

Curriculum Vitae

Date Prepared: September 26, 2018
Name: Poornima Kumar, PhD
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Email: pkumar@mclean.harvard.edu
Place of Birth: Chennai, India

Education

2002 Bachelor of Engineering (Instrumentation & Control Engineering), University of Madras, India
2005 M.S. (Medical Imaging), University of Aberdeen, Scotland
2008 Ph.D. (Mental Health – Computational Neuroimaging in Depression), University of Aberdeen, Scotland. (Advisor: Douglas Steele, M.D., Ph.D.)

Postdoctoral Training

06/08-09/11 Postdoctoral Research Fellow, Neurosciences, Department of Psychiatry, University of Oxford, Oxford, UK (Advisor: Catherine Harmer, Ph.D.)
10/11-04/14 Postdoctoral Research Fellow, Laboratory for Affective and Translational Neuroscience, Department of Psychiatry, McLean Hospital, Belmont, MA (Advisor: Diego A. Pizzagalli, Ph.D.)

Faculty Academic Appointments

05/14-01/18 Instructor, Department of Psychiatry, Harvard Medical School, Boston, MA
01/18- Assistant Professor, Department of Psychiatry, Harvard Medical School, Boston, MA

Appointments at Hospitals/Affiliated Institutions

05/14-12/17 Assistant Neuroscientist, Center for Depression, Anxiety and Stress Research, Depression and Anxiety Division, McLean Hospital, Belmont, MA
01/18- Associate Neuroscientist, Center for Depression, Anxiety and Stress Research, Depression and Anxiety Division, McLean Hospital, Belmont, MA

Committee Service

2017-2019 Co-organizer, CDASR Speaker series, McLean Hospital, Belmont, MA

Professional Societies

- 2008-2011 British Association of Psychopharmacology, Trainee Member
- 2013-2014 Organization of Human Brain Mapping, Trainee Member and Member, Abstract Selection Committee
- 2014 Society for Neuroscience (SfN), Member
- 2015 Social and Affective Neuroscience Society (SANS), Trainee Member
- 2015 International College of Neuropsychopharmacology (CINP), Trainee Member
- 2015 Anxiety and Depression Association of America (ADAA), Member
- 2015 Society of Biological Psychiatry (SOBP), Member
- 2017 British Association of Psychopharmacology, Full Member

Editorial Activities:

Ad hoc Reviewer

Biological Psychiatry, Brain, Cognitive Behavioral and Affective Neuroscience, Cognition and Emotion, Depression and Anxiety, Human Brain Mapping, International Journal of Psychopharmacology, JAMA Psychiatry, Journal of Affective Disorders, Journal of Psychopharmacology, Neuroimage, Neuroscience and Biobehavioral Reviews, Psychological Medicine, Psychopharmacology, Schizophrenia Research,

Honors and Prizes:

- 2005 National Health Service (NHS) Endowment PhD Studentship, UK
- 2007 NHS Endowment Research Symposium Poster Prize, University of Aberdeen –best poster
- 2008 Aristotle’s Research Award (best paper), International Congress of Brain & Behavior, Thessaloniki, Greece
- 2009 Travel Fellowship Award, Brain, UK – Awarded to attend scientific meetings
- 2009 Travel Fellowship Award, Experimental Psychology Society, UK – Awarded to attend scientific meetings
- 2011 The John and Charlene Madison Cassidy Fellowship, McLean Hospital – Awarded to Dr. Diego Pizzagalli at McLean Hospital to support post-doctoral training salaries

Report of Funded and Unfunded Projects:

