/93-03/31/97
Total Costs: \$1,291,981

Source/Number: UNC-CH Faculty Research Grant 5-44339
Project Name: *Development of Autoreceptor Agonists*
Role: Principal Investigator
Funding Period: 12/01/90-06/30/93
Total Costs: \$2,550

Source/Number: UNC-CH Junior Faculty Development Award-6-69410
Project Name: *Characterization of Autoreceptors in Mammalian Forebrain*
Role: Principal Investigator
Funding Period: 01/01/91-12/31/92
Total Costs: \$3,000

Source/Number: NIH BSRG RR05967
Funding Period: 10/01/91
Total Costs: \$5,800 (instrument purchase)

Source/Number: NIMH MH14275-15
Project Name: *Neuropharmacology of Presynaptic Dopamine Agonists*
Role: Investigator (W.H. Morse, PI)
Funding Period: 11/01/88-08/01/90
Total Costs: \$39,700

TEACHING (Northeastern University)***GRADUATE CURRICULUM*****PHSC6222 Chemistry and Biology of Drugs of Abuse**

2 semester hours, required; ~25 students
2016-current (primary Course Coordinator)

PHSC 5100 Concepts in Pharmaceutical Science

Drug Metabolism and Drug Design and Development
2 semester hours, required; ~75 students
2013-current

CHEM 5620 Protein Chemistry

3 semester hours, required; ~25 students
2016-2020

PMCL 6262 Receptor Pharmacology

2 semester hours, required; ~25 students
2014-current

PHSC 6300 Seminar in Drug Discovery

1 semester hour, required; ~12 students
2014-current (Course Coordinator)

CHEM 5904 and 8504 Seminar and Colloquium in Chemistry

1 semester hour, required, ~40 students
2021-2022 (Course Co-Coordinator)

CHEM 5676 Bio-organic and Medicinal Chemistry

3 semester hours, required; ~15 students
2014-current (Course Coordinator)

CHEM 4456 Organic Chemistry III

2 semester hour, elective; ~20 students
2015 – 2020.

PROFESSIONAL (PHARM.D.) AND UNDERGRADUATE CURRICULA**HONR 3310-12: Translational Medicine (fall semester)**

1 semester hour, elective; 1~5 students
2014 – 2021

HLTH 1555 Honors Special Topics in Healthcare: Drug Discovery and Delivery

4 semester hours, ~12 students; elective
2012-2014, 2015 (course coordinator and lecturer)

GRADUATE STUDENT TRAINEES***PHD STUDENT TRAINEES***

Otto Holbrook, Ph.D., Medicinal Chemistry and Drug Discovery, 2027 (expected)

Erin Sullivan, Ph.D., Pharmaceuticals and Drug Delivery, 2026 (expected)

Brittany Brems, Ph.D., Medicinal Chemistry and Drug Discovery, 2026 (expected)

Nicholas Fragola, Ph.D., Medicinal Chemistry and Drug Discovery, 2024 (expected)

Bryce Johnson, Ph.D., Pharmacology, 2023 (expected)

Ryan McGlynn, Ph.D., Pharmacology, 2023 (expected)

Austen Casey, Ph.D., Medicinal Chemistry and Drug Discovery, 2021

Dissertation title: Molecular and behavioral pharmacology of 2-aminotetralins targeting serotonin G protein-coupled receptors

Current Position: Postdoctoral Fellow, Stanford University School of Medicine

Charles Perry, Ph.D., Medicinal Chemistry and Drug Discovery, 2018

Thesis title: Drug design targeting the serotonin 5-HT₇ G protein-coupled receptor

Current position: Postdoctoral research fellow, Vanderbilt University Center for Drug Discovery

Daniel Felsing, Ph.D, Medicinal Chemistry, 2016.

Thesis title: Drug discovery targeting serotonin G protein-coupled receptors to treat neuropsychiatric disorders.

Current position: Postdoctoral research fellow, University of Texas Medical Branch at Galveston

Krishnakanth Kondabolu, Ph.D, Medicinal Chemistry 2013.

Thesis title: In vitro and in vivo pharmacology of novel phenylaminotetralin (PAT) analogs at serotonin 5-HT₂ receptors: Development of drugs for neuropsychiatric disorders.

