SANJAY J. MATHEW, M.D.

Menninger Department of Psychiatry & Behavioral Sciences

One Baylor Plaza MS: BCM350

Houston, TX 77030 Tel: 713-798-5877 Fax: 713-798-3465 sjmathew@bcm.edu

I. General Biographical Information

A. Personal

1. Name: Sanjay Johan Mathew, M.D.

2. Citizenship: U.S.

3. Education: (include institution/location, degree, and dates of attendance)

a. Undergraduate Education:

Dartmouth College/Hanover, NH, A.B. Biology, 1991

b. Medical Education or Graduate Education (with thesis/dissertation title, advisor):

Baylor College of Medicine/Houston, TX, M.D., 1997

c. Postgraduate Training: residency, fellowship (clinical or research)

Columbia-Presbyterian Hospital/New York, NY, Internship, 1997-1998

New York State Psychiatric Institute (NYSPI)/New York Presbyterian,

Residency, 1998-2001

Columbia University/NIMH T32 Research Fellowship in Mood/Anxiety Disorders,

2001-2004

B. Academic Appointments: (with institution, title and dates of appointment)

1. Current faculty position(s):

Associate Professor with Tenure, Menninger Dept of Psychiatry, Baylor College of Medicine, 2010-on

Brown Foundation Chair of Psychopharmacology of Mood Disorders, 2012-on

Staff Physician, Michael E. Debakey VA Medical Center, 2010-on

Faculty, Ben Taub General Hospital, Department of Psychiatry, 2010-on

Investigator, The Methodist Hospital Research Institute. 2010-on

2. Previous faculty position(s) at other institutions:

Associate Professor of Psychiatry, Mount Sinai School of Medicine (MSSM), 2009

Director, Mood & Anxiety Disorders Program, MSSM, 2008-2009

Associate Professor, Graduate School of Biological Sciences, MSSM, 2009

Assistant Professor of Psychiatry, MSSM, 2004-2008

Assistant Professor of Clinical Psychiatry, Columbia University College of Physicians & Surgeons, 7/1/04 7/31/04

Attending Physician, Brain Behavior Clinic and ECT service, NYSPI, 7/1/02-7/31/04

Instructor/Assistant in Psychiatry, Columbia University, 7/1/01-6/30/04

3. Current courtesy faculty appointments at other institutions:

Professorial lecturer, Mount Sinai School of Medicine, 2010-on

C. Other advanced training/experience: (with locations, dates and sources of support)

1. Formal Sabbatical leave:

n/a

2. Other specialized training following academic appointment:

- 1998 Medical License #211078, New York, registered through 10/31/13
- 2002 Diplomate, American Board of Psychiatry and Neurology (recertification 2012)
- 2010 Medical License #N5849, Texas, issued 04/09/10, registered through 8/31/13

D. Other information

1. Honors or Awards: titles, dates

Hilde Bruch Medical Student Excellence Award, Baylor College of Medicine, 1997

Columbia University House Staff Research Award, 1998

American Psychiatric Association/Lilly Resident Research Award, 2001

Anxiety Disorders Association of America Trainee Travel Award, 2001

Arnold P. Gold Foundation Outstanding Resident Teaching Award, 2001

Distinguished Laughlin Fellow, Columbia Univ College of Physicians & Surgeons, 2001

Columbia University Alumni Association Outstanding Teaching Award, 2001

American Psychiatric Association Colloquium for Young Investigators, 2001

American College of Neuropsychopharmacology Memorial Travel Award, 2003

NARSAD Young Investigator Award, 2001 and 2006

American Foundation for Suicide Prevention Pfizer Travel Award, 2007

Dr. Harold and Golden Lamport Research Award, Mount Sinai School of Medicine, 2007

Excellence in Psychiatry Education Award, Mount Sinai Dept. of Psychiatry, 2008

Associate Member (Elected), American College of Neuropsychopharmacology, 2009

NARSAD Independent Investigator Award, 2009

Corresponding Member (Invited), European College of Neuropsychopharmacology, 2010

Nominee, Ziskind-Somerfeld Award, Society of Biological Psychiatry, 2010

Faculty Recognition Award, Mount Sinai School of Medicine, Dept of Education, 2010

Best Doctors, 2011-2012

Outstanding Faculty Teaching Award, Selected by BCM Graduating Psychiatry Resident Class, 2012.

"Young Leader in Mental Health", The Menninger Clinic Our Future in Mind Program, 2012

2. Board Eligibility/Certification

Diplomate, American Board of Psychiatry and Neurology, 2002 (recertification 2012)

3. Other non-academic positions: (with locations, titles, dates of employment)

None

II. Research Information

A. Research Support

1. Current

Optimization of IV Ketamine for Treatment Resistant Major Depression. National Institute of Mental Health; Principal Investigator; 2009-2013; \$1,064,832; R01 MH081870.

2/3-Efficacy and Tolerability of Riluzole in Treatment-Resistant Depression. National Institute of Mental Health; Principal Investigator; 2010-2014; \$750,000; R01 MH085054-03.

2/3-Efficacy and Tolerability of Riluzole in Treatment-Resistant Depression. National Institute of Mental Health; Principal Investigator; 2012-2013; \$68,467; R01 MH085054-03S1 [scientific supplement]

Evaluation of the Efficacy of the CRF1 Antagonist GSK561679 in Women with PTSD.

National Institute of Mental Health; Subcontract PI (Emory University); 2012-2014; \$332,155; U19MH069056.

Adjunctive IV Ketamine in Treatment-Resistant Depression: a 4-week Randomized, Placebo-Controlled Trial. NARSAD: The Brain Behavior Fund, Independent Investigator Award; Principal Investigator; 2009-2013; \$100,000.

