

KAFUI DZIRASA, MD PhD

421 Bryan Research, Box 3209
311 Research Drive
Duke University Medical Center

E-mail: kafui.dzirasa@duke.edu
Durham, North Carolina 27710
Office: (919) 681-7371

EDUCATION:

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| University of Maryland Baltimore County, Baltimore, MD Bachelor of Science in Chemical Engineering, Magna cum laude Meyerhoff Scholar | June 1996-May 2001 |
| Duke University Graduate School, Durham NC Doctor of Philosophy in Neurobiology Thesis: Electrophysiological Correlates of Neurological and Psychiatric Disease Advisor: Miguel Nicolelis | August 2003-March 2007 |
| Postdoctoral Research Duke University, Durham, NC Advisor: Miguel Nicolelis | August 2007-March 2009 |
| Duke University School of Medicine, Durham, NC Doctor of Medicine Medical Scientist Training Program | August 2001-May 2009 |
| Duke University Hospital, Durham, NC Residency, General Psychiatry | July 2010-June 2016 |
| North Carolina Medical License License #: 2016-02599 License Status: Active | |

EMPLOYMENT HISTORY:

- K. Ranga Rama Krishnan Endowed Associate Professor, Tenure Track, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. May 2018-Current
- Associate Professor, Tenure Track, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. September 2017-Current
- Assistant Professor, Tenure Track, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. December 2013-August 2017
- Assistant Research Professor, Department of Neurobiology. Duke University. October 2012-Current.
- Assistant Professor, Department of Biomedical Engineering. Duke University. March 2012-Current.
- Visiting Professor of Neuroscience, Edmond and Lily Safra International Institute of Neurosciences of Natal (ELS-IINN). August 2011-Current.
- General Psychiatry Resident, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. June 2010-June 2016.
- Assistant Professor, Research Non-Tenure Track, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. September 2009-Dec 2013.
- Instructor, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. July 2009-August 2009.
- Postdoctoral Research Associate, Department of Neurobiology. Duke University Medical Center, Miguel Nicolelis Lab. April 2007-June 2009.

- Graduate Research Assistant, Department of Neurobiology. Duke University Medical Center, Miguel Nicolelis Lab. Feb 2004-March 2007. THESIS TITLE: Identifying electrophysiological correlates of neurological and psychiatric disease.
- Resident Assistant, Summer Medical and Dental Education Program, Duke University Medical Center. June-July, 2005-2008. DUTIES: Assisted in coordinating educational and enrichment activities for pre-medical and pre-dental college students.
- Neurobiology Tutor, School of Medicine. Duke University Medical Center. January 2005-February 2006. DUTIES: Tutoring medical students in Basic Neurobiology, I.
- Rotation Student, Brain Imaging and Analysis Center. Duke University Medical Center, Voyvodic Lab. November 2003-February 2004. PROJECT TITLE: fMRI BOLD signal analysis in brain tumor patients.
- Research Intern, Johns Hopkins Applied Physics Lab, Laurel Maryland. May 2001-July 2001. PROJECT TITLE: Mass Spectral Identification of Biological Residues.
- Research Intern, Chemical and Biochemical Engineering Department. University of Maryland Baltimore County. December 1999-June 2000. PROJECT TITLE: Composition analysis of *Aspergillus Oryzae* cell wall.
- Summer Research Intern, Mobil Technology Company, Paulsboro New Jersey. May 1999-August 1999. Duties: Development and evaluation of mathematical model for catalytic deactivation of zeolites. Creation of analysis tool-pack using Visual Basic to determine model parameters.
- Environmental Engineering Research Intern, Lancaster University. Lancaster, England UK. May 1998-August 1998. PROJECT TITLE: *Investigating the toxicity of Dodecylbenzene on Lubricus Terrestris, and effects on respiration of microorganisms in soil spiked with various percentages of oil.*
- Chemistry Tutor, Chemistry Tutorial Center. University of Maryland Baltimore County. September 1997-2000. DUTIES: Tutoring students in Introduction to Chemistry I and II, and Organic Chemistry I and II.
- Physics Tutor, Physics Tutorial Center. University of Maryland Baltimore County. February 1998-May 1998. DUTIES: Tutoring students in Introduction to Physics I, II and III.
- Software Engineering Research Intern, MIRAC Inc. Silver Spring, MD. July 1995-August 1995. DUTIES: Programming Subroutines using Visual Basic, and applying them to a large scale medical billing system.

ACADEMIC EXPERIENCE:

- Varsity Track and Field -1996-2000
Northeast Conference Champion, Long Jump -1999
- Student Government Association
Senator, Facilities Planning Committee – 1999-2000
President – 2000-2001
- President’s Student Advisory Council –1999-2001

SOCIETY MEMBERSHIPS:

- Association of Underrepresented Minority Fellows – 2007-2017
Founding member – 2007
Board of Directors – 2007-2017
- Society for Neuroscience – 2005-Current
- Phi Beta Kappa National Honors Society – 2008-2009
- Student National Medical Association – 2001-2010
Duke School of Medicine Chapter – 2001-2009
President – 2003-2004
Board of Directors – 2004-2008
Region IV Director – 2004-2006
Internal Affairs Co-Chair – 2006-2008
Strategic Advisory Council – 2008-2010
- Phi Kappa Phi National Honors Society – 1999-2001
- Golden Key National Honors Society – 1999-2001
- Tau Beta Pi-Engineering National Honors Society – 1998-2001
President of Maryland Delta Chapter – 1999-2000

ACADEMIC AND PROFESSIONAL HONORS:

- Engineering Alumni of the Year, UMBC – 2017
- NMQF 40 Under 40 Leaders in Minority Health – 2017
- Presidential Early Career Award for Scientists and Engineers – 2016
- Awarded NIH Clinical Lasker Fellowship (declined) – 2016
- Duke Medicine Alumni Emerging Leader Award – 2016
- Robert J. Lefkowitz Society for Physician Scientists – 2014
- Appleseed Resident Teaching Award – 2014
- Sidney R. Baer, Jr. Prize for Schizophrenia Research – 2013
- National Institute of Mental Health Outstanding Resident Award – 2013
- One Mind Institute Rising Star Translational Research Award – 2013
- Duke Institute of Brain Sciences Research Incubator Award – 2013
- TheGrio's 100 Award: Making History Today – 2013
- American College of Neuropsychopharmacology Travel Award – 2011
- Duke Institute of Brain Sciences Research Incubator Award – 2011
- Duke Institute of Brain Sciences Research Incubator Award – 2010
- NIMH Brain Camp Travel Award - 2009
- UNCF·Merck Postdoctoral Science Research Fellow – 2008
- Days of Molecular Medicine Travel Award – 2008
- Young Leaders of the Future, EBONY magazine – February 2008
- Somjen Award for Most Outstanding Dissertation Thesis – 2007
- Charles Johnson Leadership Award – 2007
- Minority Trainee Research Forum Travel Award – 2006
- Ruth K. Broad Biomedical Research Fellow – 2006-2007
- Awarded American Psychological Association DPN Fellowship – 2006
- UNCF·Merck Graduate Science Research Fellow – 2006-2007
- Wakeman Fellow – 2003-2005
- Medical Scientist Training Program – 2001-2003
- United States Achievement Academy Academic All-American Scholar – 1999
- CoSIDA Academic All-American Scholar – 1999
- Who's Who Among Students in American Universities and Colleges – 1999
- National Collegiate Minority Leadership Award – 1999
- Arthur Ashe Jr. Sports Scholarship Award – 1999
- UMBC Community Service and Leadership Award – 1999
- Northeast Conference Academic Honor Roll – 1998-1999
- Dean's List – 1997-2000
- Meyerhoff Scholarship recipient – 1996-2001

SUBMITTED POSTER ABSTRACTS:

K. Dzirasa, S. Ribeiro, R. M. Costa, L. M. Santos, S. C. Lin, A. Grossmark, T. D. Sotnikova, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. *Dopaminergic control of REM sleep in mice*. Winner, Basic Science Category. Wilbert C. Johnson Research Forum poster, April 2006

K. Dzirasa, S. Ribeiro, R. M. Costa, L. M. Santos, S. C. Lin, A. Grossmark, T. D. Sotnikova, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. *Dopaminergic control of REM sleep in mice*. NIMH Predoctoral Research Festival, May 2006

K. Dzirasa, S. Ribeiro, R. M. Costa, L. M. Santos, S. C. Lin, A. Grossmark, T. D. Sotnikova, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. *Dopaminergic control of REM sleep in mice*. Merck Industries Fellows Day, June 2006

K. Dzirasa, S. Ribeiro, R. M. Costa, L. M. Santos, S. C. Lin, A. Grossmark, T. D. Sotnikova, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. *Dopaminergic control of sleep-wake states*. Minority Trainee Research Forum, September 2006

K. Dzirasa, D. Y. Takahashi, J. Stapleton, J. M. Potes, R. R. Gainetdinov, K. Sameshima, Marc G. Caron, Miguel A. L. Nicolelis. *Persistent hyperdopaminergia alters phasic activity across the hippocampal-prefrontal cortex pathway*. Winner, Basic Science Category. Wilbert C. Johnson Research Forum, March 2008

K. Dzirasa, D. Y. Takahashi, J. Stapleton, J. M. Potes, R. R. Gainetdinov, K. Sameshima, Marc G. Caron, Miguel A. L. Nicolelis. *Dopamine mediated cognitive deficits are associated with altered phasic activity across the hippocampal-prefrontal cortex pathway*. Days of Molecular Medicine Symposium, April 2008

K. Dzirasa, D. Y. Takahashi, J. Stapleton, J. M. Potes, R. R. Gainetdinov, K. Sameshima, Marc G. Caron, Miguel A. L. Nicolelis. *Dopamine mediated cognitive deficits are associated with altered phasic activity across the hippocampal-prefrontal cortex pathway*. Society of Biological Psychiatry Annual Scientific Convention & Meeting, May 2008

K. Dzirasa, A. J. Ramsey, J. K. Williams, R. R. Gainetdinov, Marc G. Caron, Miguel A. L. Nicolelis. *NMDA receptor signaling is critical for cortical and hippocampal network synchronization*. Society for Neuroscience, November 2008

K. Dzirasa, H. W. Phillips, T. D. Sotnikova, A. Salahpour, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. *Dynamic mapping of brain circuits in mouse models of mental illness*. Winner, Basic Science Category. Wilbert C. Johnson Research Forum, April 2009

K. Dzirasa, H. W. Phillips, T. D. Sotnikova, A. Salahpour, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. *Dynamic brain map reveals corticostriatal and mesolimbic signaling dysfunction in mice acutely depleted of norepinephrine*. Society for Neuroscience, October 2009

S.D. Mague, B.M. Katz, S. Kumar, K.E. Johnson, L. Lin, D. Dunson, **K. Dzirasa**. *Orbitofrontal cortex–nucleus accumbens circuit dysfunction in impulsivity*. National Center for Responsible Gambling, September 2013

PEER REVIEWED PUBLICATIONS:

1. C. MacLeod, P. Lee, B. Reid, **K. Dzirasa**, K. Semple, D. Patel, S.G. Swingler. "Bioavailability of Cable Insulating Oil to Soil Biota." *Bioremediation Technologies for Polycyclic Aromatic Hydrocarbon Compounds*, 1999. p. 259-264.
2. **K. Dzirasa**, S. Ribeiro, R. M. Costa, L. M. Santos, S. C. Lin, A. Grossmark, T. D. Sotnikova, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. "Dopaminergic control of sleep-wake states." *Journal of Neuroscience*, 2006. 26(41): p. 10577-10589.
3. L.M. Santos, **K. Dzirasa**, R. Kubo, M. Silva, K. Sameshima, A. Valle, C. Timo-Iaria. "Baseline hippocampal theta oscillation speeds correlate with rate of operant task acquisition." *Behavioural Brain Research*, 2008. 190(1): p. 152-155.
4. **K. Dzirasa***, L. M. Santos, S. Ribeiro, J. Stapleton, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. "Persistent hyperdopaminergia decreases hippocampal theta oscillation frequencies during quiet waking and REM sleep" *PLoS ONE*, 2009. 4(4): e5238.