Current position: Postdoctoral Research Fellow, Dept. Pharmacology, Boston University

Sean Travers, Ph.D., Medicinal Chemistry, 2011

Thesis title: Characterization of the molecular determinants for class A G protein-coupled receptors: Drug discovery targeting the histamine H₁ receptor

Current position: Technical Research Advisor Rigaku Raman Technologies

Zhuming Sun, Ph.D., Medicinal Chemistry, 2010.

Thesis title: "Novel phenylaminotetralin (PAT) analogs: Multifunctional serotonin 5-HT₂ receptor drugs for neuropsychiatric disorders".

Current position: Research Scientist, Novartis, Shanghai, China

Dawn Covington, M.S. Medicinal Chemistry, 2007.

Thesis title: Ligand design targeting histamine H₁ G protein-coupled receptor dimers

Current position: Staff scientist, GSK, Research Triangle Park, NC.

Ola Maher Ghoneim, Ph.D., Medicinal Chemistry, 2006

Thesis title: "Synthesis, analytical, and molecular modeling studies of novel aminophenyltetralin ligands to characterize human histamine and serotonin receptor signaling"

Current position: Assistant Professor (teaching, research, service), Department of Medicinal Chemistry, St. Joseph College, Hartford, Connecticut

Nader Moniri, Ph.D., Medicinal Chemistry, 2004

Thesis Title: "Histamine H₁ receptor multifunctional signaling characterized using novel tetrahydro-(naphthalene and benzocycloheptane) ligands"

Current position: Associate Professor (teaching, research, service), Medicinal Chemistry, Mercer University, Atlanta, GA

Jacqueline Legere, Ph.D., Medicinal Chemistry, 2004

Thesis Title: "Synthesis and pharmacological activity of 2-dimethylamino-5-(6)-phenyl-1,2,3,4-tetrahydronaphthalenes as novel ligands for the human histamine H₁ receptor"

Current Position: Director of Biology Research Core, Genzyme, Framingham, MA

Neepta Choksi, Ph.D., Medicinal Chemistry, 1999

Thesis Title: "Neuropharmacological Characterization of Brain Receptors Recognized by 1-Phenyl-3-aminotetralins"

Current position: Senior Research Scientist, Integrated Laboratory Systems Inc., Research Triangle Park, NC

Constance E. Owens, Ph.D., Medicinal Chemistry, 1997

Thesis title: "A Novel Brain Receptor System Linked to Modulation of Catecholamine Synthesis"

Current position: Senior Research Scientist, Endacea, Research Triangle Park, North Carolina

Anwar Hussain, Ph.D., Medicinal Chemistry, 1995

Thesis Title: "The Role of Adenosine A₂ Receptors in Stimulation of Brain Dopamine Synthesis"

Last known position: Senior Research Scientist, Bristol-Myers-Squibb, New Brunswick, New Jersey.

MS GRADUATE STUDENT TRAINEES

Sisy Hu, M.S., Pharmaceutical Sciences 2017

Yiming Chen, MS., Pharmaceutical Sciences 2017

Hima Patel M.S., Pharmaceutical Sciences 2017

Eliza Miller, M.S., Chemistry and Chemical Biology, 2016

Yajun Lin, M.S., Pharmaceutical Sciences 2016

Yan Zhou, M.S., Pharmaceutical Sciences 2016

Laura Purcell, M.S., Pharmaceutical Sciences 2016

Daoyang Chen, M.S., Pharmaceutical Sciences 2016

Ngyn Tran, M.S., Pharmaceutical Sciences, 2015

Rinkal Soni, M.S., Pharmaceutical Sciences, 2015

Bryce Suchomel, M.S., Pharmaceutical Sciences, 2015

Wanying Zhu, M.S., Pharmaceutical Sciences, 2014

UNDERGRADUATE RESEARCH TRAINEES

Millenia Waite, B.S., Biochemistry (expected 2023)

Alex Yuen, B.S., Biochemistry (expected, 2023)

Nicholas Farina, Pharm.D., Pharmacy (expected, 2023)

Jason Gladstone, B.S., Biochemistry (expected, 2025)

Bassel Abdelbaki, BS Chemical Engineering 2021

Christopher Chang, B.S., Chemistry, 2019 (funded by Northeastern Matz Research Scholarship Award)

George (Jia Xing) Guo, B.S., Biochemistry, 2018

Jessica Mecklosky, B.S., Neuroscience, 2016.