A multicenter, randomized, double-blind, active-controlled, comparative, fixed-dose, dose-response study of the efficacy and safety of BMS-820836 in patients with treatment-resistant major depression. Bristol-Myers Squibb (PI: Asim Shah, M.D.); 2011-2013

Co-Mentor

Functional MRI studies of emotion in depression and rapid antidepressant response. National Institute of Mental Health; Co-mentor (PI: James Murrough, M.D., Mount Sinai School of Medicine); 2011-2016; \$176,357 (FY2012); K23MH094707-02

Brief potent glutamatergic modulation: applications for cocaine dependence. National Institute on Drug Abuse; Co-mentor (PI: Elias Dakwar, M.D., Columbia University/New York State Psychiatric Institute); 2011-2016; \$186,192 (FY2012); K23DA031771-02

The role of habenula in major depression. Brain Behavior Research Foundation Young Investigator Award; Comentor (PI: Ramiro Salas, Ph.D., Baylor College of Medicine); 2012-2014; \$60,000.

FUNDED RESEARCH/GRANT SUPPORT -- PAST

A Randomized, Double-Blind, Parallel-Group, Active-and Placebo-Controlled Study to Assess the Efficacy and Safety of JNJ-26489112 in Adult Subjects with Major Depressive Disorder.

Johnson and Johnson; co-investigator (PI: Asim Shah, M.D.); 2010-2011

Proton MRS Studies in Generalized Anxiety Disorder. National Institute of Mental Health; Principal Investigator; 2004-2009; \$756,000; K23

Randomized, placebo-controlled trial of an AMPAkine in major depressive disorder. National Institute of Mental Health; Co-Investigator; (PI: Dennis Charney, M.D.); 2006-2009; \$455,157.

Emory-GSK-NIMH Collaborative Mood Disorders Initiative. National Institute of Mental Health; Co-Investigator; (PI: Charles Nemeroff, M.D.); 2004-2009; Center: \$1,221,997; Mount Sinai Site: \$216,387.

Ketamine as a Rapid Treatment for Post-Traumatic Stress Disorder. Department of Army/USAMRAA; Co-Investigator; (PI: Dennis Charney, M.D.); 2008-2012; \$691,685.

A 4-Week, Randomized, Double-blind, Parallel-Group Placebo-Controlled Study to Investigate the Safety and Efficacy of EVT 101 as Monotherapy in Patients With Treatment-Resistant Major Depression. Evotec Neurosciences GmbH; co-Investigator (PI: Asim Shah, M.D.); 2010-2011

1H MRS Neurometabolites as Diagnostic Markers for Chronic Fatigue Syndrome. Chronic Fatigue and Immune Dysfunction Syndrome (CFIDS) Association Research Grant; Co-Investigator; (PI: Dikoma Shungu, Ph.D); 2009-2010; \$100,000.

A randomized, double-blind, parallel-group, placebo-controlled, fixed-dose study evaluating the efficacy and safety of orvepitant in subjects with major depressive disorder. GlaxoSmithKline Pharmaceuticals; co-Principal Investigator (MSSM site); 2009-2010; \$96,000.

An exploratory fixed dose randomized double-blind parallel group placebo-controlled study of the safety and of the therapeutic effects of Ro 4917523 in patients with treatment-resistant depression. Hoffman La-Roche; Principal Investigator; 2008-2010; \$422,877.

A double-blind, placebo-controlled study of aripiprazole adjunctive to antidepressant therapy (ADT) among outpatients with MDD who have responded inadequately to prior ADT. MGH Clinical Trials Network and

Institute; Principal Investigator (MSSM site); (PI: Maurizio Fava, M.D.); 2008-2009; \$119,350.

Continuation Riluzole in the Prevention of Relapse Following IV Ketamine in Major Depression. NARSAD, Young Investigator Award; Principal Investigator; 2006-2008; \$60,000.

Continuation IV Ketamine for Treatment Resistant Depression. NARSAD, Distinguished Investigator Award; Co-Investigator; (PI: Dennis Charney, M.D.); 2006-2007; \$100,000.

1H MRS Neurometabolites as Diagnostic Markers for Chronic Fatigue Syndrome. Chronic Fatigue and Immune Dysfunction Syndrome (CFIDS) Association Research Grant; Co-Investigator; (PI: Dikoma Shungu, Ph.D); 2004-2005; 2006-2007; \$200,000.

A 52-week, randomized, double-blind, placebo-controlled, multi-center, parallel-group study of the long-term efficacy, tolerability and safety of agomelatine 25 mg and 50 mg in the prevention of relapse of Major Depressive Disorder (MDD) following open-label treatment of 16-24 weeks. Novartis Pharmaceuticals; Principal Investigator; 2007-2009; \$340,524.

Investigation of a Single Dose of StaccatoTM Alprazolam for Inhalation on Doxapram-Induced Panic Attack in Patients with Panic Disorder. Alexza Pharmaceuticals, Inc.; Principal Investigator; 2006-2008; \$304,589.

A Multicenter, Open-Label Study to Assess the Tolerability and Efficacy of PRX-00023 in Patients with Generalized Anxiety Disorder. Predix Pharmaceuticals, Inc.; Principal Investigator; 2005-2006; \$100,000.

Neuroimaging studies of depressed adolescents grown up. American Foundation for Suicide Prevention Young Investigator Award; Principal Investigator; 2001-2004; \$70,000.

A pilot investigation of riluzole in anxiety disorders with assessment of neuronal viability. Frontier Fund of Columbia University; Principal Investigator; 2001-2003; \$20,000.

Proton magnetic resonance spectroscopy studies of adversely reared non-human primates. NARSAD, Young Investigator Award; Principal Investigator; 2001-2002, \$60,000.

Proton MRS in Variable Foraging Demand Primates: pilot work. Psychiatric Institute Research Support Grant; Principal Investigator; 2001-2002; \$5,000.

PENDING:

New experimental medicine studies: fast-fail trials in mood and anxiety spectrum disorders (FAST-MAS). National Institute of Mental Health. Subcontract PI (Duke University); 2013-2015; HHS-NIH-DA-12-240.

Multicenter, Randomized, Double-blind, Parallel Group, Placebo-controlled, Phase II Efficacy and Safety Study of 2 Dose Groups of AZD6765 Adjunct to Current Antidepressant Therapy in Patients with Major Depressive Disorder who exhibit an Inadequate Response to Antidepressants. AstraZeneca Pharmaceuticals; Principal Investigator; 2012-2014.