5. **K. Dzirasa***, A. J. Ramsey, D. Y. Takahashi, J. Stapleton, J. M. Potes, J. K. Williams, R. R. Gainetdinov, K. Sameshima, Marc G. Caron, Miguel A. L. Nicolelis. “Hyperdopaminergia and NMDA receptor hypofunction disrupt neural phase signaling.” *Journal of Neuroscience*, 2009. 29(25): p. 8215-8224.
6. **K. Dzirasa***, H. W. Phillips, T. D. Sotnikova, A. Salahpour, S. Kumar, R. R. Gainetdinov, M. G. Caron, M. A. L. Nicolelis. “Noradrenergic control of cortico-striato-thalamic and mesolimbic cross-structural synchrony.” *Journal of Neuroscience*, 2010 30(18): p. 6387-6397
7. **K. Dzirasa***, L. Coque, M. M. Sidor, S. Kumar, E. A. Dancy, J. S. Takahashi, C. A. McClung, M. A. L. Nicolelis. “Lithium ameliorates nucleus accumbens phase timing dysfunction in mouse model of mania.” *Journal of Neuroscience*, 2010. 30(48): p. 16314-16323
8. **K. Dzirasa***, R. Fuentes, S. Kumar, J. M. Potes, M. A. L. Nicolelis. “Chronic in vivo multi-circuit neurophysiological recordings in mice.” *Journal of Neuroscience Methods*, 2011. 195(1): p. 36-46.
9. **K. Dzirasa***, D. L. McGarity, A. Bhattacharya, S. Kumar, D. Dunson, C. A. McClung, M. A. L. Nicolelis. “Impaired limbic gamma oscillatory synchrony during anxiety-related behavior in a genetic mouse model of bipolar mania.” *Journal of Neuroscience*, 2011. 31(17):6449-6456
10. **K. Dzirasa***, Herbert Covington, III.* “Increasing the validity of experimental models for depression.” *Ann N Y Acad Sci*, 2012. 1265(1):36-45.
11. S. Kumar, S.J. Black, R. Hultman, S.T. Szabo, K.D. DeMaio, J. Du, B.M. Katz, G. Feng, H.E. Covington, III*, **K. Dzirasa***. “Cortical control of affective networks.” *Journal of Neuroscience*, 2013. 33(3):1116 –1129.
12. **K. Dzirasa***, Sunil Kumar, Benjamin Sachs, Marc G. Caron, Miguel A. L. Nicolelis. “Cortical-amygdalar circuit dysfunction in a genetic mouse model of serotonin deficiency.” *Journal of Neuroscience*, 2013. 33(10):4505-4513.
13. S. Kumar, R. Hultman, D. N. Hughes, N. Michel, B. M. Katz, **K. Dzirasa***. “Prefrontal cortex reactivity underlies trait vulnerability to chronic subordination stress.” *Nature Communications* 5:4537 doi: 10.1038/ncomms5537 (2014).
14. **K. Dzirasa***, R. R. Krishnan, R. S. Williams. “Incubating the Research Independence for a Medical Scientist Training Program Graduate: A Case Study.” *Academic Medicine*, 2015. Feb;90(2):176-9. doi: 10.1097/ACM.0000000000000568.
15. D. Carlson, J. Schaich Borg, **K. Dzirasa**, L. Carin. “On the relations of LFPs & Neural Spike Trains.” *Advances in Neural Information Processing Systems 27 (NIPS 2014)*.
16. K. Ulrich, D. Carlson W. Lian, J. Schaich Borg, **K. Dzirasa**, L. Carin. “Analysis of Brain States from Multi-Region LFP Time-Series.” *Advances in Neural Information Processing Systems 27 (NIPS 2014)*.
17. M. M. Sidor, S. Spencer, **K. Dzirasa**, P. K. Parekh, K. M Tye, M. R. Warden, R. Arey, J. F. Enwright, J. PR Jacobsen, S. Kumar, E. M Remillard, M. Caron, K. Deisseroth, and C. A. McClung*. “Daytime spikes in dopaminergic activity drive rapid mood-cycling in mice.” *Molecular Psychiatry*, 2015 Jan 6;5. doi: 10.1038/mp.2014.167
18. R. Hultman, M .M Sidor⁵, **K. Dzirasa***. “Tuning the brain-gut axis in health and disease.” *Current Stem Cell Reports*, 2015. DOI 10.1007/s40778-014-0004-y