Daniel Felsing, B.S., Chemistry, 2011

Sean Wimberly, Pharm.D., Pharmacy 2011

Roberto Campillo, Pharm.D., Pharmacy 2007

Russell Moore, Pharm.D., Pharmacy 2006

Christopher Smelick, B.S., Chemistry 2006

Tammy Bristow, B.S., Chemistry, 2004

Alexandra Calves; B.S., Pharmacy, 1998

Kathrinn Fitzpatrick, B.S., Pharmacy, 1997

Brenda Aske, B.S., Pharmacy, 1996

Kelly Hendricks; B.S., Pharmacy, 1996

R. Donald Harvey; Pharm.D., 1994

Jonathan Ducar; B.S., Pharmacy, 1992

POSTDOCTORAL & RESEARCH ASSISTANT PROFESSOR TRAINEES

Munmun Mukherjee, Ph.D. (2017-current)

Shan Zhu, Ph.D. (2014-2016)

Yue Liu, Ph.D. (2013-2016); current position is research scientist at Pfizer Inc., Cambridge, MA

Rajender Vemula, Ph.D. (2012-2016); current position is research scientist at Harvard University Department of Chemistry, Cambridge, MA.

Tania Cordova-Sintjago, Ph.D. (2010-2016); current position is faculty (teaching and research) at Santa Fe College, Gainesville FL

Dario Ambrosini, Ph.D. (2012-2015); current position is postdoctoral researcher at University of Milan Department of Chemistry, Milan, Italy.

Clinton Canal, Ph.D. (Postdoctoral: 2010-2012; Research Assistant Professor: 2012-2016); current position is Assistant Professor (tenure track) Mercer University, Atlanta, GA.

Myong Sang Kim, Ph.D. (Postdoctoral: 2009-2012); current position is research scientist at Firebird Biomolecular Sciences, Alachua, FL 32615-9465, USA.

Nancy Villa, Ph.D. (2009-2012); current position is research scientist at University of Florida Department of Oncology, Gainesville, FL

Jean-Claude Nzimulinda, Ph.D. (2010-2011); current position is staff pharmacist in Louisville, KY.

Rajeev Sakhuja, Ph.D. (2009-2011); current position is faculty (teaching, research) at Birla Institute of Technology & Science, Pilani, Rajasthan 333031, India.

Adam Vincek, Ph.D (2008-2011); current position is research scientist in Center for Drug Discover at Mount Sinai School of Medicine, New York, NY 10029, USA.

Li Fang, Ph.D. (2006-2009); current position is research scientist at University of Florida College of Medicine Department of Nephrology

Andrzej Wilczynski, Ph.D (2006-2008); current position is research scientist at Perkin Elmer, Boston, MA

Sashi Sivendran, Ph.D. (2006-2008); current position is Dow Chemicals, Andover, MA

Yingsu Huang, Ph.D. (2004-2005)

Aaron Meng, M.D. (1999-2001)

Bonita L. Blake, D.V.M., Ph.D. (1997-1999)

THESIS DISSERTATION COMMITTEES

Northeastern University

Brent Kochert, Ph.D., Chemistry, 2018; Committee Member

Chandrashekar Honrao Ph.D., Pharmaceutical Sciences (Drug Discovery/Medicinal Chemistry), 2019 (expected); Committee Member

Anisha Korde, Ph.D., Pharmaceutical Sciences (Medicinal Chemistry), 2017, Committee Member

Shashank Kulkarni, Ph.D., Pharmaceutical Sciences (Medicinal Chemistry), 2016, Committee Member

Pooja Naresh Sabhachandani, Ph.D., Pharmaceutical Sciences (Pharmaceutics) 2016, Committee Member

Abhijit Kulkarni, Ph.D., Pharmaceutical Sciences (Medicinal Chemistry), 2016, Committee Member

Michael Johnson, Ph.D., Pharmaceutical Sciences (Drug Discovery/Medicinal Chemistry), 2014; Committee Member.