B. National Scientific Participation: (include dates and titles)

1. Journal editorial boards, etc.

2003-2005 Publications Committee, Anxiety Disorders Association of America (ADAA)
2010-present Scientific Program Committee, Society of Biological Psychiatry (SOBP)

2011-present Consulting Editor, Bulletin of the Menninger Clinic

2. Review panels, etc.

2004 Reviewer, Scientific Abstracts, Anxiety Disorders Association of America (ADAA)

2004-present Ad-Hoc Reviewer: American Journal of Psychiatry, Archives of General Psychiatry, Biological

	Psychiatry, International Journal of Neuropsychopharmacology; Journal of Psychiatric Practice; Journal of Psychiatric Research; Medical Hypotheses, Molecular Psychiatry, Neuropsychopharmacology, Psychopharmacology
2007	Reviewer, Scientific Symposia, ADAA
2009	Reviewer, NIH ZRG1 F02a Study Section
2009	Grant Reviewer, Ontario Mental Health Foundation
2010	Member, NIMH Special Emphasis Panel, ZMH1-ERB-F
2010	Ad-hoc Reviewer, Women's Health Research at Yale, Pilot Project Program
2010-2014	Member, NIH Initial Review Group, Interventions Committee for Adult Disorders
2011	Reviewer, Research Grant, Medical Research Council, UK
2012	Scientific Advisor/Grant Reviewer, American Foundation for Suicide Prevention
2012	Reviewer, The Wellcome Trust, Intermediate Level Research Fellowship

3. Professional societies, etc.; elected positions, etc.

Organizational Memberships:

American Psychiatric Association; American Medical Association; International Society of Magnetic Resonance in Medicine; Society of Biological Psychiatry; Society for Neuroscience; American College of Neuropsychopharmacology (Elected Associate Member, 2009); European College of Neuropsychopharmacology

4. Invited lectures, presentations, research seminars: National, International

See SECTION III, C. Lectures - National, International

C. Publications:

1. Full papers:

a. Published in peer review journals

- 1. **Mathew SJ,** Yudofsky SC, McCullough LB, Teasdale TA, Jankovic J: Attitudes towards neurosurgical procedures for Parkinson's disease and obsessive-compulsive disorder: results of a national survey of neurologists and psychiatrists. <u>J. Neuropsychiatry Clin Neurosci</u> 11 (2): 259-267, 1999.
- 2. **Mathew SJ**, Fallon BA, Simpson HB: Treatment strategies for obsessive-compulsive disorder. <u>Psychiatric Annals</u> 30(11): 699-708, 2000.
- 3. Coplan JD, **Mathew SJ**, Smith ELP, Trost RC, Scharf BA, Martinez J, Gorman JM, Monn JA, Schoepp DD, Rosenblum LA: Effects of LY354740, a novel glutamatergic metabotropic agonist, on nonhuman primate hypothalamic-pituitary-adrenal axis and noradrenergic function. <u>CNS Spectrums</u> 6 (7): 607-617, 2001.
- 4. Fallon BA, **Mathew SJ**: Biological therapies for obsessive compulsive disorder. <u>Journal of Psychiatric</u> Practice 6: 113-128, 2001.
- 5. **Mathew SJ**, Coplan JD, Gorman JM: Neurobiological mechanisms of social anxiety disorder. <u>Am J Psychiatry 158 (10): 1558-1567, 2001.</u>
- 6. **Mathew SJ**, Coplan JD, Perko K, Goetz RR, de la Nuez M, Hollander E, Liebowitz MR, Fallon BA: Neuroendocrine predictors of response to intravenous clomipramine for refractory obsessive-compulsive disorder. <u>Depress Anxiety</u> 14 (4):199-208, 2001.
- 7. **Mathew SJ**, Coplan JD, Gorman JM: Management of treatment-refractory panic disorder. Psychopharmacology Bulletin 35 (2): 97-110, 2001.
- 8. **Mathew SJ**, Coplan JD, Smith ELP, Schoepp DD, Rosenblum LA, Gorman JM: Glutamate-hypothalamic-pituitary-adrenal axis interactions: implications for mood and anxiety disorders. <u>CNS Spectrums</u> 6 (7): 555-564, 2001.