19. J. Schaich Borg, M. T. Vu, C. Badea, A. Badea², G. A. Johnson², **K. Dzirasa***. “Localization of metal electrodes in the rat brain using registration of 3-D micro-computed tomography images to a magnetic resonance histology atlas.” *Eneuro*. 2015 Jul-Aug;2(4). pii: e0017.
 20. K. Ulrich, D. E. Carlson, **K. Dzirasa**, L. Carin. “GP Kernels for Cross-Spectrum Analysis” *Advances in Neural Information Processing Systems 28 (NIPS 2015)*.
 21. X. Wang, A. L. Bey, B. M. Katz, A. Baeda, N. Kim, L.K. David, L.J. Duffney, S. Kumar, S.D. Mague, S.W. Hulbert, N. Dutta, V. Harapetyan, C. Yu, E. Gaidis, S. Zhao, J. Ding, Q. Xu, L. Chung, R. Rodriguiz, F. Wang, R. Weinberg, W. C. Wetsel, **K. Dzirasa**, H. Yin, Y. Jiang. “Altered mGluR5-Homer Scaffolds and corticostriatal connectivity in a *Shank3* Complete Knockout Model of Autism.” *Nature Communications* 7:11459 doi:10.1038/ncomms11459 (2016)
 22. K. K. Ade, Y. Wan, H. C. Hamann, J. K. O’Hare, W. Guo, A. Quian, S. Kumar, R. Rodriguez, W. C. Wetsel, P. J. Conn, **K. Dzirasa**, K. M. Huber, N. Calakos. “Increased mGluR5 signaling underlies OCD-like behavioral and striatal circuit abnormalities in mice.” *Biological Psychiatry* 2016 May 13. pii: S0006-3223(16)32380-0; doi: 10.1016/j.biopsych.2016.04.023
 23. R. Hultman, S. Mague, Q. Li, B. Katz, N. Michel, L. Lin, J. Wang, L. David, C. Blount, R. Chandy, D. Carlson, K. Ulrich, L. Carin, D. Dunson, S. Kumar, K. Deisseroth, S. D. Moore, **K. Dzirasa***. “Dysregulation of prefrontal cortex-mediated slow evolving limbic dynamics drives stress-induced emotional pathology.” *Neuron*, 2016 Jul 20;91(2):439-52. doi: 10.1016/j.neuron.2016.05.038
 24. J. Schaich Borg, L. Lin, S. Srivastava, D. Dunson, **K. Dzirasa***, L. de Lecea*. “Rat intersubjective decisions are encoded by frequency-specific oscillatory contexts.” *Brain Behav*. 2017 May 5;7(6):e00710. doi: 10.1002/brb3.710. eCollection 2017 Jun.
 25. D. Carlson, L. K. David, N. M. Gallagher, M. T. Vu, M. Shirley, R. Hultman, J. Wang, C. Burrus, C. A. McClung, S. Kumar, L. Carin, S. D. Mague, **K. Dzirasa***. “Dynamically-timed stimulation of corticolimbic circuitry activates a stress-compensatory pathway.” *Biological Psychiatry*, 2017 Dec 15;82(12):904-913. doi: 10.1016/j.biopsych.2017.06.008. **[Cover Art]**
 26. N. M. Gallagher, K. Ulrich, **K. Dzirasa**, L. Carin, D. E. Carlson. “Cross-Spectral Factor Analysis” *Advances in Neural Information Processing Systems 30 (NIPS 2017)*.
 27. Y. Li, M. Murias, S. Major, G. Dawson, **K. Dzirasa**, L. Carin, D. E. Carlson. “Targeting EEG/LFP Synchrony with Neural Nets.” *Advances in Neural Information Processing Systems 30 (NIPS 2017)*.
 28. R. Hultman, K. Ulrich, B. D. Sachs, C. Blount, D. E. Carlson, N. Ndubuizu, R. C. Bagot, E. Parise, M. T. Vu, N. M. Gallagher, J. Wang, A. J. Silva, K. Deisseroth, S. Mague, M. G. Caron, E. J. Nestler, L. Carin*, **K. Dzirasa***. “Brain-wide electrical spatiotemporal dynamics encode depression vulnerability.” *Cell*. 2018 May 22;1-15. DOI: <https://doi.org/10.1016/j.cell.2018.02.012>
- Preprint, bioRxiv 154708; doi: <https://doi.org/10.1101/154708>
29. M. T. Vu*, T. Adali, D. Ba, G. Buzsaki, D. Carlson, K. Heller, C. Liston, C. Rudin, V. Sohal, Alik S. Widge, H. S. Mayberg, G. Sapiro, **K. Dzirasa***. “A Shared Vision for Machine Learning in Neuroscience.” *Journal of Neuroscience*, 2018 38(7): p. 1601–160. DOI: <https://doi.org/10.1523/JNEUROSCI.0508-17.2018>

H. Jaaro-Peled, S. Kumar, D. Hughes, S. Kim, S. Zoubovsky, R. Tharakan, Y. Hirota-Tsuyada, D. Zala, A. Sumitomo, J. Bruyere, B. M. Katz, B. Huang, R. Flores 3rd, S. Narayan, Z. Hou, A. N. Economides, T. Hikida, W. C. Wetsel, K. Deisseroth, S. Mori, N. J. Brandon, M. Tanaka, K. Ishizuka, M. D. Houslay, F. Saudou, **K. Dzirasa***, A. Sawa*, and T. Tomoda*. “Cortico-striatal circuit regulates sensorimotor gating via Disc1/Huntingtin-mediated axonal transport.” Submitted

R. Hultman, O. Boms, B.S.; S. D Mague, D. J Evanson; D. N. Hughes; V. Nadler, K. Dzirasa, P. Casey*. “A Role for G(alpha)z in seizure susceptibility.” Submitted

P. J. Nicholls. T. Pack, N. Urs, S. Kumar, G. Turu, E. Calabrese, W. Roberts, P. Fan, V. Ostapchenko, M. Guzman, F. Beraldo, V. Prado, M. Prado, I. Spasojevic, J. Snyder, K. Dzirasa, G. A. Johnson, M G. Caron. “Mapping nonapoptotic caspase activity with a transgenic reporter in mice.” Submitted

R. Hultman, S. Kumar, K. Nelson, **K. Dzirasa***, M. Jones*. “Genome-wide transcriptomics reveal molecular pathways underlying stress susceptibility.” in prep.

***corresponding authorship**

INVITED COMMENTARY

1. **K. Dzirasa**, S. H. Lisanby. “How does DBS work?” *Biological Psychiatry*, 2012. 72(11):892-4.
2. J.A. Gordon, **K. Dzirasa**, “Animal models of psychiatric disorders.” *Neuroscience*. 2016 May 3;321:1-2. doi: 10.1016/j.neuroscience.2016.02.004.
3. **K. Dzirasa**. “The neural substrates of a super memory.” *Science Translational Medicine*, Mar 2017: Vol. 9, Issue 383, eaan0770. DOI: 10.1126/scitranslmed.aan0770
4. **K. Dzirasa**. “Working memory: The real VIP.” *Science Translational Medicine*, May 2017: Vol. 9, Issue 389, eaan3779. DOI: 10.1126/scitranslmed.aan3779
5. **K. Dzirasa**. “When they go low, we go high.” *Science Translational Medicine*, Jun 2017: Vol. 9, Issue 395, eaan6193. DOI: 10.1126/scitranslmed.aan6193
6. **K. Dzirasa**. “A brilliant approach to study the basis of intelligence?” *Science Translational Medicine*, Aug 2017: Vol. 9, Issue 401, eaa0978. DOI: 10.1126/scitranslmed.aao0978
7. **K. Dzirasa**. “In the mood for food.” *Science Translational Medicine*, Sep 2017: Vol. 9, Issue 407, eaa06124. DOI: 10.1126/scitranslmed.aao6124
8. **K. Dzirasa**. “The new stars of synaptic regulation.” *Science Translational Medicine*, Oct 2017: Vol. 9, Issue 413, eaap8174. DOI: 10.1126/scitranslmed.aap8174
9. **K. Dzirasa**. “Brain leak, mind bleak.” *Science Translational Medicine*, Dec 2017: Vol. 9, Issue 419, eaar4429. DOI: 10.1126/scitranslmed.aar4429
10. **K. Dzirasa**. “Neuronal suppression causing depression?” *Science Translational Medicine*, Jan 2018: Vol. 10, Issue 425, eaar7520. DOI: 10.1126/scitranslmed.aar7520