Past

- 2011-2013 An Investigation Into Reinforcement Learning in Individuals With Subclinical Depression
Oxfordshire Health Services Committee
Role: Principal Investigator (£7000 total direct costs)
- 2012-2013 Social Reinforcement Learning in Depression
Livingston Fellowship, Harvard Medical School
Role: Principal Investigator (\$5000 total direct costs)
- 2013-2015 Social Reinforcement Learning in Depression – An fMRI Study
NARSAD Young Investigator Award
Role: Principal Investigator (\$60,000 total direct costs)
- 2015-2018 Influence of GABA on Reinforcement Learning Abnormalities in Current and Remitted
Depression
National Institute of Mental Health (NIMH) (R21MH105775)
Role: Principal Investigator (\$275,000 total direct costs)
Through a multi-modal imaging approach that combines (1) quantitative measurements of GABA, (2) functional magnetic resonance imaging (fMRI) during a reinforcement learning task, and (3) a state-of-the-art computational model, the aims are to identify precise mechanisms underlying learning deficits in current and remitted major depression and to parse state/trait effects of depression, which might suggest novel avenues for therapeutic interventions.
- 2016-2018 Influence of GABA on Reinforcement Learning in Individuals With Major Depression
NARSAD Young Investigator Award
Role: Principal Investigator (\$70,000 direct costs)
To understand the neural correlates of reward and punishment learning in individuals with major depressive disorder (MDD) and in controls, using fMRI, MRS and computational modeling.
- 2016-2018 Combined PET and fMRI Imaging of Dopamine and Serotonin Responses in Depression
NIMH ([1R01MH100350](#))
Role: Subcontract PI (PI - Normandin; total direct costs: \$107,134)
The goals of the proposed research program are to extend methods for mapping neurochemical signaling in the brain with newly developed simultaneous PET/MR scanners. Our new neuroimaging procedures and analysis routines will be used to investigate deficits in dopamine and serotonin signaling in subpopulations of depressed patients.

Current

- 2018-2019 Translational Approach to Understanding the Neurobiology of Reinforcement Learning in
Depression
Inaugural Dorris Translational Research Pilot Award, McLean Hospital
Role: Principal Investigator (total direct costs: \$12,000)
The goal of this application is to collect preliminary data that focuses on reinforcement

learning, which has been shown to be disrupted in MDD, and study the influence of GABA on learning. This translational approach will focus on studying learning behavior in humans, then use electrophysiological recordings to identify biological details in mice that cannot be studied in humans. This back and forth translational approach holds the highest potential for delineating MDD pathophysiology and finding novel therapeutic targets.

Report of Local Teaching and Training:

Teaching of Students in Courses

2005-2007	MRI Laboratory Demonstrator	University of Aberdeen, Scotland
2009-2011	A level and GCSE Math and Science Tutor	University of Oxford, UK
2010	Reinforcement Learning Lecture to MSc students	University of Oxford, UK
2017	Computational Modeling for fMRI (HST.583)	MIT

Laboratory and Other Research Supervisory and Training Responsibilities

University of Oxford

2008-2011	Training of 2 PhD students in fMRI image processing	Weekly mentorship and as needed
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McLean Hospital

2011-	Training and supervision of 3 past and 1 current Clinical Research Assistants in fMRI data processing	Daily (3 hours per week) supervision
2013-	Training of one post-doc, two instructors and two assistant professors in fMRI study design and analyses	As needed
2014	Training and supervision of an undergraduate summer intern	Daily supervision (2 hours per day) for 3 months
2015-	Supervision of Harvard College 4 th year thesis student	Daily (one hour per day) mentorship
2015	Supervision and training on fMRI and big data analyses of a research intern	Daily supervision (2 hours per day) for 6 months
2015-2016	Training of a visiting graduate student in fMRI data analyses	Bi-weekly (2 hours) mentorship for 6 months
2015-2016	Training of a visiting graduate student in	Weekly mentorship (2 hours per week) for

	fMRI data analyses and computational modelling	6 months
2016-2018	Supervision of Clinical Research Assistant in data acquisition and analysis for an fMRI study	2 days/week 8 hours/day supervision
2017-2018	Training of a visiting graduate student in fMRI data analyses and machine learning	Weekly mentorship (8 hours per week) for 1 year
2018-	Training and supervision of an undergraduate summer intern	Weekly mentorship (3 hours per week)