University of Florida

Ebrahim Hossein Ghazvini Zadeh, Ph.D., Chemistry, 2015; Committee Member

Harald Messer, Ph.D., Interdisciplinary Program in Biomedical Science, 2015 (expected), Committee

Zheng Zheng, Ph.D., Chemistry, 2014 (expected), Committee Member

James Kasper, Ph.D., Pharmacodynamics, 2012 (expected), Committee Member

Wenjen Li, Ph.D, Medicinal Chemistry, 2011, Committee Member

Jongwoo Park, Ph.D., Chemistry, 2011, Committee Member

Bin Song, Ph.D., Computer Information Science & Engineering, 2010, Committee Member

Jason Kwan, Ph.D., Medicinal Chemistry, 2010, Committee Member

Bettina Proneth, Ph.D., Medicinal Chemistry, 2007

James Sacco, Ph.D., Medicinal Chemistry, 2006

Joshua Thomas, Ph.D., Medicinal Chemistry, 2006

Susruta Majumdar, Ph.D, Medicinal Chemistry, 2006

University of North Carolina at Chapel Hill

Richard Durham, Ph.D., Medicinal Chemistry, 2005

Erin Heinzen, Ph.D., Pharmaceutics Division: Drug Delivery and Disposition, 2004

Yolanda Taylor, M.S., 2001 (Biochemistry)

Erhen Bucholtz, Ph.D., Medicinal Chemistry, 1998
Brian Hoffman, Ph.D., Medicinal Chemistry, 1998
Daphne Da, M.S., Pharmaceutics Division: Drug Delivery and Disposition, 1998
Merril Miller, Ph.D., Medicinal Chemistry, 1996
Andrew Myers, Ph.D., Medicinal Chemistry, 1995
Jin Sung Cho, Ph.D., Medicinal Chemistry, 1995
Ke Chen, Ph.D., 1995
Lynne Canne, Ph.D. Medicinal Chemistry, 1995
Leping Lee, Ph.D., Medicinal Chemistry, 1994
Bruce Burnham, Ph.D., Medicinal Chemistry, 1994
Debra Minor, Ph.D., Medicinal Chemistry, 1994
Christopher Waller, Ph.D., Medicinal Chemistry, 1993

TEACHING AWARDS

2006: BEST PROFESSOR AWARD, University of North Carolina at Chapel Hill
 School of Pharmacy, Class of 2006

2005: ACADEMIC EXCELLENCE AWARD IN TEACHING
 Nominated by Chair of Medicinal Chemistry – award to be announced July 2005

2003: BEST PROFESSOR AWARD, University of North Carolina at Chapel Hill
 School of Pharmacy, Class of 2005

2002: BEST PROFESSOR AWARD, University of North Carolina at Chapel Hill
 School of Pharmacy, Class of 2004

2001: BEST PROFESSOR AWARD, University of North Carolina at Chapel Hill
 School of Pharmacy Class, of 2003

1999: BEST PROFESSOR AWARD, University of North Carolina at Chapel Hill
 School of Pharmacy, Class of 2000

1998: DISTINGUISHED TEACHING AWARD FOR POST-BACCALAUREATE
 INSTRUCTION, *Nominee*, University of North Carolina at Chapel Hill

1997: BEST PROFESSOR AWARD, *Honorable Mention*, University of North Carolina at Chapel Hill
 School of Pharmacy, Class of 1999

SERVICE

National Institutes of Health

2022 NIDA-Career Development and Education Review Panel ZDA1 SKM-D (02)
 2022 NIDA-Career Development and Education Review Panel ZDA1 MXS-T (M3) S NIDA K Conflict SEP
 2022 NIDA Extramural Program for Clinical Researchers ZDA1 PXN-F (31)
 2018-2022 NIDA Extramural Program for Clinical Researchers ZDA1 PXN-F (31)

2018-2019 NIDDK: Early-Stage Pharmacological Validation of Novel Targets ZRG1 EMNR R(56)
 2017-2021 NIDA Board of Scientific Counselors
 2017 Molecular, Cellular, and Developmental Neuroscience MDCN-F Study Section Ad hoc
 2017 NIDA: New Molecular Entities to Treat Substance Use Disorder ZDA1 JXR-D (06), Chair
 2016-2020 Emerging Technologies and Training in Neurosciences (ETTN) Study Section C-11
 2016 NIDA: Medications Development Program Projects for Substance-Related Disorders ZDA1 JXR-D (09)
 2010 Molecular, Cellular, and Developmental Neuroscience MDCN-F Ad hoc
 2008 NIDA Development of Therapeutic Agents Special Emphasis Panel Ad hoc
 2008 NIMH Conference to Advance Mental Health Research Special Emphasis Panel Ad hoc
 2005-2008 Brain Disorders and Clinical Neuroscience Study Section F-11
 2006 Brain Disorders and Clinical Neuroscience Study Section K-15 Ad
 1997 Fundamental Neurosciences Study Section
 1996-2000 Brain Disorders and Clinical Neuroscience Study Section K-15
 1992-1996 Technology and Applied Sciences Study Section

