

Curriculum Vitae

Rajendra Badgaiyan, MD

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Most Recent Revision: February 2015

Professor (Tenured)

Department of Psychiatry

University of Minnesota, Minneapolis, MN

Director

Radiochemistry Facility

University of Minnesota, Minneapolis, MN

Director

Laboratory of Molecular and Functional Imaging

University of Minnesota, Minneapolis, MN

MnDrive Neuromodulation Scholar

University of Minnesota, Minneapolis, MN

Citizenship: USA

Country of Birth: India

Education

DEGREE	UNIVERSITY	YEAR	FIELD
MBBS	Bhopal University India	1979	Medicine and Surgery
MD	Bhopal University India	1982	Physiology
MA	Bhopal University India	1984	Psychology
MMSc	Harvard University, USA	2008	Clinical and Translational Research

Residency Training

1999-2003 Residency Training in Psychiatry, Harvard Medical School, Boston, MA

Postdoctoral Training

YEAR	SUBJECT AREA	UNIVERSITY	MENTOR
1995-1996	Cognitive Neuroscience Neuroimaging	University of Oregon	Michael Posner
1997-1998	Neuroimaging	University of Pittsburgh (Western Psychiatric Institute and Clinic)	B.J. Casey
1999-2003	Neuroimaging	Harvard University	Daniel Schacter
2004-2005	Molecular Imaging	Harvard Medical School (Massachusetts General Hospital)	Nathaniel Alpert Alan Fischman
2006-2008	Clinical and Translational Research	Harvard University-MIT	Robert H Rubin

Board Certification

Diplomat, American Board of Psychiatry and Neurology (Certificate # 67408)

Diplomat, American Board of Addiction Medicine (Certificate # 20120320)

Medical Licensure

New York (Full license) # 255496

Massachusetts (Full license) # 220501

India (Full license): # 2292 (Mahakoshal Medical Council)

Controlled Substance Related Training and Authorization

DEA number: FB1211781

DEA number to prescribe buprenorphine: XB1211781

Training on Buprenorphine and Office-Based Treatment of Opioid Dependence,
American Society of Addiction Medicine, February 29, 2009

Substance Abuse and Mental Health Services Administration Waiver to prescribe
controlled substance, 2009

NPI Number: 1316190689

Radioactive Substance License: Licensed to use, store, and synthesize radioisotopes for University of Minnesota, Minneapolis.

Primary Academic Appointments (USA)

2014-Present	Professor (Tenured) of Psychiatry	University of Minnesota Minneapolis, MN
2010-2014	Associate Professor of Psychiatry	State University of New York Buffalo, NY
2009-2010	Assistant Professor of Psychiatry	State University of New York Buffalo, NY
2002-2011	Assistant Professor of Radiology	Harvard Medical School Boston, MA
2001-2002	Instructor in Radiology	Harvard Medical School Boston, MA
1999-2003	Clinical Fellow in Psychiatry	Harvard Medical School Boston, MA

Primary Academic Appointments (India)

1992-1996	Reader (Associate Professor) in Physiology Banaras Hindu University, India
1986-1992	Lecturer (Assistant Professor) in Physiology Banaras Hindu University, India
1984-1986	Lecturer (Assistant Professor) in Physiology, Medical College, Rohtak, India
1979-1983	Demonstrator (Instructor) in Physiology, Gandhi Medical College, Bhopal, India

Other Academic Appointments

2014-Present	MN Drive Neuromodulation Scholar, University of Minnesota, Minneapolis, MN
2012-Present	Affiliated Research Scientist, Research Institute on Addiction, State University of New York at Buffalo, NY
2006-2008	Fellow, Massachusetts Institute of Technology, Cambridge, MA
2006-2008	Harvard-MIT Clinical Investigator Fellow
2005-2009	Fellow, Shriners's Hospital, Boston, MA

2005- 2009:	Associate Neuroscientist, Massachusetts General Hospital, Boston
2001- 2004	Assistant Neuroscientist, Massachusetts General Hospital, Boston.
1999-2001	Research Associate, Department of Psychology, Harvard University
1997-1998	Postdoctoral fellow, at University of Pittsburgh and Harvard University (please see training section)
1996-1996	Lecturer in Neuroscience, University of Texas at San Antonio
1995-1996	Research Associate in Cognitive Sciences, University of Oregon
1992-1996	Reader (Associate Professor) in Physiology Banaras Hindu University, India
1986-1992	Lecturer (Assistant Professor) in Physiology Banaras Hindu University, India

Clinical and Administrative Appointments

2014-Present	Director, Radiochemistry Facility, University of Minnesota, Minneapolis, MN
2014-Present	Director, Molecular Imaging Laboratory, University of Minnesota, Minneapolis, MN
2014-Present	Consulting Psychiatrist, Mental Health Services, The Dale Association, Lockport, NY
2014-Present	Faculty Psychiatrist, University of Minnesota Physicians
2012-2013	Medical Director, Outpatient Chemical Dependency Services, Erie County Medical Center, Buffalo, NY
2012-2014	Member, Core committee of the Geriatric Psychiatry Fellowship Program, University at Buffalo
2011	Physician-in-Charge, Buprenorphine Clinic, VA Western New York Healthcare System, Buffalo, NY
2011-2013	Psychiatrist, Outpatient Chemical Dependency Services, Erie County Medical Center, Buffalo, NY
2010-2013	Staff Psychiatrist, VA Western New York Healthcare System, Buffalo, NY
2010-2011	Psychiatrist, Inpatient Chemical Dependency Services, Erie County Medical Center, Buffalo, NY
2010-2014	Psychiatrist, Center for Advanced Psychiatry, University at Buffalo, NY
2010	Psychiatrist, Comprehensive Psychiatric Emergency Program (CPEP), Erie County Medical Center, Buffalo, NY
2009-2014	Director, Neuroimaging and Molecular Imaging Laboratory, University at Buffalo

2009-2014	Convener, Buffalo Imaging Group, University at Buffalo
2008-2009	Medical Director, Addiction Clinic, Norton Health Care, MA
2004-2009	Director, Molecular Imaging Laboratory, Massachusetts General Hospital, Boston
1992-1995	Chairman, Curriculum and Syllabus Committee, Institute of Medical Sciences, Banaras Hindu University, India
1993-1995	Director, Research and Development, Institute of Medical Sciences, Banaras Hindu University, India
1992-1994	President, Medical Teachers Association, Banaras Hindu University, India
1991-1992	General Secretary, Medical Teachers Association, Banaras Hindu University, India
1988-1994	Administrative and Chief Warden Medical Hostels, Banaras Hindu University, India
1986-1995	Director, Behavior Research Laboratory, Banaras Hindu University, India
1979-1984	Director, Neurophysiology Laboratory, Gandhi Medical College, Bhopal, India
1976-1980	Director Leprosy Clinic, Bhopal. India

Research Funding

Current Grant Support

R01NS073884 (PI: Badgaiyan)	09/30/2012-06/30/2017
NINDS	\$2,880,257
Dopamine neurotransmission in Tourette Syndrome	
In this study we propose to examine a hypothesis concerning phasic and tonic release of dopamine in patients with Tourette syndrome.	
Role: PI	
CX000479 (PI: Badgaiyan)	TBD (4 years)
VA Merit Review	\$645,559+Salary+Indirect
Dopamine neurotransmission in addiction	
The goal of this study is to examine novel a hypothesis concerning dopaminergic processing of addictive behavior.	
Role: PI	
CX000780 (PI: Badgaiyan)	TBD (4 years)
VA Merit Review	\$649,995+Salary+Indirect
Dopamine neurotransmission can predict pre-deployment susceptibility to PTSD	
The goal of this study is to develop a molecular imaging method to predict the possibility of development of PTSD on exposure to traumatic events.	
Role: PI	

Patrick Lee Foundation (Co-PI: Badgaiyan) 11/01/2013-10/31/2017
Translation research in schizophrenia \$600,000 (Direct)
This study will use neuroimaging and stem cell techniques to examine novel hypotheses concerning involvement of nicotinic and dopaminergic receptors in development of schizophrenic symptoms.
Role: Co-PI

R21MH079435 (PI: Badgaiyan) 09/05/08 – 11/30/2012
NIH/NIMH \$510,750
Dopamine neurotransmission in ADHD
The major goal of this study is to define dysregulated dopamine neurotransmission in ADHD. The study uses a newly developed dynamic molecular imaging technology for detection of striatal phasic release during performance of tasks that require response inhibition.
Role: PI

R21 MH098670-01(PI: Black) 12/01/2012-10/31/2014
NIMH \$275,000+Indirect
Testing the phasic dopamine release hypothesis in Tourette's Syndrome
The study examines the phasic release hypothesis in Tourette syndrome using the molecular imaging technique I developed.
Role: Consultant

HEAL10/17 (PI: Cain) 1/1/2010-12/31/2013
NYS \$18,500,000
These projects are intended to study patient health complexity and co-morbidity across several dimensions of chronic medical conditions: chronic kidney disease, diabetes, congestive heart failure, anxiety, depression, and chemical dependency.
Role: Mental Health Expert

Shriners Hospital (Co-PIs: Badgaiyan; Fischman) 01/01/09-12/31/13
Research Funding \$733,625+Indirect
This study examines dopamine neurotransmission during emotional processing in healthy volunteers and PTSD patients using a dynamic molecular imaging technique.
Role: Co-PI

Completed Research Support

R21MH73624-01 (PI: Badgaiyan) 4/1/05-3/31/08
NIH \$464,750
This research examined dopaminergic involvement in human cognitive processing.
Role: PI

Brain and Immuno-Imaging grant (Badgaiyan) 1/1/06-12/31/08
Dana Foundation \$100,000+Indirect
In this study the possibility of using a molecular imaging technique to understand dopaminergic processing of human memory was examined.
Role: PI

Shriners Hospital (PI: Badgaiyan) For Children	01/01/05-12/31/08 \$450,000+Indirect
This study examines the possibility of using dynamic molecular imaging technique to study pathophysiology of psychiatric conditions. Role: Co-PI	
American Heart Association (PI: Vidal Melo, MGH) AHA	04/01/2006-03/31/2009 \$100,000+Indirect
Study of cognitive deficit in postsurgical CABG patients Role: Co-I	
DuPont-Warren Foundation (PI: Badgaiyan) Harvard Medical School	01/01/02-12/31/03 \$45,000
The study examines the cortical mechanisms of implicit and explicit memory in psychiatric conditions. Role: PI	
Livingstone foundation (PI: Badgaiyan) Harvard Medical School	01/01/02-12/31/03 \$10,000
The study examines implicit and explicit memory in healthy volunteers Role: PI	
MacArthur Foundation (PI: Casey) University of Pittsburgh	01/01/97-2/28/98 \$35,000+Indirect
The study examines the cortical mechanisms of implicit and explicit memory Role: Fellow	
McDonnell and Pew Memorial Trust fellowship University of Oregon (PI: Posner)	06/01/95-9/30/97 \$24,000
The study examines the cortical mechanisms of implicit and explicit memory Role: Fellow	

Prizes and Awards

1991	B.K. Anand National Research Prize for most outstanding research in physiology and allied sciences, 1991
2002	Solomon Award of Harvard Medical School for being the best young researcher in psychiatry
2002	Dupont Warren Fellowship. Awarded to the best resident researcher at Harvard Medical School.
2002	Livingston Award. Awarded to the best research project of residents at Harvard Medical School. The award includes research funding.
2004	Best Paper Award, Massachusetts General Hospital Research Day
2004	Selected as one of the Best Young Investigators in the Annual Meeting of Society of Nuclear Medicine

Other Honors

- 2015 Founding Editor-in-Chief of the Journal of Neuroimaging in Psychiatry and Neurology
- 2015 Founding co- Editor-in-Chief of the Journal of Reward Deficiency Syndrome
- 2015 Program Committee, Third Annual International Conference on Neuroscience and Neurobiology Research (CNN), Bangkok, Thailand, October 26-27, 2015
- 2015 Organizing Committee, Neurological Disorder Summit, San Francisco, July 6-8, 2015.
- 2014 Invited to deliver Psychiatry Grand Rounds at Virginia Commonwealth University, Richmond VA, May 13, 2014.
- 2014 Invited to deliver Psychiatry Grand Rounds at Thomas Jefferson University, Philadelphia, May 7, 2014.
- 2014 Invited speaker, International Conference on Neural Networks, Gdansk, Poland, May 15-17, 2014
- 2014 Selected member of the steering committee of International Eye Scientific Committee
- 2014 Special Guest Lecture, Indo-Global Healthcare Summit and Expo 2014, Hyderabad, June 20-22, 2014.
- 2014 Co-Chairman, Organizing Committee, Third International Conference on Addiction Research & Therapy, Chicago, Aug 4-6, 2014
- 2014 Keynote speaker, International Conference on Recent Advances in Cognition and Health, Varanasi, India, January 23-25, 2014
- 2014 Panelist, PATH Conference on Finding Adequate Reward: Dopamine and Brain Health. New York, March 21, 2014
- 2013 Member, Organizing Committee, 3rd World Congress on Cell Science & Stem Cell Research, Baltimore, November 20-22, 2013.
- 2013 Organize and Chair an International Symposium on Molecular Imaging of Dopamine in the Annual Meeting on Dopamine Neurotransmission (Dopamine 2013), Alghero, Italy May 2013
- 2013 Plenary Speaker, 2nd International Conference on Addiction and Therapy, Las Vegas, July 22-24, 2013
- 2013 Member, Program Committee, Annual International Conference on Neuroscience and Neurobiology Research, Singapore, November 14-16, 2013.