Supervised Trainees

2011-2013	Laura Murray / Clinical Research Assistant Provided training on fMRI task design and analyses and MRI physics Role: Co-Advisor (with Diego Pizzagalli, Ph.D.) Now Clinical Psychology intern, Brown University
2013-2015	Franziska Goer / Clinical Research Assistant Provided training on fMRI task design and analyses and MRI physics Role: Co-Advisor (with Diego Pizzagalli, Ph.D.) Now PhD Student, Neuroscience, University of Manchester, UK
2014	Nicole Gerszberg / Undergraduate Summer Research Intern, Wesleyan University, Middletown, CT Completed a summer research internship and acquired training in psychiatric assessment and EEG task design and analyses. Role: Co-advisor (with Diego Pizzagalli, Ph.D.) Now Senior Consultant at Booz Allen Hamilton
2014-2016	Angela Pisoni / Clinical Research Assistant Provided training on fMRI task design and analyses, MRI physics and scripting Role: Co-Advisor (with Randy Auerbach, Ph.D.) Now PhD Student, Clinical Psychology, Duke University
2015	Magda Dubois / Undergraduate Research Intern Completed a research internship and acquired training in big data fMRI analyses. Posters presented at McLean Hospital Research Day and Education School Future Neuroscience conference, Austria in 2016. Co-author of publication (#16). Role: Advisor Now PhD Student in University College, London
2015-2017	Isobel Green / Undergraduate Research Thesis Student, Harvard College Completed a thesis examining effects of positive mood induction on reward processing in healthy controls and individuals with subclinical depression. Presented posters at Harvard Psychiatry Research Day and McLean Hospital Research Day in 2016. First author on a

paper under review in NeuroImage.
Role: Co-mentor/advisor (with Diego Pizzagalli, Ph.D.)
Now a MD/PhD student in Harvard Medical School

- 2015- Charumathi Baskaran, M.D. / Instructor (MGH), Department of Psychiatry, HMS
Provided training on fMRI task design and building imaging protocols for data acquisition.
Ongoing support for imaging data and behavioral analyses of the fMRI task.
Role: Advisor
- 2015- Randy Auerbach, Ph.D. /Assistant Professor, Department of Psychiatry, HMS
Provided training on fMRI task design and building imaging protocols for data acquisition.
Ongoing support for fMRI data analyses of the fMRI task. Several posters have been
presented at McLean Research Day and Anxiety & Depression Association of America
conference in 2015, 2016 and 2017. One co-authored publication (#15)
Role: Advisor
- 2015-2016 Matthias Sperl/Graduate Student Intern (University of Marburg/Department of
Psychology)
Completed a 6 month internship and acquired training in fMRI analyses. Presented posters
at McLean Hospital Research Day, Society of Psychophysiological Research and
European Meeting on Human Fear Conditioning conferences in 2016. One co-authored
publication (#19)
Role: Co-Advisor (with Diego Pizzagalli, Ph.D.)
- 2015-2016 Jindra Bakker / Graduate Student Intern (Maastricht University / Department of
Psychology and Neuroscience)
Completed a 6 month internship and aquired training in fMRI and behavioral analyses, and
computational modeling of a reinforcement learning task. One co-authored publication
(under review)
Role: Co-advisor (with Diego Pizzagalli, Ph.D.)
- 2016- Maria Ironside, Ph.D./ Post-doctoral Fellow, McLean Hospital
Provided training on fMRI task design and building imaging protocols for data acquisition.
Ongoing support for fMRI data analyses and computational modeling of the fMRI task.
Role: Co-advisor (with Diego Pizzagalli, Ph.D.)
- 2016- Christian Webb, Ph.D. / Assistant Professor, Department of Psychiatry, HMS
Provided training on fMRI task design and building imaging protocols for data acquisition.
Ongoing support for fMRI data analyses.
Role: Co-advisor (with Diego Pizzagalli, Ph.D.)
- 2016- Alexis Whitton, Ph.D. / Instructor, Department of Psychiatry, HMS
Provided training on fMRI task design and building imaging protocols for data acquisition.
Ongoing support for fMRI data analyses and computational modeling of the fMRI task.
One co-authored publication (#17)
Role: Co-advisor (with Diego Pizzagalli, Ph.D.)