Environmental Protection Agency

Chemical Mixtures in Environmental Health Panel (1997-2000)
 Exploratory Research on Environmental Neurotoxicants Panel (1997-2000)

Editorial Board

Journal of Addiction and Prevention (2013-2018)
 Obesity Insights (2008-2018)
 Medicinal Chemistry: Current Research (2010-2018)
 Pharmacology (2010-2016)

Northeastern University

School of Pharmacy Executive Committee (2018-current)
 Pharmaceutical Sciences Interim Chair (2017-2018)
 Pharmaceutical Sciences Graduate Committee (2016-current)
 Pharmaceutical Sciences Senior Hires (2) Pharmacology Recruitment Committee 2013-2017 (Chair)
 Pharmaceutical Sciences Chair Recruitment Committee 2014-2016 (Chair)
 University Grievance Committee 2014-15 (member)
 Chemistry and Chemical Biology Computational Chemistry Senior Hire Recruitment 2013-14 (Member)
 Center for Drug Discovery Senior Hires Recruitment Committee 2012- (co-Chair)
 School of Pharmacy Assessment Committee 2012 – (Member)
 Bouvé College of Health Sciences Dean's Leadership Team 2013 – (Member)
 Northeastern University Committee for Research Policy Oversight 2013- (Member)
 Northeastern University Research Awards Administration Advisory Committee 2013- (Member)

CONSULTING ACTIVITY

Gowling LLP, Toronto, Canada (2022-current)
 Paul Hastings LLP, New York, NY (2021-current)

Sterne, Kessler, Goldstein, Fox, LLP; Washington DC (2007-2013)
 Johnson and Johnson Pharmaceutical Research and Development (2008-2010)
 Patterson, Belknap, Webb & Tyler, LLP; NYC (2004-2005)
 Pitts, Hugenschmidt & Devereux, PA; Asheville, NC (1998-2000)
 GlaxoSmithKline, Research Triangle Park, NC (1992-99)

CURRENT LICENSURE Registered Pharmacist: Massachusetts #19004; California #PL-038684

INVITED ORAL PRESENTATIONS

D₂-Autoreceptor-Mediated Inhibition of Dopamine Synthesis in Brain. Department of Pharmacology and Experimental Therapeutics, School of Medicine, Boston University, October 16, 1990

Presynaptic Modulation of Brain Dopamine Synthesis. Department of Medicinal Chemistry, School of Pharmacy, University of North Carolina at Chapel Hill, November 1, 1990.

Stimulation of Brain Dopamine Synthesis by Sigma Ligands. Department of Medicinal Chemistry, School of Pharmacy, Medical College of Virginia, Richmond, VA, February 15, 1991

Effects of Novel Dopamine Agonists on Striatal Dopamine Synthesis. Biological Sciences Research Center, School of Medicine University of North Carolina at Chapel Hill, March 15, 1991.

Regulation of Brain Catecholamine Synthesis. Department of Neuropharmacology, Molecular Devices Corporation Menlo Park, CA, Sept. 11, 1992.

Mechanisms of Dopamine Cell Death. Neuroscience Department, Amgen Inc. Thousand Oaks, CA, October 2, 1992

Introduction to Pharmacology. Department of Medicinal Chemistry, Glaxo Pharmaceutical Research, Research Triangle Park, NC, June 2-11, 1992.

Receptor-Mediated Regulation of Dopamine Synthesis. Division of Pharmaceutics, School of Pharmacy, University of North Carolina at Chapel Hill, Nov. 12, 1992.

Principles of Pharmacology with Applications for Medicinal Chemistry. Department of Medicinal Chemistry, Glaxo Pharmaceutical Research, Research Triangle Park, NC, April 19-30, 1993.