- 2013 Invited to Chair a session in 11th Annual Congress of International Drug Discovery Science & Technology, Therapy, Haikou, China, November 13-16, 2013
- 2013 Invited to deliver Psychiatry Grand Rounds in University of Florida, Gainesville, FL, March 1, 2013.
- 2013 Editor, Journal of Addiction and Prevention
- 2012 Editor-in-Chief of the journal 'Neuroscience Research Letters'
- 2012 Chief Editor of the journal 'British Journal of Education, Society & Behavioural Science'
- 2012 Executive Editor of the 'Journal of Alcoholism and Drug Dependence'
- 2012 Guest Editor of a special Issue on Dopamine Neurotransmission for 'Open Journal of Neuroscience'
- 2011 Editor of the 'Open Journal of Philosophy'
- 2011 Keynote Presentation in the Conference on 'Medicine and Beyond' at the University of Connecticut Medical Center, Farmington, CT
- 2011 Guest Editor of a special issue on Neurotransmitter Imaging for 'Current Medical Imaging and Review'
- 2010 Selected to represent University at Buffalo in the SUNY Symposium on Neurodegenerative Diseases and Stem Cell Therapeutics, organized by the State University of New York at Stony Brook on March 6, 2010.
- 2009 Editor of 'PhilPapers: Conscious and Unconscious Memory'
- 2009 Keynote address in the 4th International Symposium on Cognition, Stress and Mental Health held on December 14-16, 2009 in Varanasi, India
- 2007 Keynote Presentation in the 4th International Symposium on Consciousness organized by Mayo Clinic, Rochester, MN held on October 6, 2007
- 2007 Selected as a Significant Contributor in the Annual Meeting of Society of Nuclear Medicine
- 2006 Selected as Harvard-MIT Clinical Investigator Fellow
- 2006 Selected as a Significant Contributor in the Annual Meeting of Society of Nuclear Medicine
- 2006 Invited to deliver a Special Guest Lecture in the 52nd Annual Conference of the Association of Physiologists and Pharmacologists of India
- 2005 Invited to deliver KN Udupa Memorial Lecture of Banaras Hindu University, India.
- 2005 Selected as a Significant Contributor in the Annual Meeting of Society of Nuclear Medicine

- 2004 Dana Foundation International Fellow. The fellowship along with a research grant is awarded to the most outstanding researcher in selected institutions. I was selected fellow for Harvard University
- 2004 Selected as a Significant Contributor in the Annual Meeting of Society of Nuclear Medicine.
- 2004 Selected as one of the Best Young Investigators in the Annual Meeting of Society of Nuclear Medicine
- 2002 Dupont Warren Fellowship. Awarded to the best resident researcher at Harvard Medical School.
- 2002 Livingston Award. Awarded to the best research project of residents at Harvard Medical School. The award includes research funding.
- 1999 Keynote speech in the Third International Symposium on Cognition, Education and Mental Health, at Banaras Hindu University, Varanasi, India
- 1991 Best Paper Award, Association of Physiologists and Pharmacologists of India, Bangalore, India

Development of a Novel Neuroimaging Technique

I developed a Single Scan Dynamic Molecular Imaging Technique, which allows detection, mapping, and measurement of neurotransmitters released during cognitive and behavioral processing in the live human brain. By allowing study of neurochemical control of human cognitive and behavioral functions, the technique has expanded the scope of neuroimaging research. It has for the first time, made it possible to study acute changes in the brain neurochemistry in live human brain. This technique is now used by a number of investigators to study dopamine released during processing of cognitive tasks. The data acquired using this technique were published in leading journals including the 'Science'. In a special issue on neurotransmitter imaging, published in the Current Medical Imaging and Review (2011), the significance of this technique is discussed in details. It was also discussed in the Annual Meeting on Dopamine Neurotransmission (Dopamine 2013) held in Italy in May 2013.

Invited Presentations (Selected)

International (Selected)

- 2015 *Imaging neurotransmission in the live human brain* (Keynote) Neurological Disorder Summit, San Francisco, July 6-8, 2015.

- 2015 *Real time imaging of dopamine neurotransmission.* Special Invited Lecture, 6th Annual World Congress of Neuro-Talk-2015: Hangzhou, China, May 22-24, 2015
- 2014 *Use of a newly developed dynamic molecular imaging technique in drug development.* Special Invited Lecture, 12th Annual Congress of International Drug Discovery Science and Technology: shaping the bright future of drug development, Suzhou, China, November 18-20, 2014
- 2014 *Dopaminergic neuroimaging across the brain.* 3rd International Conference and Exhibition on Addiction Research and Therapy, Chicago, August 4-6, 2014
- 2014 *Tracking neural network by mapping neurotransmission.* Special Invited Lecture, International Conference on Neural Networks, Gdansk, Poland, May 15-17, 2014
- 2014 *Neurocognition of conscious visual processing and its clinical correlates.* Special Invited Lecture, International Eye Scientific Committee Meeting, June 3-4, 2004
- 2014 *Neuroscience research in developing countries: Challenges and opportunities.* Special Invited Lecture, Indo-Global Summit and Expo 2014, Hyderabad India, June 20-22, 2014.
- 2014 *A novel dynamic molecular imaging technique for early identification of a target compound and its cognitive/behavioral effects in human.* Special Invited Lecture, BIT's 3rd Annual Conference and Expo on Analytix, Dalian, China, April 25-28, 2014.
- 2014 *Emerging molecular imaging technique to study the brain mechanisms of human cognition and behavior.* Special Guest Lecture, Indo-Global Healthcare Summit and Expo 2014, Hyderabad India, June 20-22, 2014.
- 2013 *Single Scan Dynamic Molecular Imaging: An Emerging Neuroimaging Technique.* Conference on Neuroscience and Neurobiology Research, Singapore, November 14-16, 2013.
- 2013 *Use of dynamic molecular imaging in drug development.* 4th Annual Congress of International Medicchem-2013. Hainan, China, November 13-16, 2013

- 2013 *Novel use of stem cell techniques to study pathophysiology of psychiatric conditions.* 3rd World Congress on Cell Science and Stem Cell Research. Baltimore, November 20-22, 2013
- 2013 *Molecular imaging of dopamine neurotransmission during human cognitive processing.* Dopamine 2013. International Symposium on Dopamine (Dopamine 2013), Alghero, Italy, May 24-28, 2013
- 2013 *Dopamine and addiction: A novel perspective and future direction.* Plenary lecture in the 2nd International Conference on Addiction and Therapy, Las Vegas, July 22-24, 2013
- 2012 *Neurotransmitter Imaging in Psychiatry.* Psychiatry Research Seminar, Carver School of Medicine, University of Iowa, Iowa City, December 17, 2012
- 2012 *Dynamic molecular imaging: expanding the scope of neuroimaging.* Special Seminar, School of Medicine, University of West Virginia, Morgantown, WV November 12, 2012
- 2012 *Detection of Dopamine Released in the Human Brain During Cognitive Processing.* 3rd Annual World Congress of NeuroTalk, Beijing; May 18-20, 2012.
- 2011 *Interaction between conscious and nonconscious processes: Evidence from neuroimaging experiments* Special symposium lecture organized by the International Memory Disorders Research Society, at Barcelona, Spain, Sept 13-15, 2011.
- 2011 *Neuroimaging of consciousness.* Keynote lecture in the Conference on Medicine and Beyond, organized by International Society of Health, at University of Connecticut Medical Center, Nov 4-6, 2011
- 2011 *Mapping of dopamine release in executive inhibition.* 17th Annual Meeting of the Organization for Human Brain Mapping, , Quebec City, June 26-30, 2011.
- 2011 *Detection, mapping and measurement of dopamine released in the human brain during behavioral and cognitive processing;* 5th Annual Conference on Molecular Imaging in Drug Discovery and Development, March 7-8, Philadelphia, 2011.
- 2008 *Molecular imaging, response inhibition and ADHD.* Special lecture, Annual Congress of the European Association of Nuclear Medicine, Munich, Oct 11-15, 2008

- 2007 *Mind, Brain and Body: A Neurocognitive Perspective*. Keynote speaker, 4th International symposium on consciousness, Mayo Clinic, Rochester, MN, Oct 6, 2007
- 2006 *Neurobiology of conscious mind: A neurocognitive perspective*. Guest speaker, Pandit Ravishankar University, Raipur India, September 2006.
- 2005 *Neural processing of conscious experience*. KN Udupa Memorial Lecture. Varanasi, India, September 23-25, 2005.
- 2005 *Neurobiology of consciousness*. International Conference on Consciousness. University of Connecticut Medical Center. Farmington, CT, Nov 4-6, 2005.
- 2004 *Detection of striatal dopamine released during an explicit motor memory task*. Neurosciences young investigator award symposium, Society of Nuclear Medicine, June 19-23, 2004.
- 2003 *The Nonconscious Mind: Neuroanatomy and Clinical Correlates*. Special guest lecture, All India Institute of Medical Sciences, New Delhi, October 2003.
- 2002 *Hippocampal activation during priming of new associations (2002)*. Oral presentation in the Annual meeting of the Society for Neuroscience. Orlando
- 1999 *Cortical correlates of memory and conscious awareness*, Keynote address: Third International Symposium on Cognition, Education and Mental Health, Banaras Hindu University, Varanasi, India. Dec 16-19, 1999.
- 1993 *Ionic regulation of motivational behavior*. Gauss Symposium lecture, Munich, 1993.
- 1990 *Enhanced drinking following ICV infusions of choline chloride*. Special invited symposium lecture: Second Congress of Asian and Oceanian Physiological Societies, New Delhi, 1990
- 1989 *Anionic influences on feeding and dipsogenic responses*. Invited lecture, King's College, London, 1989

National, Regional and Local (Selected)

- 2015 *Prediction of susceptibility to PTSD*. Special invited talk, VA Minneapolis, January 26, 2015
- 2015 *A novel approach to study human cognitive processing: Detection of*

- neurochemical changes in real time.* Psychology Colloquium. Department of Psychology, University of Minnesota, Minneapolis, January 27, 2015.
- 2014 *Detection neurochemical changes in the human brain in real time: Opportunities and Challenges.* Graduate Seminar, Department of Biomedical Sciences, University of Minnesota, Minneapolis, November 17, 2014.
- 2014 *Detection of dopamine release in real time: A new tool for understanding disorders of dopamine neurotransmission.* Distinguished Lecture Series, VA Medical Center Long Beach, California, November 5, 2014.
- 2014 *Detection of dopamine release in real time: A new tool for understanding disorders of dopamine neurotransmission.* Grand Rounds, Department of Psychiatry, University of California Irvine, November 4, 2014.
- 2014 *Detection and mapping of dopamine neurotransmission in the live human brain and its application in psychiatric research.* Department of Psychiatry, University of California, San Francisco, CA. September 24, 2014.
- 2014 *Current practice guidelines for diagnosis and treatment of psychiatric conditions.* CME activity organized by Madhya Pradesh Medical Alumni Association of North America on board Royal Caribbean ship. August 9-10, 2014
- 2014 *Dynamic imaging of dopamine neurotransmission in real time.* Institute of Living, Hartford, CT. May 19, 2014
- 2014 *Imaging dopamine neurotransmission in real time: A novel approach to study neuropathology and addiction and other psychiatric conditions.* Virginia Commonwealth University, Richmond, VA. May 13, 2014
- 2014 *Dynamic molecular imaging: An emerging technique to study human brain and behavior.* Thomas Jefferson University, Philadelphia, May 7, 2014
- 2014 Panelist, PATH Conference on Finding Adequate Reward: Dopamine and Brain Health. New York, March 21, 2014
- 2014 *Detection of dopamine in real time and its application in psychiatric research.* University of Cincinnati College of Medicine, February 26, 2014
- 2013 *Imaging dopamine neurotransmission in live human brain.* Southern Illinois University, School of Medicine, September 9, 2013

- 2013 *Dynamic imaging of neurotransmission in live human brain.* Virginia Tech Carilion Research Institute, Roanoke VA, August 20, 2013
- 2013 *Dynamic molecular imaging: An emerging technique for early detection of neuropsychiatric diseases.* University of Minnesota, Minneapolis, August 15, 2013
- 2013 *Detection of dopamine release during cognitive processing in real time.* Department of Radiology, New York University Medical School, July 16, 2013
- 2013 *A novel PET technique to detect dopamine release in the human brain in real time.* Special lecture, University of Colorado Medical Center Denver, July 10, 2013
- 2013 *Detection of dopamine release in real time: A novel technique to study human brain and behavior.* Department of Psychiatry, Mayo Clinic, Rochester, MN, June 17, 2013
- 2013 *Functional imaging of dopamine neurotransmission in real time.* Psychiatry Grand Rounds, Virginia Tech School of Medicine, Roanoke, VA, June 14, 2013
- 2013 *Dopamine Neurotransmission and Psychopathology.* Psychiatry Grand Rounds, School of Medicine, Stony Brook University, Stony Brook, NY May 9, 2013
- 2013 *Detection of dopamine release in real time: Unraveling secrets of psychopathology.* Psychiatry Grand Rounds, School of Medicine, University of Florida and McKnight Brain Institute, Gainesville, FL, March 1, 2013
- 2012 *Dynamic molecular imaging: A novel technique for detection of task-induced release of dopamine in the human brain.* Psychiatry Research Seminar, University of Iowa, School of Medicine, Iowa City, December 17, 2012
- 2012 *Dynamic molecular imaging: Expanding the scope of neuroimaging.* West Virginia University School of Medicine, Morgantown, WV, November 12, 2012
- 2010 *Neurobiology and clinical correlates of nonconscious mind.* Cognitive Neuroscience Colloquium, University at Buffalo, September 30, 2010.
- 2010 *Neurotransmitter imaging: A novel technique to study the brain and behavior.* SUNY Symposium on Neurodegenerative Diseases and Stem Cell Therapeutics, Stony Brook, March 6, 2010.