- 2016-2018 Erin Bondy / Clinical Research Assistant
 Provided training on fMRI task design and data analyses.
 Role: Co-advisor (with Randy Auerbach, Ph.D.)
- 2016-2018 Yueyi Jiang / Clinical Research Assistant
 Provided training on fMRI task design, acquisition and data analyses and supervision for conducting clinical screening and fMRI sessions.
 Role: Co-advisor (with Alexis Whitton, Ph.D.)
- 2017-2018 Xiao Yang (Graduate Student Intern (Department of Psychiatry, West China School of Medicine, Sichuan University)
 Provided supervision and mentoring on multimodal data analysis using data fusion and machine learning.
 Role: Advisor
- 2018- Casey Nicastri (Undergraduate Research Thesis Student, Boston College)
 Ongoing training on fMRI task design, acquisition and data analyses. Ongoing supervision for experimental data design and scripting.
 Role: Co-advisor

Awards to Supervised Trainees (below awards were granted for their undergraduate thesis work):

- 2016 Harvard College Research Program Award (Green)
 Role: Co-mentor (with Diego Pizzagalli, Ph.D.)
- 2016 Herchel Smith Harvard Undergraduate Science Research Fellowship (Green)
 Role: Co-mentor (with Diego Pizzagalli, Ph.D.)
- 2016 Program for Research in Science and Engineering Summer Fellowship (Green)
 Role: Co-mentor (with Diego Pizzagalli, Ph.D.)
- 2016 Harvard College Research Program Award (Green)
 Role: Co-mentor (with Diego Pizzagalli, Ph.D.)

Local Invited Presentations:

No presentations below were sponsored by outside entities

- 2012 Learning Deficits in Depression: Neuroimaging and Neurocomputational approaches.
 Neuroimaging Speaker Series, McLean Hospital (Belmont, MA)/ Oral presentation
- 2014 Reinforcement Learning Abnormalities in Major Depression.
 Neuro Work-in Progress, McLean Hospital (Belmont, MA)/ Oral presentation
- 2015 Interaction of Ongoing Chronic and Lab-Induced Acute Stressors During Reward Processing. McLean Center for Depression, Anxiety and Stress Research speaker series (Belmont, MA)/ Oral presentation
- 2017 Positive Mood Induction on Reward Processing: Associations with Anhedonia, Neuro Work-in Progress, McLean Hospital (Belmont, MA)/ Oral presentation

- 2017 Reinforcement Learning in Depression, McLean Hospital Annual Research Day (Belmont, MA)/ Oral presentation
- 2017 Reinforcement Learning in Depression, Student Visitor Seminar Series, McLean Hospital (Belmont, MA)/ Oral presentation

Report of Regional, National and International Invited Teaching and Presentations:

Invited Presentations and Courses

No presentations below were sponsored by outside entities

National

- 2013 Instrumental Learning in Major Depressive Disorder and Its Neuromodulation. Society of Biological Psychiatry, 68th Annual Meeting (San Francisco, CA,) / Oral presentation given as part of a symposium titled “Computational Models of Reinforcement Learning to Study Mood Disorders”
- 2016 Reinforcement Learning Impairments in Clinical and Subclinical Depression. Anxiety & Depression Association of America, 36th Annual Meeting (Philadelphia, PA) / Oral Presentation given as part of a symposium titled “From Brain Connectivity to the Clinic: Gaining Insight Into Depression and Treatment Using Translational Neuroscience”
- 2016 Examining Abnormal Reward Learning in Bipolar Disorder. Society of Biological Psychiatry, 71th Annual Meeting (Atlanta, GA) / Oral presentation given as part of a symposium titled “Anhedonia, Apathy, Amotivation, Anergia? Disrupted Reward Processing as a Trans-Diagnostic Construct in Mental Illness”
- 2017 Impaired Reinforcement Learning in Euthymic bipolar patients. Society of Psychophysiological Research, Annual Meeting (Vienna, Austria) / Oral presentation given as part of a symposium titled “Impaired processing of Rewards and Punishments in Affective Disorders during Anticipation and consummation”
- 2017 Impaired prediction error encoding during reward learning in depression: GABA and dopaminergic modulations. American College of Neuropsychopharmacology, 56th Annual Meeting (Plam Springs, CA) / Oral presentation given as a part of a symposium titled “Disentangling the emotionally dysregulated brain: novel insights into neural mechanisms of mood disorder vulnerability across youth and adulthood”