A Novel Sigma Receptor Modulates Brain Dopamine Synthesis. Program in Neurobiology, School of Medicine, University of North Carolina at Chapel Hill, March 31, 1994.

Discovery of a Novel Sigma Receptor in Mammalian Brain. Division of Pharmaceutics, School of Pharmacy, University of North Carolina at Chapel Hill, February 1, 1996

Characterization of a Novel Brain Sigma Receptor. University of the Pacific, School of Pharmacy, Stockton, CA, March 22, 1996.

Neuromodulatory Adenosine A₂ receptors. Curriculum in Neurobiology, School of Medicine, University of North Carolina at Chapel Hill, February, 19, 1997.

Environmental Agents Linked to Neurotoxicity and Parkinson's Disease. Environmental Protection Agency, Research Triangle Park, North Carolina, December 11, 1997

Polychlorinated Biphenyl Compounds Inhibit Brain Dopamine Synthesis. Environmental Protection Agency, Research Triangle Park, North Carolina, November 5, 1998

Phenylaminotetralins as Novel Histamine H₁ Ligands. Department of Pharmacochimistry, Vrije (Free) University, Amsterdam, The Netherlands; March 9, 1999.

Novel Phenylaminotetralins Activate Neuromodulatory H₁ Receptors to Stimulate Brain Dopamine Synthesis. Department of Pharmacochimistry, Vrije (Free) University, Amsterdam, The Netherlands; April 11, 2000.

- Molecular Mechanisms Regulating Brain Neurotransmitter Synthesis. Cogent Neurosciences Corporation, Durham, North Carolina, September 8, 2000.
- Medicinal Chemical Probes Useful to Characterize H₁ Dimer Expression. Department of Pharmacochemistry, Vrije (Free) University, Amsterdam, The Netherlands; March 29, 2001.
- Functional Heterogeneity of Histamine H₁ Receptors. Presented at the European Medicinal Chemistry Society Meeting, Noordwijkerhout, The Netherlands; May 7-11, 2003.
- Ligand-directed multifunctional signaling of histamine H₁ and related G protein-coupled receptors. Histamine Research Society, Cologne, Germany, April 27-May 2, 2004.
- Ligand Functional Selectivity at G Protein-Coupled Receptors: Impact on Compound Selection in Drug Discovery. Gordon Research Conference on Molecular Pharmacology, Barga, Italy, May 8-13, 2005.
- Novel Ligands Stabilize Stereo-Selective Conformations of the H₁ Receptor: Functionally-Selective Modulation of Intracellular Signaling Pathways. Histamine Research Society, Delphi, Greece, May 10-14, 2006.
- Molecular Determinants of Ligand-Directed G_q versus G_s Signaling for the Histamine H₁ Receptor. Histamine Research Society, Florence, Italy, May 9-13, 2007.
- GPCR Conformations that Activate Phospholipase C vs Adenylyl Cyclase: Stereoselective Stabilization of Histamine H₁ Signaling by Novel Ligands. University of Camerino Medicinal Chemistry Symposium, Camerino, Italy, September 9-13, 2007.
- Histamine H₁ Receptor Mutagenesis Studies to Characterize Molecular Determinants for Ligand Activation. Department of Pharmacochemistry, Vrije (Free) University, Amsterdam, The Netherlands; March 13, 2008
- New Drug Candidates for Treating Obesity and Neuropsychiatric Disorders. Health Care Ventures. Cambridge, MA, March 20, 2008
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89. Booth, R.G. US 9,024,071 B2. Therapeutic Compounds 2. Granted May 5, 2015.
90. Booth R.G. US 9,422,229 B2. Therapeutic Compounds 3. Granted August 23, 2016
91. Booth, R.G. US 9,862,674 B2. Therapeutic Compounds and Methods of Use. Granted January 9, 2018.
92. Booth, R.G. US 10,548,856 B2. Compounds and methods for modulating serotonin receptors in the periphery. Granted February 4, 2020
93. Booth, R.G. US 10,017,458 B2. Therapeutic Tetrahydronaphthalene Compounds. Granted July 10, 2018

94. Booth, RG. US 10,548,856 B2. Compounds and Methods of Modulating Serotonin Receptors. Granted February 4, 2020
95. Booth, RG US 11,021,435B2. Serotonin Receptor-Targeting Compounds and Methods. Granted June 1, 2021.