- 2010 *Advances in dopamine imaging*. Invited speaker, 28th Annual Meeting of the Eastern Great Lakes Chapter of the Society of Nuclear Medicine, Niagara Falls, March 25-26, 2010.
- 2009 *Dynamic neurotransmitter imaging: An emerging neuroimaging technique*, University of Wisconsin, Madison, May 5-6, 2009.
- 2009 *Dynamic neurotransmitter imaging*. Department of Psychiatry, Brigham and Women's Hospital, Boston, March 13, 2009.
- 2009 *Dynamic neurotransmitter imaging: Is it the Future of Psychiatric Research*. Special guest lecture, New York State Psychiatric Institute. Columbia University, March 19, 2009.
- 2002 *Cognition without awareness: A neuroimaging study*. Solomon awardee presentation. Harvard Medical School, April 1, 2002.
- 1999 *Memory: current concepts and recent neuroimaging data*. Harvard Psychiatry Day Harvard Medical School, 1999.
- 1999 *PET study of auditory priming*. Department of Psychology, Harvard University, Cambridge, 1999.
- 1998 *Cognitive influences of implicit memory: Cortical Mechanisms of Implicit and Explicit Recall*. Western Psychiatric Institute and Clinic, Pittsburgh, 1998
- 1992 *Anionic control of behavior*. Special Guest Lecture. Second Annual Conference of the Association of Biomedical Scientists, Chennai India, 1992.
- 1991 *Central regulation of motivational behavior*. University of Iowa, 1991

Grand Rounds

- 2014 *Detection of dopamine release in real time: A new tool for understanding disorders of dopamine neurotransmission*. Grand Rounds, Department of Psychiatry, University of California Irvine, November 4, 2014.
- 2014 *Imaging dopamine neurotransmission in real time: A novel approach to study neuropathology and addiction and other psychiatric conditions*. Psychiatry Grand Rounds, Virginia Commonwealth University, Richmond, VA. May 13, 2014
- 2014 *Dynamic molecular imaging: An emerging technique to study human brain and behavior*. Psychiatry Grand Rounds, Thomas Jefferson University, Philadelphia, May 7, 2014

- 2014 *Neurotransmitter imaging: A novel approach to study neuropathology in psychiatric conditions.* Psychiatry Grand Rounds, Henry Ford Hospital and Wayne State University School of Medicine, Detroit, April 3, 2014
- 2014 *A novel imaging techniques to study dopaminergic influences on human addiction.* Psychiatry Grand Rounds, Rosalind Franklin University and Captain James A. Lovell Federal Health Care Center, Chicago, March 6, 2014
- 2014 *Detection of dopamine in real time and its application in psychiatric research.* Psychiatry Grand Rounds, University of Cincinnati College of Medicine, Cincinnati OH, February 26, 2014
- 2013 *Functional imaging of dopamine neurotransmission in real time.* Psychiatry Grand Rounds, Virginia Tech Carilion School of Medicine, Roanoke, VA, June 14, 2013
- 2013 *Detection of dopamine release in real time: Unraveling secrets of psychopathology.* Psychiatry Grand Rounds, School of Medicine, University of Florida and McKnight Brain Institute, Gainesville, FL, March 1, 2013
- 2013 *Imaging dopamine neurotransmission in live human brain.* Psychiatry Grand Rounds, Southern Illinois University, School of Medicine, Springfield IL September 9, 2013
- 2012 *Dynamic molecular imaging: Expanding the scope of neuroimaging.* Psychiatry Grand Rounds, West Virginia University, School of Medicine, Morgantown, WV, November 12, 2012
- 2010 *Dynamic neurotransmitter imaging: A novel tool to study psychiatric conditions.* Psychiatry Grand rounds, Buffalo Psychiatric Center, March 2010
- 2010 *Dynamic neurotransmitter imaging: An Emerging Neuroimaging Technique.* Neurology Grand Rounds, Buffalo General Hospital, Buffalo, NY, January 2010.
- 2009 *Dynamic neurotransmitter imaging: An Emerging Neuroimaging Technique.* Grand Rounds in Nuclear Medicine, State University of New York at Buffalo, July, 2009
- 2009 *Neurotransmitter imaging: A novel technique to study psychiatric conditions.* Psychiatry Grand Rounds, University of Massachusetts Medical center, Worcester, MA, April 8, 2009.

- 2006 *Nonconscious processing in health and disease: Neuroanatomy and Clinical Correlates.* Special Guest Lecture, Indian Medical Association, Raipur India, September 2006.
- 2003 *Demonstration of striatal dopamine release during cognitive activation.* Nuclear Medicine Grand Rounds, Massachusetts General Hospital, Boston, February 2003.
- 2003 *Neuroanatomy of conscious and non conscious mind: Cortical processing and clinical implications.* Psychiatry Grand Rounds, VA Boston Healthcare System and Harvard Medical School, 2003
- 2002 *Cross-talk between conscious and nonconscious mind: Cortical mechanisms and clinical implications.* Psychiatry Grand Rounds, Medical College of Ohio, Toledo OH, February 21, 2002.
- 2000 *Implicit and explicit memory.* Psychiatry Grand Rounds, Harvard Medical School, 2000.

Service to the Profession

Editor-in-Chief/Chief Editor/Executive Editor of Scientific Journals

- 2015-Present Founding Editor-in-Chief, Journal of Neuroimaging in Psychiatry and Neurology (To be launched in August 2015)
- 2015-Present Founding Co-Editor-in-Chief, Journal of Reward Deficiency Syndrome
- 2014-Present Journal Editor, Addiction Genetics
- 2013-Present Executive Editor, JBR Journal of Clinical Diagnosis and Research
- 2013-2015 Co Editor-in-Chief, Journal of Addiction Research and Therapy
- 2012-Present Editor-in-Chief, Neuroscience Research Letters
- 2012-Present Chief Editor, British Journal of Education, Society & Behavioural Science
- 2012-2015 Executive Editor, Journal of Alcoholism and Drug Addiction

Editor/Guest Editor/Associate Editor of Scientific Journals

- 2014-Present Editor, Cellular and Molecular Biology
- 2014-Present Editor, Journal of Clinical Studies and Medical Case Reports
- 2013-2014 Editor, Journal of Addiction and Prevention
- 2011 Guest Editor, Special Issue of the Current Medical Imaging and Review
- 2011-Present Editor of the Open Journal of Philosophy

2009-Present	Editor of PhilPapers (Conscious and Unconscious Memory Section)
2011-Present	Associate Editor, American Journal of Neuroprotection and Neuroregeneration

Member, Editorial Board

2015-Present	International Journal of Neurology and Neurotherapy
2015-Present	MOJ Addiction Medicine and Therapy.
2014-Present	International Journal of Neurology Research
2014-Present	Jacobs Journal of Psychiatry and Behavioral Science
2014-Present	Journal of Global Research in Education and Social Sciences
2014-Present	International Journal of Neurology Research
2014-Present	Austin Journal of Psychiatry and Behavioral Sciences
2014-Present	International Journal of Neural Science and Brain research
2014-Present	Journal of ADHD and Care
2014-Present	Journal of Molecular Biology and Molecular Imaging
2014-Present	Journal of Addiction and Prevention
2014-Present	Neurotransmitter
2014-Present	Austin Journal of Cardiovascular Disease and Stroke
2014-Present	Scholarema Journal of Neurology
2014-Present	Journal of Neurology and Psychology
2014-Present	Austin Journal of Drug Abuse and Addiction
2014-Present	Austin Journal of Radiology
2014-Present	International Journal of Education
2014-Present	International Journal of Biomedical Science and Bioinformatics
2013-Present	World Journal of Radiology
2013-Present	Annals of Psychiatry and Mental Health
2013-Present	Bioinfo Journals
2013-Present	Journal of Clinical Diagnosis and Research
2013-Present	Journal of Neurology and Translational Neuroscience
2013-Present	Progress in Psychology
2013-Present	Research in Psychology and behavioral Sciences
2012-Present	World Journal of Clinical Cases
2012-Present	World Journal of Clinical Conference

2012-Present	Open Journal of Clinical Diagnostics
2012-Present	World Medical Imaging Research
2012-Present	World Medical Laboratory Research
2012-Present	Psychology
2012-Present	Medical Engineering in Clinic
2012-Present	Open Access Journal of Science and Technology
2011-Present	Open Journal of Neuroscience
2010-Present	The Open Nuclear Medicine Journal
2010-2011	International Journal of Neuroprotection and Neuroregeneration
2004-Present	Elements
2000-2005	Human Brain Mapping

Ad Hoc Reviewer (Selected Journals)

Annals of Psychiatry and Mental Health
Applied Mathematics and Sciences
Archives of General Psychiatry
Behavioral and Brain Sciences
Biological Psychiatry
Brain Research
Brain Research Interactive
British Journal of Education, Society & Behavioural Science
Cerebral Cortex
Cognitive Brain Research
Consciousness and Cognition
Current Medical Imaging and Review
Elements
European Journal of Neuroscience
Experimental Brain Research
Frontiers in Human Neuroscience
Human Brain Mapping
Indian Journal of Physiology and Pharmacology
International Journal of Hyperthermia
International Journal of Neuroprotection and Neuroregeneration

International Neuropsychiatric Disease Journal
Jacobs Journal of Psychiatry and Behavioral Science
Journal of Addiction and Preventive Medicine
Journal of Addiction Research and Therapy
Journal of Alcoholism and Drug Addiction
Journal of American Medical Association (JAMA) Psychiatry
Journal of Clinical Psychiatry
Journal of Cognitive Neuroscience
Journal of European Psychology Students
Journal of Neurology and Psychology
Journal of Pharmacology and Clinical Toxicology
Journal of Psychiatry and Behavioral Sciences
Journal of Reward Deficiency Syndrome
Medical Hypotheses
Menopause
Neural Regeneration Research
Neurobiology Review
NeuroImage
Neurology and Psychology
Neuropsychologia
Neuropsychopharmacology
NeuroReport
Neuroscience & Biobehavioral Reviews
Open Access Journal of Science and Technology
Open Journal of Nuclear Medicine
Open Nuclear Medicine Journal
Open Journal of Philosophy
Open Journal of Psychiatry
PLOS One
Proceedings of the National Academy of Sciences, USA
Proceedings of the Royal Society, London: Biological Sciences
Progress in Psychology

Psychiatry Research
Psychological Medicine
Psychonomic Bulletin & Review
Research in Psychology and behavioral Sciences
ScienceDomain International
Schizophrenia Research
World Journal of Radiology

Member of the Study Sections and Grant Reviewer

2015	MN Drive Fellowship applications, University of Minnesota
2015	Italian Ministry of Science reviewer for the grant applications
2014	Italian Ministry of Science reviewer for the grant applications
2014	SUNY Stony Brook, Collaboration Pilot Grants Program
2013	Italian Ministry of Science reviewer for the grant applications
2012	The Netherlands Organization for Scientific Research, reviewer for the grant applications
2012	Italian Ministry of Science reviewer for the grant applications
2012	Wellcome Trust, UK, reviewer for the grant applications
2011	Italian Ministry of Science reviewer for the grant applications.
2011	The Netherlands Organization for Scientific Research, reviewer for the grant applications
2011	German Research Foundation (Deutsche Forschungsgemeinschaft), reviewer for the grant applications
2011	Research Day, VA Western New York Healthcare System, Buffalo, NY, evaluated prize winning presentations
2011	Member Scientific Review Committee, VA Western New York Healthcare System, Buffalo, NY to evaluate grant applications
2010	Italian Ministry of Science reviewer for the grant applications
2009	Italian Ministry of Science reviewer for the grant applications
2008	MGH Research Day Submission, evaluated presentations for awarding prizes

- 2006 Wellcome Trust, UK, reviewer for the grant applications
- 2005 National Institutes of Health, Member of the Special Emphasis Panel/Scientific Review Group 2005/05 ZMH1 ERB-A assembled by the NIMH to review applications for Conte Center in Cognitive Neuroscience
- 2005 National Science Foundation, Cognitive neuroscience initiative. Member of the Review Panel
- 2001 Israel Science Foundation, reviewer for the grant applications
- 2000 European Science Foundation, reviewer for the grant applications
- 1998 Jewish Hospital Foundation, reviewer for the grant application

Leadership in Scientific Societies and Meetings

- 2015 Program Committee, Third Annual International Conference on Neuroscience and Neurobiology Research (CNN), Bangkok, Thailand, October 26-27, 2015
- 2015 Member, Scientific Advisory Committee, Neurological Disorder Summit, San Francisco, July 6-8, 2015.
- 2015 Keynote Speaker, Neurological Disorder Summit, San Francisco, July 6-8, 2015.
- 2015 Chair, Session on Brain Imaging Technologies. 6th Annual World Conference of NeuroTalk-2015. Hangzhou, China, May 22-24, 2015.
- 2014 Member, Organizing Committee, Global Summit on Steroids: Discovering the New Prospective and Recent Research in Steroids. Boston, MA. July 13-15, 2015.
- 2014 Director, Continuing Medical Education, Madhya Pradesh Medical Alumni Association of North America. August 9-10, 2014.
- 2014 Member, Program Committee, 2nd Annual International Conference on Neuroscience and Neurobiology Research, (CNN 2014) Singapore, October 27-28, 2014.
- 2014 Member, Scientific Advisory Board, PATH foundation, New York
- 2014 Member, Organizing Committee, 2nd Annual International Conference on Neuroscience and Neurobiology Research (CNN14), Singapore, October 27-28, 2014.