BOOK CHAPTERS

Dzirasa K. Chronic recordings in transgenic mice. In: *Methods for Neural Ensemble Recordings*, 2nd Edition. Chapter 5. M. Nicolelis (editor), CRC press, 2008. Boca Raton, FL.

Bowman, R., Schwennesen, H., Dzirasa, K., and Hultman, R. In *Vivo Circuit Analysis*. Chapter 7, Charney & Nestler’s *Neurobiology of Mental Illness* 5th edition, Oxford press, 87-94, 2018.

ACADEMIC CONTRIBUTIONS

- 2012, Research Domain Criteria (*RDoC*): Arousal/Modulatory Systems working group
- 2015, Primary Undergraduate Instructor. Fall Semester Neuro 211: Brain and Behavior
- 2016, NIH Physician Scientist Workforce Workshop
- 2016-2018, Next Generation Research Initiative Committee. National Academies of Science, Engineering, and Medicine
- 2017-2018, Associate Scientific Advisor, *Science Translational Medicine*
- 2017-2018, Associate Dean for Admissions Search Committee, Chair. Duke University School of Medicine
- 2017-, Editorial Advisory Board, TEDMED
- 2017-, Duke Institutes for Brain Sciences, Faculty Governance Committee
- 2018-, Rescuing Biomedical Research, Steering Committee
- 2018-, BRAIN 2.0 Advisory Committee to the Director of NIH

INVITED PRESENTATIONS

- 2006, Grand Rounds -John Umpstead Hospital. Butner, NC
- 2007, Research Presentation -Merck. West Point, PA
- 2009, Research Presentation -Merck. West Point, PA
- 2010, Grand Rounds –Department of Psychiatry and Behavioral Science, Duke University Medical Center. Durham, NC
- 2011, Research Seminar –National Institutes of Drug Abuse (NIDA), Baltimore, MD
- 2011, Invited Speaker –University of Pennsylvania Department of Neuroscience
- 2011, Invited Speaker –Annual Biomedical Research Conference for Minority Students
- 2011, Invited Speaker –Association of Research in Nervous and Mental Disorders (ARNMD)
- 2011, Contributor –CBS 60 Minutes
- 2012, Research Seminar –Mt. Sinai School of Medicine, Department of Neuroscience, New York, NY
- 2012, Research Seminar –University of Pittsburgh, Department of Psychiatry, Pittsburgh, PA
- 2012, Research Seminar –Emory University, Department of Psychiatry, Atlanta, GA
- 2012, Research Seminar –J. Craig Venture Institute, Rockville, MD.
- 2012, Invited Speaker –Celebration of Science, Milken Institute/NIH, Bethesda, MD.
<http://www.youtube.com/watch?v=aaqA7Hxcsio&feature=youtu.be>
- 2013, Invited Speaker –Brain Camp, National Institute of Mental Health (NIMH), Bethesda, MD.
- 2013, Invited Presenter –The Alliance, National Institute of Mental Health (NIMH), Bethesda, MD.
- 2013, Invited Presenter –Wiring the Brain, Cold Spring Harbor Laboratory
- 2013, Invited Speaker –National Center for Responsible Gambling Annual Meeting
- 2013, Symposium Presentation –Society for Neuroscience
- 2013, Invited Speaker –Partnering for Cures, Milken Institute
- 2014, Research Seminar –Morehouse School of Medicine, Department of Neuroscience
- 2014, Invited Speaker –Iowa Governor’s Conference on Substance Abuse
- 2014, Invited Speaker –One Mind for Research
- 2014, Presidential Symposium –Association of Psychological Science Annual Meeting
<http://www.youtube.com/watch?v=TscBzliPbh0>
- 2014, Fox 8 News –<http://myfox8.com/2014/09/17/duke-researchers-looking-at-ways-to-help-people-manage-stress-better/>
- 2014, Invited Presenter –American College of Neuropsychopharmacology Annual Meeting
- 2015, Invited Speaker –NYU Lagone School of Medicine
- 2015, Invited Speaker –Gordon Research Conference, Amygdala in Health and Disease
- 2015, Invited Speaker –Molecular Psychiatry Annual Meeting

