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:

University of Maryland Baltimore County, Baltimore, MD — June 1996-May 2001
Bachelor of Science in Chemical Engineering, Magna cum laude
Meyerhoff Scholar

Duke University Graduate School, Durham NC — August 2003-March 2007
Doctor of Philosophy in Neurobiology
Thesis: Electrophysiological Correlates of Neurological and Psychiatric Disease
Advisor: Miguel Nicolelis

Postdoctoral Research — August 2007-March 2009
Duke University, Durham, NC
Advisor: Miguel Nicolelis

Duke University School of Medicine, Durham, NC — August 2001-May 2009
Doctor of Medicine
Medical Scientist Training Program

Duke University Hospital, Durham, NC — July 2010-June 2016
Residency, General Psychiatry

North Carolina Medical License
License #: 2016-02599
License Status: Active

EMPLOYMENT HISTORY:

- K. Ranga Rama Krishnan Endowed Associate Professor with Tenure, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. Aug 2019-Current
- K. Ranga Rama Krishnan Endowed Associate Professor, Tenure Track, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. May 2018-July 2019
- Associate Professor, Tenure Track, Department of Psychiatry and Behavioral Sciences. Duke University Medical Center. September 2017-May 2018
- 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 2011-2019.
- 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 – 2005-2018
- 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:

- **Society for Neuroscience Young Investigator Award – 2019**
- Duke University Graduate School Few-Glasson Alumni Society – 2019
- **American Society for Clinical Investigation – 2019**
- **AAAS Alan Leshner Public Engagement Fellowship – 2019**
- American Institute of Chemical Engineers MAC Eminent Engineer Award – 2018
- 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
- 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**. *Orbitofronal 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 Sidor[5], **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. Badea[2], G. A. Johnson[2], **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; dio: 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 EEF/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

***Top ten downloaded articles in 2018 for SfN journals**

30. G. Nagy, C. Fang, A. Hish, L. Kelly, C. Nicchitta, **K. Dzirasa**, & M. Z. Rosenthal*. "Burnout and mental health problems in biomedical graduate students." CBE Life Sci Educ. 2019 Jun;18(2):ar27. doi: 10.1187/cbe.18-09-0198.

31. L. Jiang-Xie, L. Yin, S. Zhao, V. Prevosto, B. Han, **K. Dzirasa**, F. Wang*. "A Common Neuroendocrine Substrate for Diverse General Anesthetics and Sleep." Neuron.. 2019. April; 102(5); 1053-1065.e4. DOI: https://doi.org/10.1016/j.neuron.2019.03.033

32. A.J. Hish, G. Nagy, C., Fang, L. Kelley, C. Nicchitta, **K. Dzirasa**, & M. Z. Rosenthal*. "Applying the Stress Process Model to Stress-Burnout and Stress-Depression Relationships in Biomedical Doctoral Students: A Cross-sectional Pilot Study." *CBE—Life Sciences Education*. 2019 Dec;18(4):ar51. doi: 10.1187/cbe.19-03-0060.

33. Y. Grossman, **K. Dzirasa***. "Is depression a disorder of electrical brain networks?" Neuropsychopharmacology. 2020 Jan;45(1):230-231. doi: 10.1038/s41386-019-0511-8.

34. M. T. Vu, L. K. David, G. E. Thomas, M. Vagwala, C. Burrus, N. M. Gallagher, J. Wang, C. Blount, D. N. Hughes[1], E. Adamson[5], N. Ndubuizu[2], I. H. Kim, S. Soderling, S. D. Mague, R. A. Adcock, **K. Dzirasa**. "Brain-wide electrical spatiotemporal dynamics encode reward anticipation." bioRxiv (Preprint). In Review.

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

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. DIO: 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, eaao0978. DOI: 10.1126/scitranslmed.aao0978
7. **K. Dzirasa.** "In the mood for food." *Science Translational Medicine,* Sep 2017: Vol. 9, Issue 407, eaao6124. 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 supression causing depression?" *Science Translational Medicine,* Jan 2018: Vol. 10, Issue 425, eaar7520. DOI: 10.1126/scitranslmed.aar7520

OPINION EDITORIALS

1. K. Dzirasa. "A New Approach to Treat Mental Illness: Electrical Engineering." *WIRED*. Jun 28, 2019.

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
2017-2019	Duke Institutes for Brain Sciences, Faculty Governance Committee
2018-	Rescuing Biomedical Research, Steering Committee
2018-2019	BRAIN 2.0 Advisory Committee to the NIH Director Working group
2019-	National Academies Roundtable on Black Men and Black Women in Science, Engineering, and Medicine
2019-	NFL Players Association Mackey-White Health and Safety Committee