- 2014 Chairman of Organizing Committee, Third International Conference and Exhibition on Addiction Research and Therapy. Chicago, August 4-6, 2014
- 2014 Member, Program Committee of biomedical conferences organized by AIRCC corporation
- 2014 Member, Doctors of Excellence
- 2014 Member, Organizing Committee, 2nd Annual International Conference on Neuroscience and Neurobiology Research (CNN14), Singapore, October 27-28, 2014.
- 2013 Chairman of the Scientific session and Evaluator for the best paper and best student prizes, Annual International Conference on Neuroscience and Neurobiology Research (CNN13), Singapore, November 14, 2013.
- 2013 Member, Organizing Committee, 4th International Congress on Medichem-2013. Hainan, China, November 13-16.
- 2013 Chairman and organizer, International Symposium on Molecular imaging of dopamine neurotransmission during human cognitive processing. In Dopamine 13, Alghero, Italy, May 24-28, 2013.
- 2013 Member, Program Committee, First Annual International Conference on Neuroscience and Neurobiology Research (CNN 2013), Singapore, November 14-16, 2013.
- 2012 Special Guest Lecture, International conference on integrated psychiatry and clinical psychology, Agra India, Dec 3-4, 2012
- 2012 Member, Technical Program Committee, International Congress of Interdisciplinary Business and Social Sciences, Jakarta, Indonesia, December 1-2, 2012
- 2012 Invited Speaker, International Conference on Central Nervous System - Drug Effects & Novel Drug Development, Philadelphia, September 5-7, 2012
- 2012 Chairman session on cognitive neuroscience in 3rd Annual Conference of NeuroTalk, Beijing, China, May 2012
- 2011 Chairman session on consciousness: Conference on Medicine and Beyond, University of Connecticut, Farmington, CT, Nov 4-6, 2011
- 2011 Chairman, Scientific Committee, Conference on Medicine and Beyond, University of Connecticut, Farmington, CT, Nov 4-6, 2011

- 2011 Member, Organizing Committee, Conference on Medicine and Beyond, University of Connecticut, Farmington, CT, Nov 4-6, 2011
- 2009 Chairman, Scientific Committee, Conference on Medicine and Beyond, University of Connecticut, Farmington, CT, Nov 4-6, 2009
- 3009 Member, Organizing Committee, Conference on Medicine and Beyond, University of Connecticut, Farmington, CT, Nov 4-6, 2009
- 2007 Member, Organizing Committee, 4th International symposium on consciousness, Mayo Clinic, Rochester, MN, Oct 6, 2007
- 2007 Chairman, Scientific Committee, 4th International symposium on consciousness, Mayo Clinic, Rochester, MN, Oct 6, 2007
- 2005 Chairman session on diseases of the brain in 2nd International Congress of the chronic diseases and their Management. Banaras Hindu University, India, September 13-15, 2005.
- 1998-Present Member of Board of Advisers of 'Vedanta Today', an international nonprofit organization for promotion of scientific investigation of consciousness.
- 1995-Present Member of Board of advisers of International Society of Ayurveda and Health

Membership in Scientific Societies

- 2004 Society of Nuclear Medicine
- 2001 American Psychiatric Association
- 1997 Society for Neuroscience
- 1997 Organization of Human Brain Mapping
- 1997 New York Academy of Sciences
- 1996 American Association for the Advancement of Science
- 1995 Cognitive Neuroscience Society
- 1989 International Brain Research Organization
- 1989 International Union of Physiological Sciences
- 1979 Association of Physiologists and Pharmacologists of India (Life Member)

Book Proposals Reviewed

- 2010 The Somatotrophic Axis in Brain Function: Recent Knowledge in GH and

- Growth Factors and their Role in the Central Nervous System by Fred Nyberg. Publisher: Elsevier Press.
- 2009 Envy Theory by Frank Ninivaggi. Publisher: Rawmann and Littlefield (My comment on the book cover)
- 2007 Ayurveda, A Comprehensive Guide to Traditional Indian Medicine for the West, by Frank Ninivaggi. Publisher Praeger (My comment on the book cover)
- 2004 Reviewed book proposal on Neurotrauma for Elsevier publication.
- 2001 The cognitive neuroscience of consciousness by S. Dehaene, Publisher: MIT Press.
- 2000 Blood-Spinal Cord and Blood-Brain Barriers in Health and Disease, Ed: HS Sharma. Publisher: Academic Press.

Editorial Commentator

- 2015 Journal of Reward Deficiency Syndrome
- 2012 Consciousness and Cognition
- 2012 Journal of Alcoholism and Drug Addiction
- 2011 Current Medical Imaging and Review
- 2009 Consciousness and Cognition
- 2006 Menopause
- 2000 Human Brain Mapping

University and Medical School Service

- 2015 Member, Human Use Subcommittee, Radioactive Drug Research Committee, University of Minnesota, Minneapolis
- 2015 Chairman, Search Committee, Faculty positions in Radiochemistry, University of Minnesota, Minneapolis, USA.
- 2015-Present Regular Member, MnDrive Fellowship Committee for evaluation of grant applications from graduate students, postdoctoral fellows and Residents/Fellows. University of Minnesota
- 2014 Judge for the Postdoc Research Symposium, University at Buffalo, May 2014

2012-2014	Member of the Executive Committee, Faculty Senate, University at Buffalo
2012-Present	Member of the Institutional Review Board of Western New York VA Healthcare Center, Buffalo, NY
2012-Present	Member of the Faculty Senate, University at Buffalo
2012	Judge for the Postdoc Research Symposium, University at Buffalo, April 2012
2012	Member of the search committee for Professor of Clinical Psychology, Department of Psychology, University at Buffalo
2012-Present	Medical Director of the Outpatient Chemical Dependency Services of Erie County Medical Center
2011-2011	Physician-in-Charge, Buprenorphine clinic, VA Western New York Healthcare System Center, Buffalo, NY
2011	Member of the search committee for Chief of Infectious disease, University at Buffalo
2011	Member of the search committee for Psychiatry faculty member, University at Buffalo
2011	One of the judges to evaluate faculty posters presented on the Research Day at the VA Western New York Healthcare System, Buffalo, NY
2010-2011	Member, Faculty Council of the School of Medicine and Biomedical Sciences, University at Buffalo
2010	Member of the core committee for Translational Research and in-charge of Neuroimaging core, University at Buffalo.
2009-Present	Director of Neuroimaging and Molecular Imaging Laboratory, University at Buffalo
2010-Present	Convener of Buffalo Imaging Group, University at Buffalo
2008-2009	Medical Director of Addiction Clinic, Norton Health Care, MA
2008	One of the judges to evaluate faculty posters presented on the Research Day at Massachusetts General Hospital
2004-2009	Director of Psychiatric Molecular Imaging Laboratory, Massachusetts General Hospital

1992-1995	Chairman of the Curriculum and Syllabus Committee, Institute of Medical Sciences, Banaras Hindu University, India
1993-1995	Director of Research and Development, Institute of Medical Sciences, Banaras Hindu University, India
1992-1994	President of the Medical Teachers Association, Banaras Hindu University, India
1991-1992	General Secretary of the Medical Teachers Association, Banaras Hindu University, India
1988-1994	Administrative and Chief Warden of Medical Hostels at Banaras Hindu University, India
1986-1995	Director of the Behavior Research Laboratory, Banaras Hindu University, India
1980-1983	Director of the Neurophysiology Laboratory, Gandhi Medical College, Bhopal, India

Departmental Service

2015-Present	Member, Psychiatry Research Group, Department of Psychiatry, University of Minnesota, Minneapolis
2012-2014	Chairman, Research, Development and Training Committee, Department of Psychiatry, University at Buffalo, NY
2012-2014	Core faculty for Geriatric Fellowship Program, Department of Psychiatry, University at Buffalo, NY
2011-2014	Member of the Committee for Appointments, Promotions and Tenure, Department of Psychiatry, University at Buffalo, NY

Service to the Public

2009-2012	Member, Board of Trustees of the Hindu Cultural Society of Western New York.
2010	Member, Election Committee of the Hindu Cultural Society
2009-Present	Board of Advisers, Vedanta Today
2005-Present	Board Member International Society of Ayurveda and Health
1976-1980	Director, Leprosy Clinic, Bhopal, India

Teaching and Education

Papers Taught as Essential Reading (Selected)

Badgaiyan RD. *Executive control, willed actions, and nonconscious processing. Hum Brain Mapping. 2000;9:38-41.* This paper is included as essential reading for: Sophomore (Psych 970), 2003, Harvard University, Instructor, Stephen Kosslyn, Professor of Psychology
Graduate Seminar (WS 2006/07) of University of Giessen, Germany

Badgaiyan RD. *Neuroanatomical organization of perceptual memory: an fMRI study of picture priming. Hum Brain Mapping. 2000;10:197-203.* This paper is essential reading in Graduate seminar of Riken Brain Science Institute, University of Tokyo, Japan

Badgaiyan RD, Schacter DL, Alpert NM. *Auditory Priming within and across Modalities: Evidence from Positron Emission Tomography. Journal of Cognitive Neuroscience. 1999;11:337-48.* This paper is one of the essential readings for BA (Linguistic Q1L11) class University of Wales, UK

Badgaiyan RD, Posner MI. *Mapping the cingulate cortex in response selection and monitoring. NeuroImage. 1998;7:255-60.* Essential reading for :
Graduate Course in Cognition at Cornell University
Science Integration Program- Humans, of the University of Tokyo

Badgaiyan RD, Posner MI. *Time course of cortical activations in implicit and explicit recall. J Neurosci. 1997;17:904-13.* The paper is included in syllabus of psychology course (PSY 804) 2002 of Wisconsin University.

Schacter DL, Badgaiyan RD. *Neuroimaging of priming: New perspectives on implicit and explicit memory. Current Directions in Psychological Science. 2001;10:1-4.*
Included in syllabi of:
Psychology 20, University of North Carolina;
Psychology 398, University of Waterloo;
Psychology 511-01 Georgetown University
Memory and Law course HD 319; 2008, Cornell University

Badgaiyan RD, Schacter DL, Alpert NM. *Priming within and across Modalities: Exploring the Nature of rCBF Increases and Decreases. NeuroImage. 2001;13(2):272-82.* Reading list for neuroimaging at Purdue University.

Casey BJ, Thomas KM, Welsh TF, Badgaiyan, RD. *Dissociation of response conflict, attentional selection, and expectancy with functional magnetic resonance imaging. Proc Natl Acad Sci U S A. 2000;97:8728-33.* Included in syllabi of:
Rutgers University: Science and Engineering in Medicine course (14:125:450).
Lakehead University: Correctional and forensic psychology course (Psychology 3811) 2003
George Masson University: Psychology 768

Alpert NM, Badgaiyan RD, Livini E, et al. A novel method for noninvasive detection of neuromodulatory changes in specific neurotransmitter systems. NeuroImage. 2003;19:1049-60. This paper is an essential reading for graduate students of Nuclear Medicine at Yale University, 2011

Badgaiyan, R. D. (2009). *Theory of mind and schizophrenia. Consciousness and Cognition, 18, 320-322.* This is a required reading of the interdisciplinary seminar (Course PSYC2250) on Social Cognitive Science at Brown University; 2010; Instructor Bertram Malle, Professor of Psychology.

Teaching and Mentoring History

1. University at Buffalo: Years taught: 2012-Present
Mentoring medical student (Eunice Yuen)
Preparation and contact time: 3 hrs/week
2. University at Buffalo: Years taught: 2012-Present
Mentoring undergraduate student in Cognitive Psychology (Mohammad Alam)
Preparation and contact time: 2 hrs/week
3. University at Buffalo: Years taught: 2009-Present
Faculty-Student Seminar: Neuroimaging
Description of teaching role: Faculty Moderator/Discussant
Type of students: Faculty Members from various UB Faculties, Post doctoral fellows, Residents, Medical Students
Average number of students each year: 40
Preparation and contact time: 2 hrs/month
4. University of Texas, San Antonio: Years taught: 1996
Name of the course: Neuroanatomy
Description of teaching role: Lecturer
Type of students: Graduate students
Average number of students each year: 30
Preparation and contact time: 15 hrs/week
5. Institute of Medical Sciences, Banaras Hindu University, India: Years taught 1992-1995
Name of the course: Neurophysiology
Description of teaching role: Reader (Associate Professor)
Type of students: Medical students
Average number of students each year: Medical students 50
Preparation and contact time: 25 hrs/week
6. Institute of Medical Sciences, Banaras Hindu University, India: Years taught 1992-1995
Name of the course: Neurophysiology
Description of teaching role: Reader (Associate Professor)

- Type of students: Medical students,
Average number of students each year: Residents 7
Preparation and contact time: 20 hrs/week
7. Institute of Medical Sciences, Banaras Hindu University, India: Years taught 1992-1995
Name of the course: Neurophysiology
Description of teaching role: Reader (Associate Professor)
Type of students: Nursing students
Average number of students each year: 25
Preparation and contact time: 5 hrs/week
8. Institute of Medical Sciences, Banaras Hindu University, India: Years taught 1986-1991
Name of the course: Neurophysiology
Description of teaching role: Lecturer (Assistant Professor)
Type of students: Medical students,
Average number of students each year: Medical students 50
Preparation and contact time: 25 hrs/week
9. Institute of Medical Sciences, Banaras Hindu University, India: Years taught 1986-1991
Name of the course: Neurophysiology
Description of teaching role: Lecturer (Assistant Professor)
Type of students: Nursing students,
Average number of students each year: Medical students 25
Preparation and contact time: 5 hrs/week
10. Institute of Medical Sciences, Banaras Hindu University, India Years taught 1986-1991
Name of the course: Neurophysiology
Description of teaching role: Lecturer (Assistant Professor)
Type of students: Medical students,
Average number of students each year: Residents 7
Preparation and contact time: 20 hrs/week
11. Medical College, Rohtak, India: Years taught 1984-1985
Name of the course: Human Physiology
Description of teaching role: Lecturer (Assistant Professor)
Type of students: Medical students
Average number of students each year: Medical students 100
Amount of preparation and contact time involved: 30 hrs/week
12. Medical College, Rohtak, India: Years taught 1984-1985
Name of the course: Human Physiology
Description of teaching role: Lecturer (Assistant Professor)
Type of students: Residents
Average number of students each year: 5

Amount of preparation and contact time involved: 30 hrs/week

13. Gandhi Medical College, Bhopal, India: Years taught 1979-1983

Name of the course: Human physiology

Description of teaching role: Demonstrator (Instructor)

Type of students: Medical students

Average number of students each year: 140

Amount of preparation and contact time involved: 20 hrs/week

Teaching Presentations, Grand Rounds, and Continuing Medical Education

University of Minnesota, Minneapolis, 2014

Title: Detection of dopamine release in real time: Opportunities and Challenges

Role: Graduate Seminar

Audience: Faculty, physicians, graduate students, undergraduate students

Average number of students and physicians: 100

Amount of preparation and contact time involved: 10 hours

University of California, Irvine, 2014

Title: Detection of dopamine release in real time: A new tool for understanding disorders of dopamine neurotransmission

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees

Average number of students and physicians: 60

Amount of preparation and contact time involved: 10 hours

Madhya Pradesh Medical Alumni Association of North America 2014

Title: Current practice guidelines for diagnosis and treatment of psychiatric conditions.