- 9. **Mathew SJ**, Coplan JD, Smith ELP, Scharf BA, Owens MJ, Nemeroff CB, Mann JJ, Gorman JM, Rosenblum LA: Cerebrospinal fluid concentrations of biogenic amines and corticotropin-releasing factor in adolescent non-human primates as a function of the timing of adverse early rearing. <u>Stress</u> 5(3): 185-193, 2002.
- 10. Gorman JM, **Mathew SJ**, Coplan JD: Neurobiology of early life stress. <u>Semin Clin Neuropsychiatry</u> Apr; 7 (2): 96-103, 2002.
- 11. Kent JM, **Mathew SJ**, Gorman JM: Molecular targets in the treatment of anxiety. <u>Biol Psychiatry</u> 52 (10): 1008-1030, 2002.
- 12. **Mathew SJ**, Coplan JD, Goetz RR, Feder A, Greenwald S, Dahl RE, Ryan ND, Mann JJ, Weissman MM: Differentiating depressed adolescent twenty-four hour cortisol secretion in light of their adult clinical outcome. Neuropsychopharmacology 28 (7): 1336-1343, 2003.
- 13. **Mathew SJ**, Shungu DC, Mao X, Smith ELP, Perera GM, Kegeles LS, Perera T, Lisanby SH, Rosenblum LA, Gorman JM, Coplan JD: A magnetic resonance spectroscopic imaging study of adult nonhuman primates exposed to early-life stressors. <u>Biol Psychiatry</u> 54 (7): 727-735, 2003.
- 14. **Mathew SJ**, Mao X, Coplan JD, Smith ELP, Sackeim HA, Gorman JM, Shungu DC: Dorsolateral prefrontal cortical pathology in generalized anxiety disorder: a proton magnetic resonance spectroscopic imaging study. <u>Am J Psychiatry</u> 161 (6): 1119-1121, 2004.
- 15. Feder A, Goetz RR, Coplan JD, **Mathew SJ**, Pine DS, Greenwald S, Dahl RE, Ryan ND, Weissman MM: Twenty-four hour cortisol secretion patterns in prepubertal children with anxiety or depressive disorders. <u>Biol Psychiatry</u> 56: 198-204, 2004.
- 16. **Mathew SJ**, Amiel JA, Sackeim HA: Electroconvulsive therapy for treatment resistant depression. <u>Primary Psychiatry</u> 12: 52-56, 2005.
- 17. **Mathew SJ**: Exploring Glutamate Function in Mood and Anxiety Disorders: Rationale and Future Directions. CNS Spectrums 10: 806-807, [invited guest editorial] 2005.
- 18. **Mathew SJ**, Keegan K, Smith L: Experimental therapeutics for mood disorders: focus on glutamate modulators. <u>Brazilian Journal of Psychiatry</u> 27 (3): 243-8, 2005.
- 19. **Mathew SJ**, Amiel JA, Coplan JD, Fitterling H, Sackeim HA, Gorman JM: Open-label trial of riluzole in generalized anxiety disorder. <u>Am J Psychiatry</u> 162 (12): 2379-2381, 2005.
- 20. Coplan JD, Altemus MA, **Mathew SJ**, Smith ELP, Scharf B, Coplan PM, Kral JS, Gorman JM, Owens MJ, Nemeroff CB, Rosenblum LA: Synchronized maternal-infant elevations of primate CSF CRF concentrations in response to variable foraging demand. CNS Spectrums 10: 530-536, 2005.
- 21. **Mathew SJ**, Ho S: Etiology and neurobiology of social anxiety disorder. <u>J Clin Psychiatry</u> 67 Suppl 12: 9-13, 2006.
- 22. Garakani A, **Mathew SJ**, Charney DS: Neurobiology of anxiety disorders and implications for treatment. Mt. Sinai J Med 73 (7): 941-9, 2006.
- 23. **Mathew SJ**, Burd S: The bidirectional relationship between depression and diabetes. <u>Depress: Mind Body</u> 2 (4): 131-4, 2006.
- 24. Coplan JD, **Mathew SJ**, et al: Decreased choline and creatine concentrations in centrum semiovale in patients with generalized anxiety disorder: relationship to IQ and early trauma. <u>Psychiatry Research:</u> <u>Neuroimaging</u> 147 (1): 27-39, 2006.

- 25. Coplan JD, Smith ELP, Altemus M, **Mathew SJ**, Perera T, Kral JG, Gorman JM, Owens MJ, Nemeroff CB, Rosenblum LA: Maternal-infant response to variable foraging demand in nonhuman primates: effects of timing of stressor on cerebrospinal fluid corticotropin-releasing factor and circulating glucocorticoid concentrations. <u>Ann NY Acad Sci</u> 1071: 525-533, 2006.
- 26. Amiel JA, Mathew SJ: Glutamate and Anxiety Disorders. Curr Psychiatry Rep 9 (4): 278-83, 2007.
- 27. **Mathew SJ**, Price RB, Mao X, Smith ELP, Coplan JD, Charney DS, Shungu DC: Hippocampal N-Acetylaspartate Concentration and Response to Riluzole in Generalized Anxiety Disorder. <u>Biol Psychiatry</u> 63 (9): 891-898, 2008.
- 28. **Mathew SJ**, Price RB, Charney DS: Recent advances in the neurobiology of anxiety disorders: implications for novel therapeutics, <u>Am J Med Genetics Part C: Seminars in Med Genetics</u> 148C: 89-98, 2008.
- 29. Hoffman EJ, **Mathew SJ**: Anxiety disorders: a comprehensive review of pharmacotherapies. <u>Mt Sinai J</u> Med 75 (3): 248-262, 2008.
- 30. Dumitriu D, Collins KA, Alterman R, **Mathew SJ**: Neurostimulatory therapeutics in the management of treatment-resistant depression—special focus on deep brain stimulation. <u>Mt Sinai J Med</u> 73 (3): 263-275, 2008.
- 31. aan het Rot M, Charney DS, **Mathew SJ**: Intravenous Ketamine for Treatment-Resistant Depression. Primary Psychiatry 15 (4): 39-47, 2008.
- 32. **Mathew SJ**, Manji HK, Charney DS: Novel drugs and therapeutic targets for severe mood disorders. Neuropsychopharmacology 33 (9): 2080-2092, 2008.
- 33. Rickels K, **Mathew SJ**, Banov MD, Zimbroff DL, Oshana S, Parsons EC, Kauffman M, Iyer GR, Donahue SR, Reinhard JF: Effects of PRX-00023, a novel, selective serotonin 1A receptor agonist on measures of anxiety and depression in generalized anxiety disorder: results of a double-blind, placebo-controlled trial. <u>J Clin Psychopharmacol</u> 28 (2), 235-9, 2008.
- 34. **Mathew SJ**, Garakani A, Reinhard JF, Oshana S, Donahue S: Preliminary evidence of short-term efficacy of a novel, non-azapirone selective 1A agonist in generalized anxiety disorder. <u>Clin Therapeutics</u> 30 (9): 1658-1666, 2008.
- 35. **Mathew SJ**: Treatment-resistant depression: recent developments and future directions. <u>Depress Anxiety</u> 25 (12): 989-992, 2008.
- 36. **Mathew SJ**, Mao X, Keegan KA, Levine SM, Smith ELP, Otcheretko V, Coplan JD, Shungu DC: Elevated Ventricular Lactate in Chronic Fatigue Syndrome: A Proton Magnetic Resonance Spectroscopic Imaging Study. NMR Biomed 22 (3): 251-258, 2009.
- 37. Price RB, Shungu DC, Mao X, Nestadt P, Kelly C, Collins KA, Murrough J, Charney DS, **Mathew SJ**: Amino acid neurotransmitter concentrations in anterior cingulate and occipital cortex in symptomatic patients with major depression: relationship to treatment resistance. <u>Biol Psychiatry</u> 65 (9): 792-800, 2009.
- 38. Price RB, Nock MT, Charney DS, **Mathew SJ**: Effects of intravenous ketamine on explicit and implicit measures of suicidality in treatment-resistant depression. <u>Biol Psychiatry</u> 66 (5): 522-526, 2009.
- 39. aan het Rot M, **Mathew SJ**, Charney DS: Neurobiological mechanisms in major depressive disorder. CMAJ 180 (3): 305-313, 2009.
- 40. **Mathew SJ**, Charney DS: Publication bias and the efficacy of antidepressants. <u>Am J Psychiatry</u> 166 (2): 140-145, 2009.