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/lDR37vtByPg
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 Anschultz
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.
2018, Invited Speaker– McLean Hospital, Harvard Medical School, Belmont, MA.
2018, Invited Speaker– Brown University, Department of Neuroscience, Providence, RI.
2018, Opening Host– TEDMED 2018
2018, Keynote Speaker– Annual Biomedical Research Conference Minority Students (ABRCMS).
2018, Honors Lecture– NYU School of Medicine, NY, NY.
2019, Invited Speaker– Goldman Sachs, World Wide Partners Meeting, NY, NY
2019, Invited Speaker– UT Southwestern School of Medicine, Psychiatry and Neuroscience, Dallas, TX
2019, Invited Keynote– USA Science and Engineering Festival, X-STEM, Washington, DC. https://www.youtube.com/watch?v=vPf-2YIM9eM
2019, Invited Speaker– Einstein College of Medicine, Translational Medicine Lecture Series, Bronx, NY
2019, Invited Speaker– NIH, Neuroscience Series Seminar, Bethesda, MD
2019, Grand rounds speaker– University of Pennsylvania, Psychiatry, Philadelphia, PA

2019, Panelist– National Minority Quality Forum Annual Summit
2019, Invited Speaker– Alliance for Academic Internal Medicine, Philadelphia, PA
2019, Invited Speaker– Milken Global Conference, Los Angeles, CA
2019, Invited Speaker– American Academy of Neurology, Philadelphia, PA
2019, Invited Speaker– Aspen Institute, Washington, DC
2019, Invited Speaker– American Physician Scientist Association Meeting, Durham, DC
2019, Invited Speaker– Federation of European Neuroscience Society Regional Meeting, Belgrade, Serbia
2019, Keynote Speaker– Ohio State Medical Scientist Training Program Retreat, Columbus, OH
2019, Invited Speaker –Gordon Research Conference, Amygdala Function in Emotion, Cognition and Disease
2019, Invited Lecturer–Advanced Neuroscience Courses, Molecular Basis of Resilience to Depression, Venice, Italy
2019, Invited Speaker–Harvard University, Department of Neuroscience, Boston, MA
2019, Invited Panelist–Burroughs Wellcome Fund, Durham, NC.
2019, Invited Speaker and Panelist – Cell Press-Beijing Conference: AI and the Brain, Beijing, China
2019, Keynote Speaker – Healthy Churches 2020 Conference, Charlotte, NC
https://www.youtube.com/watch?v=PDxSspFiETY
2019, Invited Keynote Speaker – NeurIPS, Vancouver, Canada
2020, Invited Speaker– Department of Psychiatry and Behavioral Sciences, Stanford University, Palo Alto, CA
2020, Invited Speaker– Department of Neuroscience, Johns Hopkins, Baltimore, MD

PATENT APPLICTIONS

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
Completed Residency in Pediatrics, 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 (2015-Current)
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 (2014-Current)
Medical Scientist Training Program, Duke University School of Medicine
Awarded NRSA Individual F30 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
Awarded NRSA Individual F32 Fellowship
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 (2012-2019) ^
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
Current Position: Postdoctoral Research Associate, Boston University
Subsequently Awarded BRAIN-NRSA Postdoctoral Research Fellowship

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)
Completed Master of Biotechnology, Johns Hopkins
Current Position: Medical Student, Rutgers School of Medicine

21) Joyce Wang: Undergraduate Research Intern (2014-2015) ^
Research Intern (2015-2016)
Current Position: Neuroscience Graduate Student, MIT
Awarded NSF Fellowship

22) Matthew Shirley: Summer Research Intern (2014) *
Current Position: Biomedical Engineering Graduate Student, Drexel University
Awarded NSF Fellowship

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 (2016-2019)
Undergraduate Research Intern (2015-2016)
Awarded NIH Administrative supplement
Current Position: Medical Student, Emory Medical School

25) Gwenaelle Thomas: Neurobiology Graduate Student, Duke University
Awarded NSF Fellowship
Awarded Duke Graduate School Dean's Award for Excellence in Mentoring
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) ^
Awarded Marshall Scholarship
Current Position: Master Student, University of Edenborough