- 2016, Invited Speaker –Sackler Institute, Weill Medical College
- 2016, Invited Speaker –Brown Institute of Brain Science, Brown University
- 2016, Contributing Scientist –PBS Documentary, Ride the Tiger
<http://www.pbs.org/ride-the-tiger/home/>
- 2016, Grand Rounds –Department of Psychiatry and Behavioral Science, Duke University Medical Center. Durham, NC
- 2016, Invited Speaker –Gordon Research Conference, Optogenetics
- 2016, Invited Speaker –Department of Psychiatry, UCSD
- 2016, Invited Speaker –National Institute of Environmental Health Sciences
- 2016, Invited Speaker –MTSP Retreat, Duke University Medical Center
- 2016, Invited Speaker –Molecular Psychiatry Annual Meeting
- 2016, Invited Speaker –Department of Psychiatry, Yale School of Medicine
- 2016, Invited Panelist –Partnering for Cures Big Data Panel with NIH and FDA Directors, Milken Institute
<https://youtu.be/IDR37vtByPg>
- 2016, Invited Speaker –Department of Psychiatry, Johns Hopkins
- 2016, **Invited Panelist, White House Frontiers Conference Panel with President Barack H. Obama
<https://www.youtube.com/watch?v=7hp4GHqF7ro>
- 2016, Invited Speaker –TEDMED 2016
<https://www.youtube.com/watch?v=fwrIcYwgUew>
- 2016, Invited Participant – 21st Century Cures Act Bill Signing
- 2017, Invited Speaker – Department of Neuroscience, University of Colorado Anschutz
- 2017, Keynote Speaker– American Physician Scientist Association Annual Meeting
- 2017, Invited Speaker– University of Chicago, Northwestern, and University of Illinois Chicago MSTP programs.
- 2017, Invited Speaker -AMA Inspiration in Medicine, Chicago Illinois
- 2017, Invited Speaker– Hunter College and Weill Cornell Medical College, Clinical Translation Science Center (CTSC) science symposium: Stress and Resilience.
- 2017, Keynote Speaker– University of North Carolina, Pierre Morrell UNC Neuroscience Retreat
- 2017, Invited Speaker– University of Virginia MSTP Program
- 2017, Invited Speaker– Aspen Ideas Festival, Aspen, Colorado
- 2017, Invited Speaker– Partnering for Cures, Milken Institute
- 2017, Invited Speaker– Aspen Brain Lab, Aspen, Colorado
- 2017, Invited Speaker– AAMC MD-PhD Section Professional Development Meeting
- 2017, Keynote Speaker– Gateways to the Lab TRI-Intuition research program, Weill Cornell/Rockefeller/Sloan Kettering
- 2017, Invited Speaker– University of Maryland at Baltimore, Medical Scientist Training Program
- 2017, Invited Speaker– University of Texas San Antonio, Medical Scientist Training Program
- 2017, Invited Speaker– University of Maryland Baltimore County, Department of Chemical and Biochemical Engineering
- 2017, Invited Speaker– National Academy of Medicine, Annual Meeting. Washington, DC.
- 2017, Co-host, TEDMED 2017
- 2017, Invited Speaker– University of California San Francisco, Department of Neuroscience
- 2017, Invited Speaker– North Carolina School of Veterinary Medicine, Department of Molecular Biomedical Sciences
- 2018, Invited Speaker– Transparency, Recognition, and Innovation in Peer Review in the Life Sciences, ASAPbio, Howard Hughes Medical Institute, and Wellcome
- 2018, Invited Speaker– University of California, Los Angeles, Department of Medicine, Cardiac Electrophysiology
- 2018, Invited Panelist– Research!America, Annual Meeting. Washington, DC.
- 2018, Keynote Speaker– Medical Scientist Training Program Annual Symposium, University of Rochester
- 2018, Invited Speaker– Culture Shift Labs Annual summit, Menlo Park, CA
- 2018, Invited Presenter– NIMH Brain Camp
- 2018, Moderator and Panelist– National Minority Quality Forum Annual Summit
- 2018, Keynote Speaker– NAMI Buffalo and Erie County Annual Awards Dinner, Buffalo, NY

- 2018, Grand Rounds Speaker–University of Buffalo MD, Department of Psychiatry, Buffalo, NY
- 2018, Presidential Plenary Speaker–Society of Biological Psychiatry Annual Meeting, NY, NY
- 2018, Invited Speaker– Icahn School of Medicine at Mt. Sinai School, Department of Neuroscience, NY, NY
- 2018, Invited Speaker– Marine Biology Lab, Woods Hole, MA
- 2018, Invited Speaker– Icahn School of Medicine at Mt. Sinai School, Department of Neuroscience, NY, NY
- 2018, Distinguished Grand Rounds Speaker– University of Minnesota School of Medicine, Department of Psychiatry, Minneapolis, MN.
- 2018, Keynote Panelist– Friedman Dialogues, Association of Science-Technology Centers Annual Meeting, Hartford, CT.
- 2018, Distinguished Speaker– University of California Los Angeles School of Medicine, Molecular, Cellular, and Integrative Physiology, Los Angeles, CA.
- 2018, Invited Speaker– Columbia University, Zuckerman Institute, New York, NY.

PATENT APPLICATIONS

- Systems and Methods for Closed-Loop Brain Stimulation
U.S. Appl. Nos.: 62/314,371
- Systems and Methods for Brain Stimulation
U.S. Appl. Nos.: 62/337,464

TRAINEES SUPERVISED

- 1) Jamila Williams, MD: Undergraduate research intern (2006-2007).^*
Graduate of University of Connecticut School of Medicine, MD
Pediatrics Residency, NYU Langone Medical Center
- 2) Westley Phillips, MD: Summer Research Intern (2007).*
Subsequently awarded UNCF Merck Undergraduate Research Fellowship and **Fulbright Fellowship**.
Graduate of University of Pennsylvania School of Medicine.
Current Position: Neurosurgery Resident, UCLA
- 3) Deanna McGarity, MD: Research Intern (2008-2009). ^*
Graduate of University of North Carolina School of Medicine
- 4) Neil Gallagher, MS: Neurobiology Graduate Student, Duke University
Undergraduate research intern (2010-2013).
- 5) Sherilynn Black, PhD: Postdoctoral Research Associate (2009-2011).^*
Current Position: Assistant Professor of the Practice
Associate Vice Provost for Faculty Advancement, Duke University
- 6) Nicole Peretti: Summer undergraduate research intern (2011) ^
- 7) Dalton Hughes: Neurobiology Graduate Student, Duke University
Medical Scientist Training Program, Duke University School of Medicine
Awarded NRSA Individual F32 Fellowship
Summer Research Intern (2011 and 2013)*
- 8) Brittany Katz: Research Technician (2011-2015) ^*
Current Position: Graduate Student, University of North Carolina
- 9) Nadine Michel: Undergraduate Research Intern (2012-2013) and Research Intern (2013-2014). ^*
Current Position: Medical Scientist Training Program, University of Virginia
- 10) Lisa David: Undergraduate Research Intern (2012-2014) ^
Research Intern, Duke University Medical Center (2014-2016)
Current Position: Medical Student, Florida International University
- 11) Lizhen Lin, PhD: Postdoctoral Research Associate
Co-mentored w/David Dunson (2012-2014) ^
Current Position: Assistant Professor, Notre Dame
- 12) Gretchen Sprow, PhD: Postdoctoral Research Associate (2013-2014) ^
Current Position: Associate Scientific Director, MedThink SciCom
- 13) Stephen Mague, PhD: Postdoctoral Research Associate (2012-2015)