- 41. Alterman RL, Dumitriu D, **Mathew S**: Deep brain stimulation for major depressive disorder. <u>Clinical</u> Neuropsychiatry, 6 (6): 259-265, 2009.
- 42. aan het Rot M, Collins KA, Murrough JW, Perez AM, Reich DL, Charney DS, **Mathew SJ**: Safety and efficacy of repeated-dose intravenous ketamine for treatment-resistant depression. <u>Biol Psychiatry</u> 67 (2): 139-145, 2010.
- 43. **Mathew SJ**, Murrough JW, aan het Rot M, Collins KA, Reich DL, Charney DS: Riluzole for relapse prevention following intravenous ketamine in treatment-resistant depression: a pilot randomized, placebocontrolled continuation trial. Int J Neuropsychopharm 13 (1): 71-82, 2010.
- 44. Abdallah CG, Tang CY, **Mathew SJ**, Martinez J, Hof PR, Perera TD, Shungu DC, Gorman JM, Coplan JD: Diffusion tensor imaging in studying white matter complexity: a gap junction hypothesis. <u>Neurosci Lett</u>. 475 (3): 161-164, 2010.
- 45. Krystal JH, **Mathew SJ**, D'Souza DC, Garakani A, Gunduz-Bruce H, Charney DS: Potential psychiatric applications of metabotropic glutamate receptor agonists and antagonists. CNS Drugs 24 (8): 669-693, 2010.
- 46. Coplan JD, Abdallah CG, Tang CY, **Mathew SJ**, Martinez J, Hof PR, Smith EL, Dwork AJ, Perera TD, Pantol G, Carpenter D, Rosenblum LA, Shungu DC, Gelernter J, Kaffman A, Jackowski A, Kaufman J, Gorman JM: The role of early life stress in development of the anterior limb of the internal capsule in nonhuman primates. <u>Neurosci Lett.</u> 480(2):93-6, 2010.
- 47. Murrough JW, Mao X, Collins K, Kelly C, Andrade G, Nestadt P, Levine S, **Mathew SJ***, Shungu DC: Increased ventricular lactate in chronic fatigue syndrome measured by 1H MRS imaging at 3.0 T. II: Comparison with major depressive disorder. NMR Biomed 23 (6): 643–650, 2010.

 * co-senior author
- 48. **Mathew S**, Price R, Shungu D, Mao X, Smith E, Amiel J, Coplan J. A pilot study of the effects of chronic paroxetine administration on hippocampal N-acetylaspartate in generalized anxiety disorder. <u>J Psychopharmacol</u> 24(8): 1175-1181, 2010. PMCID: PMC19204062
- 49. Coplan JD, **Mathew SJ**, Abdallah CG, Mao X, Kral JG, Smith ELP, Rosenblum LA, Perera TD, Dwork AJ, Gorman JM, Hof PR, Shungu DC: Early-life stress and neurometabolites of the hippocampus. <u>Brain Research</u> 1358: 191-199, 2010.
- 50. Jackowski A, Perera TD, Abdallah CG, Garrido G, Tang CY, Martinez J, **Mathew SJ**, Gorman JM, Rosenblum LA, Smith ELP, Dwork AJ, Shungu DC, Kaffman A, Gelernter J, Coplan JD, Kaufman J: Early-life stress, corpus callosum development, hippocampal volumetrics, and anxious behavior in male nonhuman primates. <u>Psychiatry Research</u> 192 (1); 37-44, 2011.
- 51. **Mathew SJ**, Vythilingam M, Feder A, Zarate CA Jr, Luckenbaugh D, Parides M, Trist D, Bani M, Bettica P, Ratti E, Charney DS: A selective neurokinin-1 receptor antagonist in chronic PTSD: a randomized, double-blind, placebo-controlled, proof-of-concept trial. <u>Eur Neuropsychopharmacol</u> 21 (3): 221-229, 2011.
- 52. Feder A, Skipper J, Blair JR, Buchholtz K, **Mathew SJ**, Schwarz M, Doucette J, Alonso A, Collins KA, Neumeister A, Charney DS: Tryptophan depletion and emotional processing in healthy volunteers at high risk for depression. <u>Biol Psychiatry</u>, 69 (8): 804-807, 2011.
- 53. Coplan JD, Abdallah CG, **Mathew SJ**, Shungu DC, Mao X, Smith ELP, Kaufman D, Gorman JM, Owens MJ, Nemeroff CB, Banerji MA, Rosenblum LA, Kral J: Metabolic syndrome and neurometabolic asymmetry of hippocampus in adult bonnet monkeys. <u>Physiology Behav</u>, 103 (5): 535-9, 2011.
- 54. Coplan JD, Hodulik S, **Mathew SJ**, Mao X, Hof PR, Gorman JM, Shungu DC: The relationship between intelligence and anxiety: an association with subcortical white matter metabolism. <u>Front Evol Neurosci</u>, 3:8, 2011.