Report of Education of Patients and Service to the Community:

Activities

- 2009 – 2011 Association of India's Development (AID), London, UK
Role: Project Coordinator/Leader
- 2012 McLean Hospital/Depression Screener – National Depression Screening Day
Volunteer providing free depression diagnostic screens to the Boston community.

Report of Scholarship:

Peer reviewed scholarship in print or other media

Research Investigations

1. Steele JD, **Kumar P**, Ebmeier KP. Blunted response to feedback information in depressive illness. *Brain*. 2007 Sep 1;130(9):2367-74.
2. **Kumar P**, Waiter G, Ahearn T, Milders M, Reid I, Steele JD. Abnormal temporal difference reward-learning signals in major depression. *Brain*. 2008 Aug 1;131(8):2084-2093.
3. **Kumar P**, Waiter G, Ahearn T, Milders M, Reid I, Steele JD. Frontal operculum temporal difference signals and social motor response learning. *Hum Brain Mapp*. 2009 Apr 14;30(5):1421-1430.
4. Gradin VB, **Kumar P**, Waiter G, Reid I, Stickle C, Milders M, Hall J, Steele JD. Expected value and prediction error abnormalities in depression and schizophrenia. *Brain*. 2011 June 1;134(6):1751-1764.
5. Sprengelmeyer R, Steele JD, Mwangi B, **Kumar P**, Christmas D, Milders M, Matthews K. The insular cortex and the neuroanatomy of major depression. *J Affect Disord*. 2011 Sep 1;133(1-2):120-127.
6. Gradin VB, Waiter G, **Kumar P**, Stickle C, Milders M, Matthews K, Reid I, Hall J, Steele JD (2012). Abnormal neural responses to social exclusion in schizophrenia. *PLoS One*. 2012 Aug 16;7(8):e42608.
7. **Kumar P**, Berghorst LH, Nickerson LD, Dutra SJ, Goer FK, Greve DN, Pizzagalli DA. Differential effects of acute stress on anticipatory and consummatory phases of reward processing. *Neuroscience*. 2014 Apr 25;266:1-12.
8. Wang XL, Du MY, Chen TL, Chen ZQ, Huang XQ, Luo Y, Zhao YJ, **Kumar P**, Gong QY. Neural correlates during working memory processing in major depressive disorder. *Prog Neuro-Psychopharmacology Biol Psychiatry*. 2015 Jan 2;56:101-108.
9. Admon R, Nickerson LD, Dillon DG, Holmes AH, Bogdan R, **Kumar P**, Dougherty DD, Iosifescu DV, Mischoulon D, Fava M, Pizzagalli DA. Dissociable cortico-striatal connectivity abnormalities in major depression in response to monetary gains and penalties. *Psychol Med*. 2015 Jan 1;45(1):121-131.
10. Chase HW*, **Kumar P***, Eickhoff SB, Dombrowski AY. Reinforcement learning models and their neural correlates: An activation likelihood estimation meta-analysis. *Cogn Affect Behav Neurosci*. 2015 Jun 1;15(2):435-459.