Role: CME speaker and CME Director

Audience: Physicians and allied health professionals

Average number of physicians and other professionals: 30

Amount of preparation and contact time involved: 20 hours

Institute of Living, Hartford, 2014

Title: Imaging of dopamine neurotransmission in real time.

Role: Special seminar

Audience: Faculty, residents/physicians, students, trainees, scientists

Average number of students and scientists: 50

Amount of preparation and contact time involved: 5 hours

Virginia Commonwealth University, Richmond, 2014

Title: Imaging dopamine neurotransmission in real time: A novel approach to study neuropathology and addiction and other psychiatric conditions.

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 100
Amount of preparation and contact time involved: 20 hours

Thomas Jefferson University, Philadelphia, 2014

Title: Dynamic molecular imaging: An emerging technique to study human brain and behavior.

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees

Average number of students and physicians: 100

Amount of preparation and contact time involved: 20 hours

Henry Ford Hospital and Wayne State University School of Medicine, Detroit, 2014

Title: Neurotransmitter imaging: A novel approach to study neuropathology in psychiatric conditions.

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees

Average number of students and physicians: 200

Amount of preparation and contact time involved: 20 hours

Rosalind Franklin University and Captain James A. Lovell Federal Health Care Center, Chicago, 2014

Title: A novel imaging techniques to study dopaminergic influences on human addiction.

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees

Average number of students and physicians: 60

Amount of preparation and contact time involved: 10 hours

University of Cincinnati College of Medicine, 2014

Title: Detection of dopamine in real time and its application in psychiatric research.

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees

Average number of students and physicians: 200

Amount of preparation and contact time involved: 20 hours

Virginia Tech Carilion School of Medicine, Roanoke, VA, 2013

Title: Functional imaging of dopamine neurotransmission in real time.

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees

Average number of students and physicians: 200

Amount of preparation and contact time involved: 20 hours

Virginia Tech Carilion Research Institute, Roanoke, VA, 2013

Title: Functional imaging of dopamine neurotransmission in real time.

Role: Grand Rounds

Audience: Faculty, residents/physicians, students, trainees

Average number of students and physicians: 50
Amount of preparation and contact time involved: 15 hours

School of Medicine, University of Florida and McKnight Brain Institute, 2013

Title: Detection of dopamine release in real time: Unraveling secrets of psychopathology
Role: Grand Rounds
Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 150
Amount of preparation and contact time involved: 20 hours

University of Connecticut, School of Medicine, 2011

Title: Neuroimaging of consciousness.
Role: CME Lecture
Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 60
Amount of preparation and contact time involved: 20 hours

Organization for Human Brain Mapping, 2011

Title: Mapping of dopamine release in executive inhibition.
Role: CME Lecture
Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 60
Amount of preparation and contact time involved: 20 hours

Symposium on Molecular Imaging in Drug Discovery and Development, 2011

Title: Detection, mapping and measurement of dopamine released in the human brain during behavioral and cognitive processing.
Role: CME Lecture
Audience: Faculty, physicians, researchers
Average number of students and physicians: 70
Amount of preparation and contact time involved: 20 hours

University of Massachusetts, 2010

Title: Dynamic Neurotransmitter Imaging: An Emerging Neuroimaging Technique.
Role: Grand Rounds speaker
Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 60
Amount of preparation and contact time involved: 20 hours

Buffalo Psychiatric Center, 2010

Title: Dynamic Neurotransmitter Imaging: A novel tool to study psychiatric conditions.
Role: Grand rounds speaker
Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 60
Amount of preparation and contact time involved: 20 hours.

University at Buffalo, Department of Nuclear Medicine, 2009

Title: Dynamic neurotransmitter imaging: An emerging neuroimaging technique
Role: Grand Rounds speaker
Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 40
Amount of preparation and contact time involved: 20 hours

University of Massachusetts, 2009

Title: Neurotransmitter imaging: A novel technique to study psychiatric conditions.
Role: Grand Rounds speaker
Audience: Faculty, residents/physicians, students, trainees
Average number of students and physicians: 100
Amount of preparation and contact time involved: 20 hours

Mayo Clinic, Rochester, 2007

Title: Mind, Brain and Body: A Neurocognitive Perspective.
Role: CME Lecture
Audience: Faculty, physicians, residents, trainees, researchers
Average number of students and physicians: 100
Amount of preparation and contact time involved: 20 hours

Ravishanker University, Raipur, India, 2006

Title: Neurobiology of conscious mind: A neurocognitive perspective.
Role: CME Lecture
Audience: Faculty, graduate students, trainees, researchers
Average number of students and physicians: 300
Amount of preparation and contact time involved: 20 hours

Indian Medical Association, 2006

Title: Nonconscious processing in health and disease: Neuroanatomy and Clinical Correlates
Role: Invited speaker
Audience: Residents and Physicians
Average number of students and physicians: 150
Amount of preparation and contact time involved: 20 hours

Banaras Hindu University, India, 2005

Title: Neural processing of conscious experience.
Role: CME Lecturer
Audience: Faculty, residents, fellows, graduate students, trainees, researchers
Average number of students and physicians: 300
Amount of preparation and contact time involved: 20 hours

University of Connecticut, Medical Center, 2005

Title: Neurobiology of consciousness.

Role: CME Lecturer
Audience: Faculty, physicians, residents, trainees, researchers
Average number of students and physicians: 100
Amount of preparation and contact time involved: 20 hours

Society of Nuclear Medicine, 2005

Title: Detection of striatal dopamine released during an explicit motor memory task.
Role: CME Lecturer
Audience: Faculty, physicians, residents, trainees, researchers
Average number of students and physicians: 60
Amount of preparation and contact time involved: 20 hours

Massachusetts General Hospital, Boston, 2003

Title: Demonstration of striatal dopamine release during cognitive activation
Role: CME Lecturer
Audience: Faculty, residents/physicians, students, trainees
Average number of students and trainees: 100
Amount of preparation and contact time involved: 10 hours

Grand Rounds (VA Boston Healthcare System and Harvard Medical School), 2003

Title: Neuroanatomy of conscious and nonconscious mind: Cortical processing and clinical implications
Role: Grand Rounds speaker
Audience: Faculty, residents/physicians, students, trainees
Average number of students: 30
Amount of preparation and contact time involved: 40 hours

All India Institute of Medical Sciences, New Delhi, India 2003

Title: The Nonconscious Mind: Neuroanatomy and Clinical Correlates.
Role: CME Lecturer
Audience: Faculty, physicians, residents, trainees, researchers
Average number of students and physicians: 300
Amount of preparation and contact time involved: 20 hours

Society for Neuroscience, 2002

Title: Hippocampal activation during priming of new associations.
Role: CME Lecturer
Audience: Faculty, physicians, residents, trainees, researchers
Average number of students and physicians: 100
Amount of preparation and contact time involved: 20 hours

Medical College of Ohio, Toledo, OH, 2002

Title: Cross-talk between conscious and non conscious mind: Cortical mechanisms and clinical implications
Role: Grand Rounds speaker
Audience: Faculty, residents/physicians, students, trainees

Average number of students and trainees: 300
Amount of preparation and contact time involved: 40 hours

Harvard Medical School, 2000

Title: Implicit and Explicit Memory:
Role: Invited speaker
Audience: Faculty, residents/physicians, students, trainees
Average number of students: 50
Amount of preparation and contact time involved: 40 hours

International Symposium on Cognition, Education and Mental Health, 1999

Title: Cortical correlates of memory and conscious awareness.
Role: CME Lecturer
Audience: Faculty, graduate students, trainees, researchers
Average number of students and physicians: 100
Amount of preparation and contact time involved: 20 hours

Association of Biomedical Scientists, 1992

Title: Anionic control of behavior.
Role: Guest Lecturer
Audience: Faculty, physicians, graduate students, trainees, researchers
Average number of students and physicians: 150
Amount of preparation and contact time involved: 20 hours

University of Iowa, 1991

Title: Central regulation of motivation.
Role: Guest Lecturer
Audience: Faculty, physicians, graduate students, trainees, researchers
Average number of students and physicians: 50
Amount of preparation and contact time involved: 20 hours

Asian and Oceanian Physiological Societies, 1990

Title: Enhanced drinking following ICV infusions of choline chloride.
Role: CME Lecturer
Audience: Faculty, physicians, graduate students, trainees, researchers
Average number of students and physicians: 200
Amount of preparation and contact time involved: 20 hours

King's College, London, 1989

Title: Anionic influences on feeding and dipsogenic responses.
Role: CME Lecturer
Audience: Faculty, physicians, graduate students, trainees, researchers
Average number of students and physicians: 60
Amount of preparation and contact time involved: 20 hours

Supervision and Evaluation of Graduate students

1984-1995 Supervised MD and PhD students of Medical College, Rohtak and Banaras Hindu University, in India

- 1993 Examiner for Ph.D. dissertation of S. Gupta: Banaras Hindu University, India
- 1994 Examiner for Ph.D. dissertation submitted to the Institute of Basic Sciences, University of Madras, India
- 2007 Examiner for Ph.D. dissertation of MB Mandal: Banaras Hindu University, India
- 2008 Examiner for Ph.D. dissertation of Sadhana Kanoo: Banaras Hindu University, India
- 2010 Examiner for Ph.D. dissertation of Rajesh Gupta: Banaras Hindu University, India
- 2011 Examiner for Ph.D. dissertation of Amar Nath Maurya: Banaras Hindu University, India
- 2011 Examiner for D. Litt dissertation of MB Mandal, Banaras Hindu University, India
- 2012 Supervising Rathin R Nair who is working for his Ph.D. Degree at University at Buffalo.

Research Mentoring and Teaching:

Neuroimaging and Molecular Imaging Laboratory (<http://neuroimage.buffalo.edu>): I have set-up Neuroimaging and Molecular Imaging Laboratory at University at Buffalo. In this laboratory I supervise students at postdoctoral, graduate and undergraduate levels. Currently I am supervising following students in this laboratory. The laboratory also organizes a weekly neuroimaging seminar for students and faculty. In addition to listing the names of research associates and students working in my laboratory, I have asked each to include a statement of academic/professional ‘goals and objectives’.

Postdoctoral Research Associates:

Christopher Blais, Ph.D: The majority of research investigating cognitive control--the self-regulation of ones goals and actions--is concentrated on effortful control, often through the use of explicit rules and strategies. This important body of research often ignores the fact that many facets of cognitive control operate below the level of awareness. My research focuses on understanding these mechanisms of implicit of cognitive control. The implications of this work are important for understanding cognitive and emotional self-regulation, and have implications for intervention programs designed to treat the various failures of self-regulation, such as the spectrum of obsessive-compulsive disorders. Thus, my work speaks to important issues in cognitive psychology, cognitive neuroscience, affective science, clinical psychology, and social

psychology. He recently accepted a position of Research Assistant Professor, at University of Arizona, Phoenix, AZ:

Ashley Safford, Ph.D. My research focuses on understanding how brain regions involved in top-down control processes (such as attention) influence sensory regions, specifically for complex visual perception. To investigate these relationships, I have used neuroimaging techniques, including functional magnetic resonance imaging (fMRI) and event-related potentials (ERP). Using fMRI, I have also examined the functional connectivity between brain regions to develop further insight into the network underlying top-down modulation of sensory processes. Integration of multiple techniques, each with different strengths and weaknesses, is critical to develop a more complete understanding of human brain function. My future work will aim to incorporate such strategies, along with PET imaging, to understand how breakdown of these processes are involved in human neuropsychiatric disorders. She recently accepted a position of Clinical Psychologist at Walter Reed National Military Medical Center, Bethesda, MD

Graduate Students:

Rathin R. Nair: I am final year Computer Science Masters student (beginning my PhD next semester). My interests is in the field of Machine Learning and its related applications.