- 55. Brodman DM, Clark CT, Murrrough JW, **Mathew SJ**, Harvey PD: The implications of neurocognitive deficits in posttraumatic stress disorder. Psych Annals 41 (8): 408-412, 2011.
- 56. Shungu DC, Weiduschat N, Mao X, Pillemer S, Murrough JW, Dyke JP, Medow M, Natelson B, Stewart J, **Mathew SJ**: Increased ventricular lactate in chronic fatigue syndrome. III: Relationships to cortical glutathione and to clinical symptoms support oxidative stress in disorder pathophysiology. <u>NMR Biomed</u> 25 (9): 1073-87, 2012.
- 57. Anand A, Gunn AD, Barkay G, Karne HS, Nurnberger JI, **Mathew SJ**, Ghosh S: Early antidepressant effect of memantine during augmentation of lamotrigine inadequate response in bipolar depression: a double-blind randomized placebo controlled trial. Bipolar Disord 14 (1): 64-70, 2012.
- 58. Anand A, **Mathew SJ**: Ketamine treatment of depression. <u>Psychopharmacol Reviews</u> 2012 [in press]
- 59. **Mathew SJ**, Shah A, Lapidus K, Clark C, Jarun N, Ostermeyer B, Murrough JW: Ketamine in Treatment-Resistant Major Depression: Current Evidence. CNS Drugs 26 (3): 189-204, 2012.
- 60. aan het Rot M, Zarate CA Jr, Charney DS, **Mathew SJ:** Ketamine for depression: where do we go from here? Biol Psychiatry 72 (7): 537-47, 2012.
- 61. Abdallah CG, Coplan JD, Jackowski A, Sato JR, Mao X, Shungu DC, **Mathew SJ**: A pilot study of hippocampal volume and N-aceytlaspartate (NAA) as response biomarkers in riluzole-treated patients with GAD. <u>Eur Neuropsychopharmacol</u> 2012 Jun 26 [Epub ahead of print]
- 62. Murrough JW, Perez AM, Pillemer S, Stern J, Parides MK, aan het Rot M, Collins KA, **Mathew SJ**, Charney DS, Iosifescu DV: Rapid and longer-term antidepressant effects of repeated ketamine infusions in treatment-resistant depression. <u>Biol Psychiatry</u> 2012 Jul 26 [Epub ahead of print]
- 63. Abdallah CG, Coplan JD, Jackowski A, Sato JR, Mao X, Shungu DC, **Mathew SJ**: Riluzole effect on occipital cortex: a structural and spectroscopy pilot study. <u>Neuroscience Letters</u> 2012 [accepted, minor revision]

2. Other full papers:

- a. Published without review by peer group none
- b. In preparation

Brodman DM, Murrough JW, Harvey PD, Keegan K, Collins KA, Charney DS, **Mathew SJ**: Neurocognitive deficits in posttraumatic stress disorder: assessment with the MATRICS Consensus Cognitive Battery.

Chang L, **Mathew SJ**: The emerging use of ketamine for anesthesia in traumatic brain injuries. <u>CNS Neurosciences and Therapeutics.</u>

Murrough JW, Wan L-B, Glicksberg B, Collins KA, **Mathew SJ**, Charney DS, Iosifescu DV, Burdick KE: Ketamine and neurocognition in depression: the modulating effects of lamotrigine.

- 3. Abstracts given during last three years .
- **1. Mathew SJ**, Vythilingam M, Feder A, Zarate CA Jr, Luckenbaugh D, Parides M, Trist D, Bani M, Bettica P, Ratti E, Charney DS: A selective neurokinin-1 receptor antagonist in chronic PTSD: a randomized, double-blind, placebo-controlled, proof-of-concept trial. 48th American College of Neuropsychopharmacology Annual Meeting, Hollywood, Fl., December 2009
- **2. Mathew SJ,** Murrough JW, Mao X, Pillemer S, Shungu DC. Proton Magnetic Resonance Spectroscopy Measurement of Brain Glutathione Supports Increased Oxidative Stress in Major Depressive Disorder. 49th American College of Neuropsychopharmacology Annual Meeting, Miami, Fl., December 5-9, 2010
- 3. Dyke JP, Weiduschat N, Mao X, Pillemer S, Murrough JW, Natelson B, **Mathew SJ**, Shungu DC: Assessment of regional cerebral blood flow in CFS using arterial spin labeling MRI. IACFS/ME 2011 Conference.

- 4. Abdallah CG, Coplan JD, Jackowski A, Mao X, Shungu DC, **Mathew S.J.** (2011). Hippocampal NAA and Volume: Potential Response Biomarkers to Glutamate-Based Drugs. 50th ACNP Annual Meeting, Hawaii, December 4-8, 2011, Neuropsychopharmacology 36: S75-S197
- 5. Shungu DC, Weiduschat N, Murrough JW, Mao X, Pillemer S, Dyke JP, Medow MS, Natelson BH, Stewart JM, **Mathew SJ**: Multmodal validation of oxidative stress model of chronic fatigue syndrome. International Society of Magnetic Resonance in Medicine [ISMRM] 2012, Melbourne, Australia.
- 6. Shungu DC, Weiduschat N, Mao X, Pillemer S, Murrough JW, **Mathew SJ**: In vivo neuroimaging evidence of oxidative stress in major depressive disorder. 20th European Congress of Psychiatry, Prague, Czech Republic, March 3-6, 2012.
- 7. Murrough JW, Wan L-B, Glicksberg B, Collins KA, **Mathew SJ**, Charney DS, Iosifescu DV, Burdick KE: Ketamine and neurocognition in depression: the modulating effects of lamotrigine. 51st ACNP Annual Meeting. Hollywood, FL. Dec 2012.
- 8. Murrough JW, Iosifescu DV, Chang LC, Al Jurdi RK, Green CM, Iqbal S, Pillemer S, Perez AM, Foulkes A, Shah A, Charney DS, **Mathew SJ:** Antidepressant efficacy of ketamine in treatment-resistant major depression: a two-site, randomized, controlled, parallel-arm clinical trial. 51st ACNP Annual Meeting. Hollywood, FL. Dec 2012.