11. **Kumar P**, Slavich GM, Berghorst LH, Treadway MT, Brooks NH, Dutra SJ, Greve DN, O'Donovan A, Bleil ME, Maninger N, Pizzagalli DA. Perceived life stress exposure modulates reward-related medial prefrontal cortex responses to acute stress in depression. *J Affect Disord*. 2015 July 15;180:104-111.
12. Msetfi RM, **Kumar P**, Harmer CJ, Murphy RA. SSRI enhances sensitivity to background outcomes and modulates response rates: A randomized double blind study of instrumental action and depression. *Neurobiol Learn Mem*. 2016 May 1;131:76-82.
13. Berghorst LH*, **Kumar P***, Greve DN, Deckersbach T, Ongur D, Dutra SJ, Pizzagalli DA. Stress and reward processing in bipolar disorder: A functional magnetic resonance imaging study. *Bipolar Disord*. 2016 Nov 1; 18:602-611.
14. Jiang J, Zhao YJ, Hu XY, Du MY, Chen ZQ, Wu M, Li KN, Zhu HY, **Kumar P**, Gong QY. Microstructural brain abnormalities in medication-free patients with major depressive disorder: A systematic review and meta-analysis of diffusion tensor imaging. *J Psychiatry Neurosci*. 2017 May 1; 42:150341.
15. Auerbach RP, Pisoni A, Bondy E, **Kumar P**, Stewart JG, Yendiki A, Pizzagalli DA. Neuroanatomical prediction of anhedonia in adolescents. *Neuropsychopharmacology*. 2017 Mar 29; 42:2087-2095.
16. **Kumar P**, Waiter G, Dubois M, Milders M, Reid I, Steele JD. Increased neural response to social rejection in major depression. *Depress Anxiety*. 2017 Nov; 34:1049-1056.
17. Whitton AE, Deccy S, Ironside ML, **Kumar P**, Beltzer P, Pizzagalli DA. EEG source functional connectivity reveals abnormal high-frequency communication among largescale functional networks in depression. *Biol Psych: Cogn Neurosci Neuroimaging*. 2017 Jul 13. doi: 10.1016/j.bpsc.2017.07.001 [Epub ahead of print].
18. Kaiser RH, Treadway MT*, Wooten DW*, **Kumar P***, Goer F, Murray L, Beltzer M, Pechtel P, Whittin AE, Cohen AL, Alpert NM, El Fakhri G, Normandin MD, Pizzagalli DA. Frontostriatal and Dopamine Markers of Individual Differences in Reinforcement Learning: A Multi-modal Investigation. *Cereb Cortex*. 2017. doi.org/10.1093/cercor/bhx281 [Epub ahead of print].
19. Sperl MFJ, Panitz C, Rosso IM, Dillon DG, **Kumar P**, Hermann A, Whitton AE, Hermann C, Pizzagalli DA, Mueller EM. Fear extinction recall modulates human fronto-medial theta and amygdala activity during simultaneous EEG-fMRI. *Cereb Cortex*. 2018 Jan 24. doi: 10.1093/cercor/bhx353.
20. **Kumar P**, Goer F, Murray LM, Dillon DG, Beltzer M, Cohen AL, Brooks NH, Pizzagalli DA. Impaired reward prediction error encoding and striatal-midbrain connectivity in depression. *Neuropsychopharmacology*. 2018. 43:1581-88.
21. Ironside M, **Kumar P**, Kang M, Pizzagalli DA. Brain mechanisms mediating effects of stress on reward sensitivity. *Curr Op Behav Sci*.2018. 22:106-13.

* Authors contributed equally to this work

Under Review

22. Bakker JM, Goossens L*, **Kumar P***, Lange IMJ, Michielse S, Schruers K, Bastiaansen JA, Lieveise R, Marcelis M, van Amelsvoort T, van Os J, Myin-Germeys I, Pizzagalli DA, Wichers M (under review). From lab to life: Associating brain reward processing with real-life motivated behaviour. *Psychological Medicine*.

23. Green IW, Pizzagalli DA, Admon R, **Kumar P** (under review). Anhedonia Modulates the Effects of Positive Mood Induction on Reward-related Brain Activation. *Neuroimage*

24. Pizzagalli DA, Berretta S*, Wooten D*, Goerb F, Pilbellob KT, **Kumar P**, Murray L, Beltzer ML, Boyer-Boiteaub A, Alpert N, El Fakhri G, Vitaliano G, Normandin M (under review). Reduced Striatal Dopamine Transporter Binding in Depression: In vivo PET and Postmortem Evidence. *Molecular Psychiatry*.