- Current Position: Senior Research Associate, Duke University Medical Center
- 14) Rainbo Hultman, PhD: Postdoctoral Research Associate (2012-Current) ^
Current Position: Assistant Professor, University of Iowa's new Neuroscience Institute
- 15) Jana Schaich Borg, PhD: Postdoctoral Research Associate (2013-2016) ^
Current Position: Assistant Research Professor, Duke University Social Science Research Institute
- 16) Kia Johnson: Summer Research Intern (2013) ^*
Graduate, University of St. Thomas.
Subsequently **Awarded Fullbright Fellowship**
- 17) Mai-Anh Vu: Graduate Student (2013-2018) ^
Awarded Duke Graduate School Dean's Award for Excellence in Teaching
- 18) Okechi Boms: Undergraduate Research Intern (2013-2016) *
Subsequently **Awarded Fullbright Fellowship**
Current Position: Medical Student, Harvard Medical School
- 19) Sanvesh Srivastava: PhD: Postdoctoral Research Associate
Co-mentored w/David Dunson (2014-2015)
Current Position: Assistant Professor, University of Iowa
- 20) Rithi Chandy: Undergraduate Research Intern (2014-2015)
Master of Biotechnology Student, Johns Hopkins
- 21) Joyce Wang: Undergraduate Research Intern (2014-2015) ^
Research Intern (2015-2016)
Current Position: Neuroscience Graduate Student, MIT
- 22) Matthew Shirley: Summer Research Intern (2014) *
Current Position: Biomedical Engineering Graduate Student, Drexel University
- 23) Caley Burrus: Undergraduate and Summer Research Intern (2015) ^
Current Position: Neurobiology Graduate Student, Duke University Medical Center
- 24) Cameron Blount: Research Intern, Duke University Medical Center
Undergraduate Research Intern (2015-2016)
- 25) Gwenaelle Thomas: Neurobiology Graduate Student, Duke University
Awarded NSF Fellowship
Summer Research Intern (2015) *^
- 26) Austin Talbot: Statistical Sciences Graduate Student, Duke University
Summer Research Intern (2015)
- 27) Meghana Vagwala: Undergraduate Research Intern (2015-2017) ^
Current Position: Undergraduate Student, Duke University
Awarded Marshall Scholarship
- 28) Chuma Eruchalu: Undergraduate Research Intern (2016-2017) *
Current Position: Medical Student, Harvard Medical School
- 29) Haley Talbot: Undergraduate Research Intern (2016-2017) ^*
Current Position: Research Intern, Wayne State Medical School
- 30) Hannah Schwennesen: Undergraduate Research Intern (2016-2017) ^
Current Position: Medical Student, Perelman School of Medicine at University of Pennsylvania
- 31) Alex Skidmore: Undergraduate Research Intern (2016)
Current Position: Medical Student, Washington University in St. Louis
- 32) Elise Adamson: Graduate Student, Biomedical Engineering (2017-Current)^*
Summer Research Intern (2016) ^*
- 33) Ryan Bowman: Research Intern, Duke University Medical Center
Undergraduate Research Intern (2016-2017)
- 34) Chris Choi: Laboratory Technician (2016-2017)
- 35) Christa Parish: High School Research Intern (Summer 2016) ^
Current Position: Undergraduate Student, North Carolina State University
- 36) David Carlson, PhD: Postdoctoral Research Associate (2016-2017)
Co-mentored with Dr. Lawrence Carin
Current Position: Assistant Professor, Duke University Department of Civil and Environmental Engineering
- 37) Nkemdilim Ndubuizu: Research Intern (2016-2018) ^*

- 38) Timothy Nyangacha: Research Intern (2018-Undergraduate Student (2016-2018) *
- 39) Allie Fink: Undergraduate Student (2017-Current) ^
- 40) Travis Smith: Undergraduate Student (2017) *
- 41) Matthew Goodwin, MS: Summer Research Intern (2017)
Current Position: Data Scientist, Oracle Data Cloud
- 42) Megha Kori: Summer Research Intern (2017) ^
Current Position: Undergraduate Student, University of Maryland Baltimore County
- 43) Elizabeth Ransey, PhD: Postdoctoral Research Associate (2017-Current)
- 44) Anna Matthews: Undergraduate Student (2017-Current) ^
- 45) Anika Nangia: Undergraduate Student (2017-2018) ^
- 46) Yael Grossman, PhD: Postdoctoral Research Associate (2017-Current) ^
- 47) Rachel Fisher: Summer Research Intern (2017, 2018) *^
- 48) Katelyn Hefter: Undergraduate Student (2018) ^
- 49) Michael Hunter Klein: Summer Research Intern (2018)
Co-mentored with Dr. David Carlson
- 50) Diana Waters: Medical Student Research Intern (2018-Current) ^

^Female trainee

*Underrepresented minority trainee

RESEARCH SUPPORT

Ongoing Research Support

R01ES025549 - ENVIRONMENTAL TOXINS AND MICROGLIA-SYNAPSE INTERACTIONS IN AUTISM (9/30/2016-8/31/2021). Multi-Principal Investigators: Drs. Staci Bilbo, Cagla Eroglu, and **Kafui Dzirasa**. This grant proposes to dissect the neural mechanisms whereby maternal stress and environmental toxins interact to generate autism-like behavioral deficits. Total Cost: \$1.5M direct costs for 5 years.

WM Keck Foundation Grant - Unravelling the Neural Gate to Consciousness (7/1/2016-6/30/2019). Multi-Principal Investigator: **Dr. Kafui Dzirasa** and Dr. Fan Wang. This grant proposes to dissect the neural mechanisms that regulate and sustain consciousness. **Total Costs: \$1,000,000 for 3 years.**

R01MH099192 -Enabling Stress Resistance (12/1/12-11/30/18). **Role (Principal Investigator)**. This grant proposes to identify neural circuits that mediate susceptibility and resilience to chronic stress, and to modify these circuits to enhance stress resistance. **Total Direct Costs: \$1.5M direct costs for 6 years**

School of Medicine Startup Funds (7/1/09-Current). **Role (Principal Investigator)**. These funds provided by the Duke University School of Medicine are designated to aid Dr. Dzirasa in launching an independent research laboratory.