Kelsi Norek: I am a first-year student in the Psychology M.A. program at UB. Broadly speaking, I am interested in human and animal cognition and I would like to learn more about how past experiences influence cognitive processing. In my spare time I enjoy reading, hiking, and spending time with family and friends.

International Visiting Scholars:

Sampada Sinha, MD: I am a general physician from India. I like the complexities of human brain and the disorders associated with it. I want to be a part of research project which deals with mental disorders and its effect on cognitive process and behaviour such as substance abuse disorder(including alcohol) or Schizophrenia. My hobbies include sports such as badminton, swimming and playing online chess, apart from that I love to read (fiction, non-fiction and autobiography) and spending time with my family and friends. I would love to be a part of project which helps me to understand and unravel the human mind.

Mina Salama, MD: Neuroimaging, addiction, schizophrenia

Undergraduate Students:

Chris Becker: I am a sophomore biochemistry major at University at Buffalo. My

interests lie in how the brain functions. More specifically I am interested in brain function under various conditions, whether those conditions be a disease or disorder, the result of medication, or due to external stress.

Rowena Chin: Cognitive control is a central aspect of higher-level executive functioning. I am interested in examining the neural basis underlying the interaction between control mechanisms and associated cognitive domains (such as selective attention, response inhibition, and aspects of memory). In addition, I am also interested in studying how these processes are implicated in neurobehavioral disorders like ADHD and in neurodegenerative disorders like Alzheimer's disease.

Nicole Egan: I am interested in many different areas of psychology, but lately I have been more interested in the role of memory with PTSD. Many patients with PTSD report a short term memory loss, and I would like to know more about why.

Kevin Grazioplene: I'm an undergrad junior pursuing a Psychology B.S. degree. I'm interested in advancement of distributed cognition, specifically the Worldwide Web and how it makes possible new forms of human collaboration and cognition. During my free time I enjoy surfing the Web on either my iPhone or MacBook.

Amanda Haskell: I am interested in all aspects of consciousness, especially investigating parts of the brain or neural networks that might act as the foundation to what we call conscious thought. Moral decision making also fascinates me, as I wonder how people actually make these kinds of judgments and how much they depend on individual characteristics of the brain.

Kristina Hua: How the brain works, why people behave the way they do.

Felicia Ibitoye: Human Cognition and Behavior.

Jacob Kimball: I am currently an undergrad majoring psychology at UB. As of right now my research interests are very flexible as I am interested in many aspects of cognition such as perception, memory, imagination, etc. and how they relate to neural processes. I often find myself considering questions like, What neural processes occur differently when someone perceives a stimulus compared to when they remember that stimulus or imagine it? I am excited for the opportunity to gain a better perspective in these areas and others by increasing my understanding of them in respects to the neurological factors that play a role in their occurrence and the implications that can be made with this knowledge.

David Klun: As an upcoming Senior Undergrad at UB, psychology obviously has always been an interest. Neurology has been recently fascinating to me as I have worked extensively, both in my professional and personal life, with people suffering from various levels of Alzheimer's Disease and dementia, as well as how moods are affected by different aspects of neurological functions and dysfunctions.

Christian Matthews: I am a sophomore Medicinal Chemistry student. My interests lie in the medical qualities of drug function. I have always been astonished at the healing powers of pharmaceuticals and would like to learn more about the physiological influences and interactions of various substances in the human body.

Adriana Medina: I am an undergraduate senior working towards two bachelors' degrees in Psychology and Biology with a concentration in Neuroscience. I enjoy studying the cognitive and behavioral neuroscience involved in mental illness. The unusual behavioral and cognitive symptoms associated with schizophrenia in particular have always intrigued me. I would love to work on a project that would allow me to study the neurological mechanisms contributing to altered brain function in schizophrenics. I am also interested the neurological functions involved in mood disorders, anxiety disorders, addiction, and stress.

Price Obot: My interests are in medicine and research; I intend to pursue both simultaneously. In general my neuroscientific interests are in how stress affects the body and brain. Specifically, I am curious of the ways in which stress (stressors, perceived stress) influences the reward pathways of the brain.

Hemchandra Rajcoomar: I am primarily interested in human behavior and the processes responsible for those behaviors. PTSD in military personnel is something that has always grabbed my attention, so my goal is to gain as much knowledge on the disorder that I possibly can. More specifically, I would like to know how it is developed and whether or not it can be reversed. With this information we may be able to help those with PTSD return to living the normal lifestyle they were once accustomed to.

Shanelle Rauch: I'm primarily interested in the patterns in Physiology of what is being studied. By studying, for example, the lateral geniculate nucleus, and how unconscious processes in the eye affects it has helped us learn about general principles of how the brain works. I would like to help bring more of that to the table, in any place where I am needed.

Mohammad Alam: Throughout my entire life, the concepts of brain and mind were part and parcel of my thoughts. Eventually, through my academic journey when I started to study about psychology and its related fields, I became more obsessive and aggressive to explore more about mind and brain. As a result, today all of my enthusiasm and dedication are about the cognitive and behavioral processes of mind and brain. Since the last few years, I have been deeply interested with cognitive functions of the brain and mind and have been exploring deeply the most fundamental philosophical issue of mind and body- how are the mind and body related? Or how does mind affect body and vice versa? As an idealistic person, I believe this is ultimately our consciousness or mind that

influences significantly on our body or brain. So, through my future study, I want to explore and prove if this is mind that is the ultimate fuel of our behavior or it is simply the water of the brain that becomes the wine of consciousness.

Neha Sharma: I am interested in understanding the brain's involvement in the development of severe psychological disorders such as Schizophrenia. I would like to study how certain cognitive dysfunctions that develop due to structural abnormalities in the brain are related to the presenting symptoms used to diagnose the disorders.

Lee Singer: Neuroimaging of human behavior and emotion

Grace Ong: Human Cognition and Behavior

In addition, I have supervised following Junior Faculty members, fellows, undergraduate medical students, and graduate students. I am still supervising some of these students.

David Wack, Ph.D. Assistant Professor in Nuclear Medicine (2009-Present): Supervising to develop his skill for analysis of human brain imaging. Under my supervision he developed a new kinetic model for analysis (complex singular value decomposition). The model significantly reduces noise in these images. He recently published this model in the following paper:

Wack D and Badgaiyan RD. Complex Singular Value Decomposition Based Noise Reduction of Dynamic PET Images. *Current Medical Imaging Reviews*. 2011;7:113-7.

Under my direct supervision he submitted his first grant application: an R03 application to NIH. The application was titled: A novel technique to reduce noise in dynamic PET images. He was the PI and I agreed to be a Co-Investigator. He is currently revising the application for re-submission. During my supervision he also achieved expertise in dynamic molecular imaging and made contributions in the following papers:

Badgaiyan RD and Wack D. Evidence of dopaminergic processing of executive inhibition. *PLoS One*. 2011;6(12):e28075.

John Baker, Ph.D. Associate Professor in Nuclear Medicine (2009-Present): I am mentoring Dr. Baker also. Because of background in psychology I am helping and training him for grant and paper writing. Under my direct supervision he also submitted his first grant applications to the NIH:

R03 application: Conscious Awareness of Visual Stimuli: An fMRI Study of Orienting and Picture Priming. Dr Baker was the PI and I was a Co-

Investigator in this application also. This proposal is currently under revision. I am Dr Baker's mentor for this application.

Jennifer Cox, Ph.D. Assistant Professor of Neurology (2010-Present): Dr Cox is also a psychologist. I am helping her to develop her own research project and develop a research protocol.

Supriya Mahajan, Ph.D. Assistant Professor of Internal Medicine (2010-Present). I mentored Dr Mahajan to develop her own research project and submit grant applications. Under my supervision she submitted the following grant applications:

1R03DA032687-01 Biomarker to detect drug induced alteration in the Brain Dopaminergic activity. Both Dr Mahajan and I were Co-PI in this application. This application received a good score but missed the pay line narrowly. I am helping her revise this application.

1 R21 MH093966-01A1: DARPP-32: A Biomarker for Depression? I helped her identify the problem and write this grant. We both we Co-PIs I this application.

CX-11-001: Biomarker for detection of drug addiction-induced changes in the brain. Submitted for the VA Merit Review Award.

Carla Jungquist, Ph.D. Assistant Professor, School of Nursing, University at Buffalo. (2011-Present). I mentored Dr Jungquist to develop neuroimaging grant applications on the effects of sleep deprivation on perception of pain. She has submitted the application to the NIH (R03), American Pain Society (Rita Allen Award) and National Institute of Nursing Research. I am her mentor for the R03 and American Pain Society applications.

Ifeoma Nwogu, Ph.D. Fellow in computer sciences, UB (2011-Present): I mentored Ms Nwogu and helped her submit her first research grant proposal to the National Science Foundation. She has now submitted two proposals:

RI Medium: Algorithmic Exploration of the Neuropsychological Manifestations of Emotion and Concealment.

Computational Exploration of the Neuropsychological Manifestations of Emotion and Concealment

Huynh Wind Tran: (2010) A 4th year medical student at SUNY Buffalo used his elective time to work with me and get hands-on training in research.

Eunice Yuen: (2012). I mentored Eunice Yuen, a first year medical student at SUNY Buffalo. She has a strong research background. I used to meet with her 2 hours every week and helped her understand neuroimaging techniques, while encouraging her to formulate her own research question in order to

submit a grant application.

M.B. Mandal, M.D. (1988-1991) Mentored for MD thesis

Current Position: Professor of Physiology, Institute of Medical Sciences, Banaras Hindu University, India

Z.H Khan, M.D. (1988-1992) Mentor for M.D. Thesis

Current Position: Professor and Head of the Department of Physiology, Eklavya Dental College, Kotputli, India.

S. Gupta, Ph.D. (1989-1993). Mentor of Ph.D. Thesis.

Current Position: Senior Scientist and Associate Professor, Sardar Vallabhbhai Patel University, Meerut, India.

Clinical Teaching

- 2012-Present: Teaching/supervision of Psychiatry Residents of University at Buffalo in the Outpatient Chemical Dependency Clinics of ECMC.
Teaching/Preparation Time: 16 hour per week
- 2011-Present: Teaching/supervision of psychiatric nurse practitioners in Outpatient Chemical Dependency Clinic, ECMC
Teaching/Preparation Time: 1 hour per week
- 2011-Present: Supervision/Teaching of addiction counselors in Outpatient Chemical Dependency Clinic, ECMC
Teaching/Preparation Time: 1 hour per week
- 2011-Present Case Conference with 18 addiction counselors; 2 Nurse Practitioner, and psychology and medical student volunteers
Teaching/Preparation Time: 3 hours per week
- 2011-Present Individual supervision of addiction counselors
Teaching/Preparation Time: 1 hour per week

Advisory and Supervisory Role

- 1996 Organized and taught Neuroscience course for graduate and undergraduate students at University of Texas, San Antonio, TX
- 1996 Examined graduate and undergraduate students in Neuroscience, University of Texas, San Antonio, TX
- 2007 Examined Ph.D. dissertation of Banaras Hindu University, India
- 2009 Examiner for Ph.D. dissertation: Banaras Hindu University, India

- 2012 Supervision of postdoctoral, graduate and undergraduate students affiliated to Neuroimaging and Molecular Imaging Laboratory, University at Buffalo
- 2012 Supervision of Psychiatry Residents of University at Buffalo in the Outpatient Chemical Dependency Clinic of ECMC

Publication

Original Articles

Peer-reviewed Journals

1. **Badgaiyan RD**, Sinha S, Sajjad M, Wack DS. Attenuation of tonic release of dopamine in attention deficit hyperactive disorder (Under Review).
2. **Badgaiyan RD**, Sinha S, Sajjad M, Wack DS. Enhanced phasic release of dopamine in attention deficit hyperactive disorder (Under Review).
3. Blum K, **Badgaiyan RD**, Gold MS (In Press). “Personalized addiction medicine” may take us to promised-land: Coupling neurogenetic risk and nutrigenomic dopaminergic activation. *Jacobs Molecular and Translational Medicine*.
4. **Badgaiyan RD**, Sinha S, Blum K (2015). Do we really need to continue pharmacotherapy for opioid use disorder indefinitely? *Journal of Reward Deficiency Syndrome* 1(1): 16-19. <http://dx.doi.org/10.17756/jrds.2015-004>
5. Blum K, Braverman ER, Waite RL, Archer T, Thanos PK, **Badgaiyan RD**, Febo M, Dushraj K, Li M, Gold MS (2015) Neuroquantum theories of psychiatric genetics: Can physical forces induce epigenetic influence on future genomes? *NeuroQuantology*, 13(1) 90-113. DOI: 10.14704/nq.2015.13.1.799.
6. Blum K, **Badgaiyan RD** (2015) Reward Deficiency Solution System (RDS): Entering the genomics and neuroscience era of addiction medicine *Journal of Reward Deficiency Syndrome*, 1(1): 1-2. <http://dx.doi.org/10.17756/jrds.2015-e001>.
7. Blum K, **Badgaiyan RD**, Agan G, Frantantonio J, Simpatico T, Febo M, Haberstick BC, Smolen A, Gold MS (2015). Molecular genetic testing in Reward Deficiency Syndrome (RDS): Facts and Fiction. *Journal of Reward Deficiency Syndrome* 1(1): 65-68. <http://dx.doi.org/10.17756/jrds.2015-005>
8. Blum K, **Badgaiyan RD**, Demetrovics Z, Frantantonio J, Agan G, Febo M (2015). Can genetic testing provide information to develop customized nutrigenomic solutions for reward deficiency syndrome? *Clinical Medical reviews and Case Reports* 2:018
9. Schoenthaler S, Blum K, , Braverman E, Giordano J, Thompson B, Oscar-Berman M, **Badgaiyan, RD**, Madigan MA, Dushraj K, Li M, Demetrovics Z, Gold MS (2015). NIDA-Drug Addiction Treatment Outcome Study (DATOS) Relapse as a Function of Spirituality/Religiosity. *Journal of Reward Deficiency Syndrome*, 1(1)36-45. <http://dx.doi.org/10.17756/jrds.2015-007>
10. Blum K, Thompson B, Demetrovics Z, Femino J, Giordana J, Oscar-Burman M, Teitelbaum S, Smith DE, Roy AK, Agan G, Frantantonio J, **Badgaiyan RD**, Gold