25. Lincoln S, Pisoni A, Bondy E, **Kumar P**, Singleton P, Hajcak G, Pizzagalli DA, Auerbach RP (revise and resubmit). Altered Reward Processing Following an Acute Social Stressor in Adolescents. *SCAN*.

Under preparation

26. Yang X*, **Kumar P***, Pizzagalli DA, Nickerson L*, Ma S* (in preparation). Identifying depressive subtypes based on structural covariance networks using unsupervised learning.

27. Whitton AE, **Kumar P**, Treadway MT, Foti D, Rutherford A, Ironside ML, Jensen JE, Fitzmaurice G, Du F, Pizzagalli DA (in preparation). Striatal and anterior cingulate cortex prediction errors make distinct contributions to implicit reinforcement learning.

28. **Kumar P**, Pisoni A, Bondy E, Singleton P, Pizzagalli DA, Auerbach RP (in preparation). Social value signals in the medial frontal cortex during a peer rejection task.

* Authors contributed equally to this work

Non-peer reviewed scientific or medical scholarship/materials in print or other media:

Book chapters

Kumar P, Harmer CJ, Dourish C (2012). Neuroimaging approaches to the understanding of depression and the identification of novel antidepressants. In, McArthur R (Ed.) *Translational Neuroimaging, Tools for CNS Drug Discovery, Development and Treatment*, pp: 343-411, Academic Press, USA.

MSc. Thesis

Kumar P (2004). Diffusion Tractography Mapping of White Matter Pathways. University of Aberdeen, Scotland.

Dissertation (Ph.D.)

Kumar P (2008). Computational Modeling of Reward Learning and Social Information Processing in Major Depression: A Functional MRI and Behavioural Investigation. University of Aberdeen, Scotland.

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings in the past three years:

1. **Kumar P**, Berghorst L, Nickerson L, Dutra SJ, Greve DN, Pizzagalli DA. Stress-induced reward processing dysfunction in healthy controls: An fMRI study. McLean Hospital Research Day, Belmont, MA, January 22, 2014.
2. Admon R, Nickerson LD, Dillon DG, Holmes AH, Bogdan R, **Kumar P**, Dougherty DD, Iosifescu DV, Mischoulon D, Fava M, Pizzagalli DA. Cortico-striatal connectivity abnormalities in response to incentives predict symptom change in major depression. McLean Hospital Research Day, Belmont, MA, January 22, 2014.
3. Goer F, Murray L, **Kumar P**, Cohen A, Pechtel P, Brooks N, Beltzer M, Alpert N, Wooten D, Normandin M, El Fakhri G, Pizzagalli DA. A PET investigation of dopamine transporter binding in depression using C¹¹Altropane. McLean Hospital Research Day, Belmont, MA, January 22, 2014.
4. **Kumar P**, Berghorst LH, Treadway M, Slavich GM, Greve DN, Pizzagalli DA. Blunted medial prefrontal activation to rewards is associated with stressful life events in MDD. Society of Biological Psychiatry, New York, NY, May 9, 2014.
5. **Kumar P**, Berghorst L, Treadway MT, Slavich GM, Greve DN, Pizzagalli DA. Stressful Life Events Blunts Medial Prefrontal Activity to Rewards in MDD, Society for Neuroscience, Washington D.C, November 19, 2014.
6. Auerbach RP, Pisoni A, **Kumar P**, Stanton CH, Jensen JE, Pizzagalli DA. Corticostriatal and glutamatergic predictors of adolescent depression. American College of Neuropsychopharmacology Annual Meeting, Phoenix, AZ, December 8, 2014. Abstract published in *Neuropsychopharmacology*, 39, S42.
7. **Kumar P**, Goer F, Murray LM, Beltzer M, Dillon DG, Pechtel P, Cohen AL, Brooks N, Glaeser BK, Brennan BP, Pizzagalli, DA. Instrumental learning in major depressive disorder and its neuromodulation, Social and Affective Neuroscience, Boston, MA, April 24, 2015.
8. Sperl MFJ, Panitz C, Rosso IM, Dillon DG, Whitton AE, **Kumar P**, Hermann A, Hermann C, Pizzagalli DA, Mueller EM. Validation of an experimental paradigm for simultaneous fMRI-EEG: Modulation of theta oscillations by fear conditioning and extinction. Society of Psychophysiological Research, Minneapolis, MN, October 1, 2015. Abstract published in *Psychophysiology*, 53, S94.
9. Uhl AA, **Kumar P**, Beltzer M, Murray L, Vitaliano GD, Olson DP, Pizzagalli DA. Reduced nucleus accumbens response during social reinforcement learning in major depressive disorder. McLean Hospital Research Day, Belmont, MA, January 22, 2016.
10. Green I, Parsons E, Capitaio L, Pizzagalli DA, **Kumar P**. Altered punishment learning in dysphoria. McLean Research Day, Belmont, MA, January 22, 2016.
11. Dubois M, **Kumar P**, Berghorst LA, Greve DN, Deckersbach T, Pizzagalli DA. Examining abnormal