4. Books:

- a. Complete books written (title, publishers, date)
- b. Books edited (include names of other editors)
- c. Book chapters written (include usual citations)
- 1. Narayan M, **Mathew SJ**, Nelson CJ: Depression in cardiac patients. In: Khan AH, ed. <u>Practical Cardiology</u>; Providence, R.I.: Chapman and Hall, 2002.
- 2. **Mathew SJ**, Gorman JM, Coplan JD: The neurobiology of panic disorder. In: Soares JC, Gershon S., editors. <u>Handbook of Medical Psychiatry</u>. New York: Marcel Dekker, 2002: 433-448.
- 3. Talbot P, **Mathew SJ**, Laruelle M: Brain Imaging in Depression and Anxiety. In: Kasper S, den Boer JA, Sitsen JMA, eds. <u>Handbook of Depression and Anxiety</u>. New York: Marcel Dekker, Inc, 2003, 289-329.
- 4. Kent JM, **Mathew SJ**, Gorman JM: The neurobiology of social anxiety disorder. In: Pollack MH, Simon NM, Otto MW., eds. <u>Social Anxiety Disorder: Research and Practice</u>. New York: Professional Publishing Group, Ltd., 2003, 123-136.
- 5. **Mathew SJ**, Shungu DC, Mao X, Coplan JD, Gorman JM: Neuroimaging studies in Non-Human Primates Reared Under Early Stressful Conditions: Implications for Fear and Anxiety Conditions. In: Gorman JM, editor. <u>Fear and Anxiety: Benefits of Translational Research</u>. Washington: American Psychiatric Press, Inc., 2004, 135-150.
- 6. **Mathew SJ**, Coplan JD: Animal models of social anxiety. In: Bandelow, B and Stein DJ, editors. <u>Social Anxiety Disorder-More Than Shyness: Psychopathology, Pathogenesis, and Management, Marcel Dekker Inc. New York, 2004, 161-179.</u>
- 7. **Mathew SJ**, Steinbugler M, Smith ELP: Neurochemistry of generalized anxiety disorder. <u>Anxiety</u> Disorders and Their Treatment. New York: Taylor & Francis Group, LLC.
- 8. Heuer L, **Mathew SJ**, Charney DS: Panic Disorder. In: Squire L, Albright T, Bloom F, Gage F, Spitzer N: New <u>Encyclopedia of Neuroscience</u>. Oxford: Elsevier Ltd.
- 9. **Mathew SJ**, Hoffman E: Pharmacotherapy of Generalized Anxiety Disorder. In: Antony MM, Stein MB, eds. Oxford Handbook of Anxiety and Related Disorders. New York: Oxford University Press, 2009, 350-363.

- 10. **Mathew SJ**, Hoffman EJ: Pharmacotherapy of Anxiety Disorders. In: Charney DS, Nestler EJ: Neurobiology of Mental Illness, 3rd Edition. New York: Oxford University Press, 2009, 731-754.
- 11. Berman RM, Sporn J, Belanoff JK, Charney DS, **Mathew SJ**: Principles of the pharmacotherapy of depression. In: Charney DS, Nestler EJ: <u>Neurobiology of Mental Illness, 3rd Edition.</u> New York: Oxford University Press, 2009, 491-514.
- 12. Amiel JA, **Mathew SJ**, Garakani A, Neumeister A, Charney DS: <u>Neurobiology of Anxiety Disorders.</u> In: Schatzberg AF, Nemeroff CB, eds. <u>APA Textbook of Psychopharmacology</u>, Fourth Edition, 2009, 965-988.
- 13. Murrough JW, **Mathew SJ**: Molecular imaging of other anxiety disorders. In: Shenton M, Turetsky B, eds. Understanding <u>Neuropsychiatric Disorders</u>. New York: Cambridge University, pp 295-307.
- 14. Murrough JW, **Mathew SJ**: Overcoming Antidepressant Treatment Resistance: Focus on Glutamate. In: Cryan JF, Leonard BE, eds. <u>Depression: From Psychopathology to Pharmacotherapy. Mod Trends Pharmacopsychiatry</u>. Basel: Karger, 2010, vol 27, pp 89-100.
- 15. locoviello B, Mathew SJ: Anxiety Disorders. In: American College of Physicians, 2011
- 16. Lapidus K, **Mathew SJ**: Ketamine in Treatment-Resistant Depression. In: Mann JJ, Roose S, McGrath P, eds. Handbook for the Management of Mood Disorders. [2012, under review]

5. Other works communicating research results to scientific colleagues

Mathew SJ: PANDAS variant associated with body dysmorphic disorder. Am J Psych 158(6): 963, 2001.

Mathew SJ: The complex relationship between depression and diabetes. <u>J Clin Psychiatry</u> Academic Highlights, 2006.

Mathew SJ, Charney DS: Anxiety and depression: leading edge of therapy. Mt Sinai J Med 2008; 75 (3): 171-173.

Collins KA, **Mathew SJ**: Update on Generalized Anxiety Disorder. <u>CME LLC/Psychiatric Times Perspectives in Psychiatry</u>: A Clinical Update. 25 (12): 989-992, 2008.

Murrough JW, Perez AM, **Mathew SJ**, Charney DS: A case of sustained remission following an acute course of ketamine in treatment-resistant depression. <u>J Clin Psychiatry</u> 72 (3): 414-415, 2011.

Mathew SJ: Resistant Depression: a Roadmap for Effective Care [Book Review]. <u>J Psychiatric Practice</u> 18 (5): 390-391, 2012.

6. Other works communicating research results to general public

Collins K, Mathew SJ. <u>Current evidence in the treatment of generalized anxiety disorder</u>. Available at: http://cme.medscape.com/viewprogram/19247.