- MS (2015). The molecular neurobiology of twelve steps program and fellowship: connecting the dots for recovery. *Journal of Reward Deficiency Syndrome*, 1(1)46-64. <http://dx.doi.org/10.17756/jrds.2015-008>
11. Blum K, **Badgaiyan, RD**, Agnes DH, Gold MS (2015). Should we embrace vaccines for treating substance related disorder, a subset of reward deficiency syndrome (RDS)? *Journal of Reward Deficiency Syndrome*. 1(1):3-5. <http://dx.doi.org/10.17756/jrds.2015-001>.
 12. Blum K, Febo M, Demetrovics Z, **Badgaiyan RD** (2015). Embracing reward deficiency syndrome (RDS) solution system: A genomic thrust. *International Archives of Addiction Research and Medicine* 1:001e
 13. Blum K, Febo M, Smith DE, Roy AK, Demetrovics Z, Cronje F, Femino J, Agan G, Fratantano JL, Pandey SC, **Badgaiyan RD**, Gold MS. (In Press). Neurogenetic and epigenetic correlates of adolescent predisposition (risk) to all addictive behaviors as a function of prefrontal cortices dysregulation: Importance of early genetic diagnosis in reward deficiency syndrome (RDS). *Journal of Child and Adolescent Psychopharmacology*
 14. **Badgaiyan, RD**, Blum K (2015). Individualizing Opiate Use Disorder Treatment: Time to embrace a chronic disease model. *Journal of Reward Deficiency Syndrome*. 1(1): 10-14, <http://dx.doi.org/10.17756/jrds.2015-004>
 15. Blum K, Febo M, Demetrovics Z, **Badgaiyan RD** (2015). Reward deficiency syndrome (RDS) system: A genomic thrust. *International Archives of Addiction Research and Medicine*, 1:001e
 16. Blum K, Agan G, Giordano J, Mac DHL, Fratantonio J, **Badgaiyan RD**, Febo M (2015) Understanding the importance of dopaminergic deficit in Reward Deficiency Syndrome (RDS): redeeming joy overcoming “darkness” in recovery. *Psychology*, 6(4):435-439. DOI: 10.4236/psych.2015.64040.
 17. Blum K, **Badgaiyan RD**, Agan G, Fratantonio J, Gold MS (2014) Reward Deficiency Solution System (RDS): Is there a Solution? *Journal of Alcoholism and Drug Dependence* 2:177 doi: 10.41/2/2329-6488.1000177
 18. Blum K, **Badgaiyan RD**, Gold MS. (2014). Reward Deficiency Solution Syndrome (RDS): A tale of three Scientists. *Journal of Addiction Medicine and Therapeutic Science*. 1(1):104
 19. **Badgaiyan RD**, Weise S, Wack D, Vidal Melo, M (2014). Attenuation of regional cerebral blood flow during memory processing after coronary artery bypass surgery. *Anesthesia and Analgesia* 119(3):550-553. doi: 10.1213/ANE.0000000000000334.
 20. Blum K, Oscar-Berman M, **Badgaiyan RD**, Braverman E, Gold MS. (2014) Hypothesizing Darkness Induced Alcohol Intake Linked to Dopaminergic

- Regulation of Brain Function. *Psychology (Irvine)*, 5 (4):282-288, doi: 10.4236/psych.2014.54038
21. Blum K, Oscar-Berman M, **Badgaiyan RD**, Khurshid, KA, Gold MS. (2014) Dopaminergic neurogenetics of sleep disorders in reward deficiency syndrome (RDS). *Journal of Sleep Disorders and Therapy*. doi: 10.4172/2167-0277.1000e126
 22. Blum K, Oscar-Berman M, **Badgaiyan RD**, Palomo T, Gold MS. (2014) Hypothesizing Dopaminergic genetic antecedents in schizophrenia and substance seeking behavior. *Medical Hypothesis*. 82:606-14. doi: mehy.2014.02.019
 23. Blum K, **Badgaiyan RD**. (2013). Addiction research and therapy in 21st century: Providing a forum for evidence-based addiction medicine. *Journal of Addiction Research and Therapy* 4:4 e-117. doi: 10.4172/ 2155-6105.1000e117
 24. Blum, K, Oscar-Berman M, DiNubile N, Giordano J, Braverman ER, **Badgaiyan, RD** (2013). Coupling genetic addiction risk score (GARS) with electrotherapy: Fighting Iatrogenic opioid dependence *Journal of Addiction Research and Therapy* 4:163:1000163, doi:10.4172/2155-6105.1000163
 25. **Badgaiyan RD** (2013). Detection of dopamine neurotransmission in ‘real time’. *Frontiers in Neuroscience*. 7:125. doi: 10.3389/fnins.2013.00125
 26. **Badgaiyan RD** (2012) Nonconscious processing and a novel target for schizophrenia research. *Open Journal of Psychiatry* 2:335-339 doi: 10.4236/ojpsych.2012.224047
 27. **Badgaiyan RD** (2012) Manipulation of the extrastriate frontal loop can resolve visual disability in blindsight patients. *Medical Hypotheses* 79:767-769
 28. **Badgaiyan RD** (2012) Nonconscious perception, conscious awareness and attention. *Consciousness and Cognition* 21:584-586.
 29. **Badgaiyan RD** (2012) A Novel Perspective on Dopaminergic Processing of Human Addiction. *Journal of Alcoholism and Drug Dependence* 1:1-3. doi: 10.4172/2329-6488.1000e101
 30. **Badgaiyan RD** (2011) Neurotransmitter Imaging: Current Status and Challenges (Editorial) *Current Medical Imaging Reviews*. 7:96-97.
 31. **Badgaiyan RD** (2011) Neurotransmitter imaging: Basic concepts and future perspectives. *Current Medical Imaging Reviews*. 7:98-103
 32. **Badgaiyan RD**, and Wack D (2011) Evidence of dopaminergic processing of executive inhibition. *PLoS ONE* 6(12): e28075. doi:10.1371/journal.pone.0028075

33. Wack, D. and **Badgaiyan RD** (2011) Complex singular value decomposition based noise reduction of dynamic PET images. *Current Medical Imaging Reviews*.7:113-117.
34. **Badgaiyan RD**. (2010) Dopamine is released in the striatum during human emotional processing. *NeuroReport*. 21:1172-6.
35. **Badgaiyan RD** (2009) Theory of Mind and Schizophrenia. *Consciousness and Cognition* 18:320-322
36. **Badgaiyan RD**, Fischman AJ, Alpert NM (2009) Dopamine release during human emotional processing. *NeuroImage* 47: 2041-2045
37. **Badgaiyan RD**, Fischman AJ, Alpert NM (2008) Explicit motor memory activates the striatal dopamine system. *NeuroReport*, 19:409-412
38. **Badgaiyan RD**, Fischman AJ, and Alpert NM (2007) Striatal dopamine release in sequential learning. *NeuroImage*, 38:549-556.
39. Fischman AJ and **Badgaiyan RD** (2007) Functional imaging of neurotransmission. *Current Medical Imaging Reviews*.3(4):220-224.
40. Fischman AJ and **Badgaiyan RD** (2006) Cortical activations, psychiatric symptoms, and climacteric women (Editorial) *Menopause*. 13:1-3
41. **Badgaiyan RD** (2006) Cortical activation elicited by unrecognized stimuli. *Behavioral and Brain Functions*.2:17 doi:10.1186/1744-9081-2-17
42. Sharma HS, Wiklund L, **Badgaiyan RD**, Mohanty S and Alm P (2006) Intracerebral administration of neuronal nitric oxide synthase antiserum attenuates traumatic brain injury-induced blood-brain barrier permeability, brain edema formation, and sensory motor disturbances in the rat. *Acta Neurochir*. 2006;96:288-94.
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44. **Badgaiyan RD** (2005) Conscious awareness of retrieval: An exploration of the cortical connectivity. *International Journal of Psychophysiology*, 55:257-262
45. Sharma H, **Badgaiyan RD**, Alm P, Mohanty S and Wiklund L (2005) Neuroprotective effects of nitric oxide synthase inhibitors in spinal cord injury-induced pathophysiology and motor functions: an experimental study in the rat. *Annals of New York Academy of Sciences* 1053:422-34.
46. **Badgaiyan RD**, Fischman, AJ and Alpert, NM. (2003) Striatal dopamine release during unrewarded motor task in human volunteers. *NeuroReport*, 14:1421-1424.

47. Alpert NM, **Badgaiyan RD**, Livini E. and Fischman AJ (2003) A novel method for noninvasive detection of neuromodulatory changes in specific neurotransmitter systems. *NeuroImage*, 19:1049-1060.
48. **Badgaiyan RD**, Schacter DL and Alpert NM (2003) Priming of new associations: A PET study. *NeuroReport*. 14:2475-2479
49. Winkler T, Sharma HS, Stalberg E, **Badgaiyan RD**, Gordh T and Westman J. (2003) An l-type calcium channel blocker, nimodipine influences trauma induced cord conduction and axonal injury in the rat. *Acta Neurochir*, 86:425-432.
50. **Badgaiyan RD** (2002) Nonconscious processing, anterior cingulate, and catatonia. *Behavioral and Brain Sciences*. 25:578-579.
51. **Badgaiyan RD**, Schacter DL and Alpert NM (2002) Retrieval of relational information: a role for the left inferior prefrontal cortex. *NeuroImage*, 17:393-400.
52. Winkler T, Sharma HS, Gurdh T, **Badgaiyan RD**, Stalberg E and Westman J. (2002) Topical application of dynorphin A (1-17) antiserum attenuates trauma-induced alterations in spinal cord evoked potentials, microvascular permeability disturbances, edema formation and cell injury. *Amino Acids*, 23:273-281.
53. **Badgaiyan RD**, Schacter DL and Alpert NM. (2001) Priming within and across modalities: Exploring the nature of rCBF increases and decreases. *NeuroImage*, 13:272-282.
54. Schacter DL and **Badgaiyan RD** (2001) Neuroimaging of priming: New perspectives on implicit and explicit memory. *Current Directions in Psychological Science*, 10:1-4.
55. Winkler T, Sharma, HS, Stalberg E. and **Badgaiyan RD** (2001) Neurotrophic Factors Attenuate Alterations in Spinal Cord Evoked Potentials and Edema Formation Following Trauma to the Rat Spinal Cord. *Acta Neurochirurgica*; 76:S291-S296.
56. **Badgaiyan RD** (2000) Neuroanatomical organization of perceptual memory: An fMRI study of picture priming. *Human Brain Mapping*, 10:197-203.
57. **Badgaiyan RD** (2000) Executive control, willed actions, and nonconscious processing. *Human Brain Mapping*, 9:38-41.
58. Casey BJ, Thomas KM, Welsh TF, **Badgaiyan RD**, Eccard CH, Jennings JR and Crone EA (2000) Dissociation of response conflict, attentional selection, and expectancy with functional magnetic resonance imaging. *Proceedings of the National Academy of Sciences USA*, 97:8728-8733.

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60. Winkler T, Sharma HS, Stalberg E and **Badgaiyan RD** (2000) Neurotrophic factors attenuate alterations in spinal cord evoked potentials and edema formation following trauma to the rat spinal cord. *Acta Neurochirurgica*, 76:291-296.
61. **Badgaiyan RD**, Schacter DL and Alpert NM (1999) Auditory priming within and across modalities: evidence from positron emission tomography. *Journal of Cognitive Neuroscience*, 11:337-348.
62. Schacter DL, **Badgaiyan RD** and Alpert NM (1999) Visual word stem completion priming within and across modalities: A pet study. *NeuroReport*, 10:2061-2065.
63. **Badgaiyan RD** and Posner MI (1998) Mapping the cingulate cortex in response selection and monitoring. *NeuroImage*, 7:255-260.
64. Winkler T, Sharma HS, Stalberg E, **Badgaiyan RD**, Alm P and Westman J (1998) Spinal cord evoked potentials and edema in the pathophysiology of rat spinal cord injury. *Amino Acids*, 14:131-139.
65. **Badgaiyan RD** and Posner, MI (1997) Time course of cortical activations in implicit and explicit recall. *Journal of Neuroscience*, 17:4904-4913,
66. **Badgaiyan RD** and Posner MI (1996) Priming reduces input activity in right posterior cortex during stem completion. *NeuroReport*, 7:2975-2978.
67. **Badgaiyan RD** and Mandal MB. (1995) Centrally infused anions alter body temperature in conscious rats. *Brain Research Bulletin* 38:331-336.
68. Misra CP, Gupta S, Tiwari IC and **Badgaiyan RD** (1993) Dietary pattern of lactating women in an urban community. *Indian Journal of Nutr. Diet*, 30:180-183.
69. Mandal MB and **Badgaiyan RD** (1991) Dipsogenic and feeding influences of intraventricularly infused anionic choline solutions. *Physiology and Behavior*, 50:783-787.
70. **Badgaiyan RD** and Mandal MB (1990) Alterations of ventricular pH alter Water intake and food consumption in rats. *Physiology and Behavior*, 47:489-492.
71. **Badgaiyan RD** (1989) Third ventricular chloride infusion enhances drinking in water deprived rats. *Physiology and Behavior*, 45:951-954.