- reward processing in bipolar disorder. McLean Hospital Research Day, Belmont, MA, January 22, 2016.
12. Sperl MFJ, Panitz C, Rosso IM, Dillon DG, **Kumar P**, Hermann A, Hermann C, Pizzagalli DA, Mueller EM. Modulation of theta oscillations by fear conditioning and extinction during simultaneous EEG and fMRI. McLean Hospital Research Day, Belmont, MA, January 22, 2016.
 13. Pisoni A, **Kumar P**, Pizzagalli DA, Auerbach RP. Adolescent Depression: Probing neural mechanisms underlying social reward processes. Anxiety and Depression Conference, Philadelphia, April 2, 2016.
 14. Auerbach RP, Pisoni A, **Kumar P**, Jensen JE, Pizzagalli DA. Toward identifying neural predictors of adolescent depression. Society of Biological Psychiatry, Atlanta, May 13, 2016.
 15. Dubois M, **Kumar P**, Berghorst LA, Greve DN, Deckersbach T, Pizzagalli DA. Examining abnormal reward processing in bipolar disorder. 3rd HBP Education School Future Neuroscience, Obergurgl University Centre, Austria, December 3, 2016.
 16. Sperl MFJ, Panitz C, Whitton AE, Rosso IM, Dillon DG, **Kumar P**, Hermann A, Hermann C, Pizzagalli DA, Mueller EM. Integration of hemodynamic and electrophysiological correlates of human long-term fear conditioning and extinction by simultaneous EEG-fMRI. European Meeting on Human Fear Conditioning, Soesterberg, Netherlands, April 18, 2016.
 17. Bondy E, Lincoln S, Pisoni A, **Kumar P**, Pizzagalli DA, Auerbach RP. Neural markers underlying reward dysfunction predicts anhedonia in adolescents, McLean Hospital Research Day, Belmont, MA, January 22, 2017.
 18. Green I, Admon R, Pizzagalli DA, **Kumar P**. Assessing the effectiveness of positive mood induction in individuals with low vs. moderate anhedonia. McLean Research Day, Belmont, MA, January 22, 2017.
 19. **Kumar P**, Jensen JE, Bachetti JL, Jiang Y, Pizzagalli DA. Influence of baseline GABA on Reward Prediction Error in healthy and depressed individuals. Society of Biological Psychiatry, San Diego, California, May 19, 2017.
 20. Whitton AE, Decey S, Ironside ML, **Kumar P**, Beltzer M, Pizzagalli DA. Temporal dynamics of large-scale functional network disturbances in depression. Society of Biological Psychiatry, San Diego, California, May 18, 2017.
 21. **Kumar P**, Goer F, Murray LM, Beltzer M, Pizzagalli DA. Impaired prediction error encoding and striatal-midbrain connectivity during reward learning in Depression. Organization of Human Brain Mapping, Vancouver, CA, June 26th, 2017.
 22. Whitton AE, Decey S, Ironside ML, **Kumar P**, Beltzer M, Pizzagalli DA. Abnormal high frequency resting-state EEG source functional connectivity in depression. Organization of Human Brain Mapping, Vancouver, CA, June 26th, 2017.