1R21MH115241-01A1 - Neurophysiology of impulsive sensation seeking (7/6/18-7/5/20). Multi-Principal Investigator: **Dr. Kafui Dzirasa** and Dr. Colleen McClung. This proposes to uncover the neural mechanisms underlying impulsivity in a genetic mouse model of bipolar disorder. **Total Direct Costs: \$275,000 for 2 years.**

Completed Research Support

Chancellor's Discovery Award - Stable integration of biological brain activity sensors (04/15/17-04/14/18).
Role (Principal Investigator). The goal of this grant is to develop a new protein engineering based technology that will allow for the direct manipulation of synaptic function in vivo. **Total Direct Costs: \$75,000.**

MedX Discovery Award - Next generation electrode for megascale neural recordings (05/01/17-04/30/18).
Role (Principal Investigator). The goal of this grant is to develop a novel biological based electrode for chronic brain recordings. **Total Direct Costs: \$50,000.**

NSF IIS-1451017 –BRAIN EAGER: Bayesian Models of Translational Neural Networks: Motivation and Reward (9/1/14-8/31/17). Principal Investigator: Dr. Katherine Heller. **Role (Co-Investigator).** This grant proposes to create a novel analytical framework to model brain activity involved in mediating reward and motivation across. This model will integrate observations across species and recording paradigms. **Total Costs: \$300,000 for 2 years, 1 year no cost extension**

R21MH104316 -A novel neural circuit analysis paradigm to model autism in mice (9/1/2014-8/31/2017). Principal Investigator (Yong-Hui Jiang). Role (Co-Investigator). This project focuses on utilizing changes in local field potential spectral oscillations and neural firing to characterize the brain mechanisms that gene induced behavioral deficits in autism. **Total Costs: \$275,000 for 2 years, 1 year no cost extension**

DIBS Research Incubator Award - A novel neural circuit analysis paradigm to model autism in mice (7/1/13 – 6/30/16). **Role (co-Principal Investigator).** This project focuses on utilizing changes in local field potential spectral oscillations and neural firing to characterize the brain mechanisms that gene induced behavioral deficits in autism. **Total Direct Costs: \$120,000 for 2 years.**

Marcus Foundation Research Grant –Cord blood stem cell therapy for autism, cerebral palsy, and stroke (6/1/14-5/31/16). Principal Investigator: Dr. Geraldine Dawson. Role (Co-Investigator). The grant proposes to probe the use of Cord blood stem cells as therapeutic treatments for CNS disorders. **Total Grant Funding: \$11.3M for 2 years.**

IMHRO Translational Research Rising Star Award –Closed loop actuators to repair brain circuit function (7/31/13-7/30/16). **Role (Principal Investigator).** The grant proposes to create closed loop optogenetic stimulators to directly target functional lesions induced by neuropsychiatric risk genes. **Total Grant Funding: \$50,000/year for 3 years.**

1R21MH099479-01A1 -Characterizing sensorimotor gaiting dysfunction in mouse models of schizophrenia (7/15/13-6/30/16). **Role (Principal Investigator).** This grant proposes to directly quantify the neurophysiological mechanisms that correspond with sensory gating in normal mice, and the gating deficits observed in pharmacological and genetic mouse models of schizophrenia. **Total Direct Costs: \$275,000 for 3 years.**

Information Initiative at Duke (iiD) Research Incubator Award – Bayesian Learning of the Neural Circuitry of Empathy (7/1/13 – 9/30/15). **Role (co-Principal Investigator).** This project focuses on utilizing changes in local field potential spectral oscillations and neural firing to characterize the brain network mechanisms that contribute to the manifestation of empathy.

3R37MH073853-07S1 -Administrative Supplements to Enable Research Experiences of M.D./PhD Psychiatry Residents (07/01/2012 – 11/30/2013). Role (Trainee). These funds provide salary support for Dr. Dzirasa to engage in research during his clinical training.

DIBS Research Incubator Award (7/1/11 – 6/30/12). Role (co-Principal Investigator). **Characterization of Brain Circuit Changes Underlying Chronic Social Defeat Stress.** This project focuses on utilizing changes in local field potential spectral oscillations and neural firing to characterize the brain mechanisms that promote susceptibility and resilience to stress.

DIBS Research Incubator Award (7/1/10 – 6/30/12).

Role (co-Principal Investigator). **Investigating the Neural basis for Motor Learning Abnormalities in a Novel Mouse Model for Dystonia.** This project focuses on utilizing changes in local field potential spectral oscillations and neural firing patterns to predict behavior alterations in mutant mice engineered to express human a mutation observed in dystonia.

P50MH060451-09S1 -NIH ARRA Supplement (9/30/09 – 9/30/11).

Role (Investigator). Research Supplements to Promote Diversity in Health-Related Research Program NIMH-NIH

UNCF-Merck Postgraduate Science Research Dissertation Fellowship - Neural Correlates of Psychiatric Disease (9/1/08 – 12/30/09).

Role (Principal Investigator). This project focuses on utilizing changes in local field potential spectral oscillations and neural firing patterns to predict behavior alterations in the mutant mice.

UNCF-Merck Graduate Science Research Dissertation Fellowship - Neural Correlates of Psychiatric Disease (9/1/06 - 8/31/08).

Role (Principal Investigator). This project focuses on utilizing changes in local field potential spectral oscillations and neural firing patterns to predict behavioral alterations in mutant mice.

Ruth K. Broad Biomedical Research Foundation, Inc. Award - Dopaminergic Control of REM Sleep in Mice (7/1/06 - 6/30/08).

Role (Principal Investigator). This project investigates the role of dopamine during sleep-wake states by simultaneously recording ensembles of cortical and hippocampal neurons, local field potential oscillations, and muscle activity in mice with genetically and pharmacologically manipulated levels of dopamine.