72. Reghunandanan V, **Badgaiyan RD**, Marya RK, Reghunandanan R and Maini BK (1989) Lithium chloride SCN injection alters the circadian rhythm of food intake. *Chronobiology International*, 6:123-129.
73. **Badgaiyan RD** (1987) Intracerebroventricular chloride infusion enhances water intake in rats. *Physiology and Behavior* 41:605-608.
74. Reghunandanan V, **Badgaiyan RD**, Marya RK, and Maini BK (1987) Suprachiasmatic injection of a vasopressin antagonist modifies the circadian rhythm of food intake. *Behavioral and Neural Biology*, 48:344-351.
75. **Badgaiyan RD** and Bhargava RP (1986) Influence of intracerebroventricularly infused anions on feeding response. *Physiology and Behavior*, 38:761-764.
76. Bhargava RP, Datta S and **Badgaiyan RD** (1985) A simple technique to stop hiccups. *Indian Journal of Physiology and Pharmacology*, 29:57-58.

Non-refereed Journals

77. **Badgaiyan RD**. (1990) The psychophysiology of behavior. *BHU Newsletter*. 4:24-26.

Book Chapters

78. **Badgaiyan, RD** (2014). Imaging Dopamine Neurotransmission in Live Human Brain. *Progress in Brain Research: Dopamine (Chapter 7)*. Eds: Diana M, Chiara GD, Spano P. Elsevier, 211: 167-184 DOI: 10.1016/B978-0-444-63425-2.00007-6.
79. Fischman AJ **Badgaiyan RD** (2006) Neurotransmitter Imaging. In: Charron M, ed. *Pediatric PET*. New York: Springer; pp 385-403.
80. Posner MI and **Badgaiyan RD** (1998) Attention and Neural Networks. In: *Fundamentals of Neural Network Modeling for Neuropsychology*. Eds. Parks, W.R. and Levine, D.S. MIT Press, pp 61-76.
81. **Badgaiyan RD** (1992) Central anionic influences on dipsogenic response. In: *Advances in Physiological Sciences*. Ed. S.K.Manchanda, W.Selvamurthy and V.Mohan Kumar, Macmillan, New Delhi, pp 700-706.

Teaching Material

82. Bhargava RP, Rao SV, **Badgaiyan RD** (1980). Translated into Hindi: Text Book of Physiology. Authors, S. Subramaniam, and M. Kutty, 1979. Central Hindi Directorate, New Delhi, 1980.

Manuscripts Under Review

83. **Badgaiyan RD**, and Fischman AJ. Attenuated dopamine release during emotional processing in PTSD.
84. **Badgaiyan RD**, and Wack D. Dopamine neurotransmission during nonconscious processing.
85. **Badgaiyan RD**. Cognitive neuroscience of conscious awareness.
86. Febo M, Blum K, **Badgaiyan RD**, Perez PD, Colon-Perez L, Thanos P, Ferris CF, Kulkarni P, Liu Y, Giordano J, Baron D, Gold MS. (Under Review). Putative dopamine agonist KB220Z enhances resting state brain reward circuit functional connectivity.
87. Braverman E, Blum K, Husman KL, Han D, Dushraj K, Li M, Marin G, **Badgaiyan, RD**, Smayda R, Gold MS (Under Review) Evoked potentials and memory/cognition tests validate brain atrophy as measured by 3T MRI (Neuroquant) in cognitively impaired patients.
88. Schoenthaler S, Blum K, **Badgaiyan, RD**, Oscar-Berman M, Giordano J, Agan G, Simpatico T (Under Review). The effects of residential dual diagnosis treatment on alcohol abuse. *American Journal of Addictions*
89. Zhang Yi, Qiang Li^c, Jie Tian, Yi Edi Zhang, Xiaotong Wen, Jixin Liu, Wei Wang, Zhenyu Zhou, Mingzhou Ding, Gene-Jack Wang, Yijun Liu, Febo, M, Mark S. Gold, **Badgaiyan RD** (Under Review). Granger Causality Revealing a Dominant Role of Memory Circuit in Chronic Heroin Dependence.

Conference Proceedings

90. **Badgaiyan RD**, Sinha S, Sajjad M, Wack DS. Reduced tonic release of dopamine in the right caudate of ADHD volunteers. XXVII International Symposium on Cerebral Blood Flow, Metabolism and Function and XII International Conference on Quantification of Brain Function with PET. Vancouver, Canada, June 27-30, 2015
91. **Badgaiyan RD**, Sinha S, Sajjad M, Wack DS. Increased phasic release of dopamine in the right caudate of ADHD volunteers. XXVII International Symposium on Cerebral Blood Flow, Metabolism and Function and XII International Conference on Quantification of Brain Function with PET. Vancouver, Canada, June 27-30, 2015
92. **Badgaiyan RD**. Real time imaging of neurotransmission in the live human brain. 6th Annual World Conference of NeuroTalk-2015. Hangzhou, China, May 22-24, 2015.

93. M. Febo, K. Blum, **R. D. Badgaiyan**, P. D. Perez, L. Colon-Perez, P. Thanos, C. F. Ferris, P. Kulkarni, Y. Liu, John Giordano, D. Baron, W. Jacobs, MD, M. S. Gold Putative *rsf*MRI Involvement of Neural Pathways in Brain Reward Circuitry in non-addicted rodents and abstinent genotyped Heroin Addicts by KB220Z,TM a Neuroadaptagen Anti-craving Compound: A Pilot Study Having Putative Relevance to Reward Deficiency Syndrome (RDS). American Society of Addiction Medicine (ASAM) 46th Annual Meeting Austin, Texas, 2015
94. Blum K, Simpatico T, Madigan MA, Waite RL, Haberstick BC, Smolen A, **Badgaiyan RD**, Demotrovics Z, Downs WB, Giordano J, Febo M (2015) Coupling genetic addiction risk score (GARS_{DX})TM and a nutrigenomic neuroadaptagen dopaminergic reward brain activator to treat reward deficiency syndrome (RDS): Targeting polymorphic reward genes for addiction. Annual conference of the International Society of Nutrigenetics and Nutrigenomics, Chapel Hill NC, May 17-19, 2015.
95. **Badgaiyan, RD** (2014) Use of a newly developed dynamic molecular imaging technique in drug development. Abstract, 12th Annual Congress of International Drug Discovery Science and Technology, Suzhou, China, November 18-20, 2014.
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97. Blum K, Smolen A, Haberstick BC, Smith DE, Febo M, Thanos P, Oscar-Berman M, **Badgaiyan RD**, Saunders S, Barh D, Giordano J, Simpatico T, Han D, Villapiano A, Inaba D, Femino J, Gold MS (2014). Coupling Genetic Addiction Risk Score (GARS_{RX})TM, Medical Monitoring with Comprehensive Analysis of Reported Drugs (CARDTM) and Putative Dopamine Agonist Therapy (KB220ZTM): Reward Deficiency Solution System (RDSS) Embracing a Nutrigenomic Modality For Chronic Pain. CME meeting and Workshop organized by the American Society of Regional Anesthesia and Pain Medicine, San Francisco, November 13-16, 2014
98. Blum K, Smolen A, Haberstick B, Smith DE, Febo M, Thanos P, Oscar-Berman M, **Badgaiyan RD**, Saunders S, Barh D, Giordano J, Simpatico T, Han D, Villapiano A, Inaba D, Femino J, Gold MS (2014). Coupling Genetic Addiction Risk Score (GARS), Medical Monitoring with Comprehensive Analysis of Reported Drugs (CARD) and Putative Dopamine Agonist Therapy (KB220Z): Reward Deficiency Solution System (RDSS) Embracing a Nutrigenomic Modality. XXII World Congress of Psychiatric Genetics, Copenhagen, Denmark, October 12-16, 2014.

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100. **Badgaiyan, RD** (2014). Dopaminergic neuroimaging across the brain. 3rd International Conference and Exhibition on Addiction Research and Therapy, Chicago, August 4-6, 2014
101. **Badgaiyan, RD** (2014). A Method for Detection, Mapping and Measurement of Dopamine Released During Cognitive and Behavioral Processing in the Live Human Brain. 12th Annual Conference on Cognitive Neuroscience, Brisbane, July 27-31, 2014.
102. **Badgaiyan, RD** (2014) A novel dynamic molecular imaging technique for early identification of a target compound and its cognitive/behavioral effects in human. Abstract BIT's 3rd Annual Conference and Expo on AnalytiX, Dalian, April 25-28, 2014 China.
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105. **Badgaiyan RD** (2013) Novel use of stem cell techniques to study pathophysiology of psychiatric conditions. 3rd World Congress on Cell Science & Stem Cell Research. Baltimore, November 20-22, 2013.
106. **Badgaiyan RD** (2013) Single Scan Dynamic Molecular Imaging: An Emerging Neuroimaging Technique. Conference on Neuroscience and Neurobiology Research, Singapore, November 18-19, 2013.
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108. **Badgaiyan RD, Wack DS, and Sajjad, M** (2013) Enhanced phasic and attenuated tonic release of dopamine in attention deficit hyperactivity disorder. Annual meeting of the Society of Nuclear Medicine, Vancouver, BC, Canada, June 8-12, 2013, Journal of Nuclear Medicine 54 (Supplement 2): 1849
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111. **Badgaiyan RD** (2012) Detection of Dopamine Released in the Human Brain During Cognitive Processing. 3rd Annual World Congress of NeuroTalk 2012; Beijing, May 18-20, 2012, 184
112. **Badgaiyan RD**, and Wack D (2012) Dopamine processing of nonconscious memory. Annual Meeting of the Society of Nuclear Medicine; Miami Beach, June 9-13, 2012. Journal of Nuclear Medicine (Supp) May 2012:52:2011
113. **Badgaiyan RD** (2011) Interaction between conscious and nonconscious processes: Evidence from neuroimaging experiments. Special symposium lecture organized by the International Memory Disorders Research Society, at Barcelona, Spain, Sept 13-15, 2011.
114. **Badgaiyan RD** (2011) Neuroimaging of consciousness. International Meeting on Medicine and Beyond. Organized by University of Connecticut School of Medicine, Farmington, CT and International Society for Ayurveda and Health, November 4-6, 201. Elements (supp), 4
115. **Badgaiyan RD**, and Wack D. (2011) Release of Striatal dopamine during response inhibition. Annual Meeting of the Society of Nuclear Medicine; San Antonio, June 4-6, 2011. Journal of Nuclear Medicine 2011; 52 (Supp 1):1282
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119. **Badgaiyan RD** (2011) Dopaminergic control of human emotions. Annual Meeting of Society of Neuroscience, San Francisco, April 2-5. Journal of Cognitive Neuroscience (Supp) 2011:137
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122. **Badgaiyan RD** (2010) Detection of dopamine released during emotional processing. 16th Annual Meeting of Organization of Human Brain Mapping, Barcelona, June 6-10, 2011. *NeuroImage (Supp)* 2010:182
123. **Badgaiyan RD** (2009) Neurochemistry of Human Cognition. 16th Annual Meeting of the Society of Cognitive Neuroscience, San Francisco, March 21-24, 2009. *Journal of Cognitive Neuroscience (Supp)*:205
124. **Badgaiyan RD**, and Fischman AJ (2009) Dopamine release during emotional memory processing. 15th Annual Meeting of the Organization of Human Brain Mapping, San Francisco, May 18-21, 2009. *Neuroimage (Supp)*:127.
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127. Normandin MD, **Badgaiyan RD**, Schieler WK and Morris ED (2009) A linear simplification of the parametric ntPET model for estimation of neurotransmitter response kinetics. IX International Conference on Quantification of Brain Function with PET, Chicago, June 29-July 3, 2009. Award Winning Abstract. *Journal of Nuclear Medicine* 50(Supp):58
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137. **Badgaiyan RD**, Alpert NM and Fischman AJ (2006) Striatal dopamine release during a cued-recall task. Annual Meeting of the Society of Nuclear Medicine, San Diego, June 3-7, 2007. Journal of Nuclear Medicine (Supp) 47:138P
138. **Badgaiyan RD**, Alpert NM and Fischman AJ (2006) Neurochemical Mapping of Human Cognition. 12th Annual Meeting of Organization of Human Brain Mapping, Human Brain Mapping; Florence, Italy, June 11-15, 2006. NeuroImage 31 (Supp 1):692
139. **Badgaiyan RD** (2005) Neural processing of conscious experience. 2nd International Seminar on Chronic Diseases and Their Management Using Complementary and Alternative Medicine. Banaras Hindu University, India, September 23-25, 2005
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154. **Badgaiyan RD** (1999) Cortical correlates of memory and conscious awareness. Third International Symposium on Cognition, Education and Mental Health, December 1999. Varanasi, India, Abstract p 30
155. **Badgaiyan RD**, Schacter DL and Alpert NM (1999) Deactivation of extrastriate cortex in unimodal auditory priming but not in cross modal priming. Annual Meeting of Cognitive Neuroscience Society, April 1999, Washington, DC, Abstract p 39.
156. Casey BJ, Thomas, KM, Welsh TF, **Badgaiyan RD**, Jennings JR and Crone EA (1999) Involvement of the anterior cingulate and related circuitry in inhibition of attention to competing peripheral stimuli. Annual Meeting of Cognitive Neuroscience Society, April 10-13, 1999, Washington, DC, Abstract p 57.
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Dissertations Mentored

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178. **Gupta S** (1993) Influence of intracranial transplantation of noradrenergic neurons on age related behavioral alterations, (Ph.D. Dissertation), Banaras Hindu University.