III. Teaching Information

A. Didactic course work

1. Courses taught at current institution: (include number of hours)

Psychopharmacology II, PGY2 Residents, (Course Director), 12 sessions, 12 hrs, 2010-present

Psychopharmacology I, PGY1 Residents, 2 sessions, 2 hrs, 2010-present

Advanced Psychopharmacology, PGY4 residents, 32 sessions, 1 hr weekly, 2012-present

Psychopharmacology Rounds, The Menninger Clinic, 2 hrs/mo., 2010-present

Neurobiology of Disease, BCM Neuroscience Graduate Students, 1 hr, 2011-present

Post-doctoral psychology seminar, MEDVAMC, 1 hr, 2011-present

Psychology Intern Lecture Series, BCM psychology interns, 1 session, 1 hr, 2011-present

Previous teaching at Mt Sinai (2004-2009)

Psychopharmacology/Therapeutics, PGY2-4 residents -Weekly for academic year, 3 hrs/wk Brain and Behavior Course 2nd year medical students -Weekly for 2 months, 4 hrs/wk Lecture on Anxiety Disorders - 3rd Year Medical Students -1 hour, 4 times/year Pharmacogenetics course, pharmacogenetics in psychiatry – Grad students -2 hours/year Pharmacology Course, lectures on psychiatric medications -6 hr/year Brain and Behavior Course on mood disorders -2nd year medical students-2 hr/year

B. Non-didactic teaching

- 1. Resident training: 8 hrs/week (2 PGY3 Residents), 2012-2013
- 2. Clinical Fellow Training 1 hr/wk (2011-2012)
- 3. Research Fellow Training VA MIRECC Fellow (2010-2012)
- 4. Graduate Student Training BCM medical students (2010-2012)
- 5. Estimate of kinds of non-didactic teaching expected at BCM -

C. Lectures (include location, title, dates)

1. International

May 18, 2006	Norepinephrine in PTSD, Workshop Presenter, Society of Biological Psychiatry Meeting, Toronto
May 21, 2006	Diabetes and Depression: a bidirectional relationship, American Psychiatric Association annual meeting, Toronto
May 25, 2007	Assessment of GABA and Glutamate/Glutamine Using the J-edited Spin Echo Difference Method at 3 Tesla in Patients with Major Depressive Disorder [Selected Paper for Talk], International Society for Magnetic Resonance in Medicine, Berlin, Germany.
August 24, 2007	Predictors of Response to a Novel NK-1 Receptor Antagonist in PTSD [symposium on PTSD], 2 nd International Congress of Stress Research, Budapest, Hungary.
June 29, 2009	Role of the glutamate system in the neurobiology of anxiety and stress related disorders: How strong is the therapeutic rationale? Co-chair of Symposium. 9 th World Congress of Biological Psychiatry, Paris, France.
Sept 11, 2009	Role of glutamate in the pathophysiology and treatment of anxiety. Discussant, Anxiety Disorders Symposium, European College of Neuropsychopharmacology Meeting, Istanbul, Turkey
May 6, 2010	Glutathione in Major Depressive Disorders, Selected Abstract for Oral Presentation, ISMRM, Stockholm, Sweden [given by Dr. Shungu]

2. National (only last 3 years) Mar 17, 2010 Novel glutamatergic interventions for treatment resistant depression: old drugs, new opportunities? Grand Rounds, Menninger Department of Psychiatry and Behavioral Sciences, Baylor College of Medicine May 18, 2010 Update on Depression and its Treatment, Greater Houston DBSA May 25, 2010 Neurobiology of PTSD, Symposium: Neuropsychiatry of Veterans, American Psychiatric Association, New Orleans, LA. Aug 17, 2010 Ketamine and NMDA modulation for Treatment Resistant Depression, Grand Rounds, Department of Anesthesiology, BCM Sept 23, 2010 Glutamate, oxidative stress, and drug discovery for major depression. Houston Psychiatric Society Oct 30, 2010 Update on Pharmacotherapy of Bipolar Disorder. BCM CME Course Nov 15, 2010 Amino Acid Neurotransmitter Function and Oxidative Stress using H MRS, Neuroimaging Seminar, Methodist Hospital Research Institute May 2, 2011 Diagnosis of Major Depression. Houston Attorneys Forum. May 5, 2011 Transcranial Magnetic Stimulation: Menninger Clinic and Hospital, CME Lecture May 23, 2011 Oxidative stress and Mood Disorders. Grand Rounds, Department of Psychiatry, University of Texas Health Science Center at Houston. Oct 7, 2011 Pharmacotherapy of Bipolar Depression. BCM CME Course. Nov 5, 2011 A selective NK-1 receptor antagonist in chronic PTSD [symposium on novel targets in PTSD]. International Society for Traumatic Stress Studies, Baltimore, MD. Generic Medications and Cost Effective Psychopharmacology in the Great Recession. Grand Rounds, Menninger Dept of Psychiatry, Baylor College of Medicine Ketamine and the pursuit of rapidly acting antidepressants. Alaska Psychiatric Association, Apr 14, 2012 Annual CME Course.

May 29, 2012 GABA function in Treatment-resistant Depression. NCDEU Annual Meeting, Phoenix, AZ.

IV. Medical & Service Information

A. Patient care responsibilities

1. Department-wide

Outpatient psychiatry practice, BCM, 08/10-present

Attending Psychiatrist (Research), Ben Taub General Hospital/Harris Health System, 08/10-present

Medical Director, Comprehensive Mental Health Program, Mental Health Care Line, Michael E Debakey VA Medical Center, 01/10-08/12

Consulting Psychiatrist, Menninger Clinic, 08/10-present

2. Section or specialty

Director, Mood Disorders Program
Staff Psychiatrist, Neuromodulation Service at MEDVAMC

B. Clinical laboratory responsibilities

C. National education or voluntary health organization participation

Medical Advisor, Greater Houston Depression Bipolar Support Alliance (DBSA), 2010-present

D. Administrative assignments

1. Department administration, committees, etc.

Member, 2003	Residency Selection Committee, Columbia University
Member, 2004	Search Committee, Child and Adolescent Psychiatry
Member, 2004-2009	Residency Selection Committee, Mount Sinai Dept of Psychiatry
Member, 2010	Search Committee, TRP Director, MEDVAMC
Member, 2010-	Research Committee, Department of Psychiatry, BCM

2. College, School or University administration, committees, etc.

Member, 2004 Institutional Review Board, New York State Psychiatric Institute
Member, 2006 Info-Ed Clinical Trial Module Committee, MSSM
Member, 2007-2009 GCRC Advisory Committee, Mount Sinai School of Medicine
Member, 2009 Center for Clinical & Translational Research Scientific Advisory Board, MSSM
Member, 2009 Search Committee, Functional Brain Imaging Faculty, MSSM
Member, 2011 BCM Medical Directors, Baylor College of Medicine