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: Medical Student, University of Michigan
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) ^*
Awarded Ford Foundation Fellowship
Awarded NSF Fellowship
Awarded HHMI Gilliam Fellowship
33) Ryan Bowman: Research Intern, Duke University Medical Center (2017-2019)
Undergraduate Research Intern (2016-2017)
Current Position: Graduate Student, Carnegie Mellon University
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
Subsequently Awarded NIH R01 (PI)
37) Nkemdilim Ndubuizu: Research Intern (2016-2018) ^*
Current Position: Medical Student, Howard University College of Medicine
38) Timothy Nyangacha: Research Intern (2018-2019)
Undergraduate Student (2016-2018) *
Current Position: Incoming Medical Student, University of Minnesota School of Medicine
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: Graduate Student, New York University School of Medicine
43) Elizabeth Ransey, PhD: Postdoctoral Research Associate (2017-Current)
Awarded Earnest E. Just Fellowship
44) Anna Matthews: Undergraduate Student (2017-2019) ^
45) Anika Nangia: Undergraduate Student (2017-2018) ^
46) Yael Grossman, PhD: Postdoctoral Research Associate (2017-Current) ^
47) Rachel Fisher: Research Technician (2019-Current) *^
Summer Research Intern (2017, 2018)
48) Alexandra Bey, MD PhD: Research Resident and Postdoctoral Researcher (2017-Current) ^
49) Katelyn Hefter: Undergraduate Student (2018-Current) ^
50) Michael Hunter Klein: Graduate Student, Electrical Engineering Graduate Student (2019-Current)
Summer Research Intern (2018)
Co-mentored with Dr. David Carlson
51) Diana Waters: Medical Student Research Intern (2018-Current) ^
Awarded Burroughs Wellcome Fund Research Fellowship for Medical Students
52) Jake Benton: Neurobiology Graduate Student, Duke University (2018-Current)
Medical Scientist Training Program, Duke University School of Medicine
53) Reagan Portelance, Undergraduate Student (2018-Current) ^
54) Noah Lanier, Undergraduate Student (2019-Current)
55) Alex Winn, Undergraduate Student (2018-Current)
56) Zachary Rene, Undergraduate Student (2018-Current) *
57) Ashleigh Rawls, Pharmacology and Cancer Biology Graduate Student (2019-Current)*^
58) Elizabeth O'Gorman, Neurobiology Graduate Student (2019-Current) *^
59) Kathryn Walder, Postdoctoral Research Associate (2019-Current) ^

60) Francis Grace Ghinger, Summer Research Intern (2017) ^
61) Tatiana Rodriguez, Research Technician (2019-Current) *^

^Female trainee
*Underrepresented minority trainee

RESEARCH SUPPORT

Ongoing Research Support

R01MH120158, Dzirasa, Kafui (PI). 09/01/19-06/30/24. Dissecting and modifying temporal dynamics underlying major depressive disorder. This grant proposes to identify the convergent neural circuits and brain wide networks that mediate stress induced behavioral function. Role: PI. **Total Direct Costs: $2M direct costs for 5 years**

1 R01 EB026937-01A1, Carlson, David (PI). 09/16/2019 – 09/15/2022. Uncovering Population-Level Cellular Relationships to Behavior via Mesoscale Networks. A fundamental goal of this proposal is to explore how cellular activity and mesoscale networks relate to relevant behaviors via an interpretable (explainable) machine learning approach. The interpretation and explainability of the machine learning methods are critical for developing *knowledge* about the brain rather than just predictive structures. This study will help elucidate how cellular actions gives rise to networks that coordinate to control behavior and emotion. Role: Co-Investigator. **Total Direct Costs: $660,000 direct costs for 3 years**

n/a, Hope for Depression Research Foundation, Kafui Dzirasa (PI). 07/01/19-06/30/20. MULTI-LEVEL MECHANISMS OF DEPRESSION AND ANTIDEPRESSANT ACTION. This grant proposes to uncover the network level mechanisms that contribute to the emergence of behavioral dysfunction across stress-based rodent models of major depressive disorder. **Total Cost: $350,000 direct costs for 1 years.**

R01MH117289-01A1, Jiang, Young-hui (PI). 02/01/19-11/30/23. Molecular and Circuitry Mechanism Underlying Autism Behaviors in Shank3 Mouse Models. The goal of this project is to analyze mechanistic changes within the RDoC matrix that links *Shank3* gene disruption to molecular defects to neural circuit alterations to abnormal behaviors using Δe4-22 and the new *Shank3* mice bearing the Homer binding mutation (SH3PL). Role: Co-Investigator. **Total Direct Costs: $2M for 5 years.**

R21-EY030278-01, Sommer, Marc (PI). 05/01/19-04/30/21. Neuromuscular Control of Primate Eye Movements. This project investigates structure-function relationships in neuromuscular circuits that move the eyes and keep them aligned for binocular vision. The experiments involve recording from these circuits and manipulating them to reveal how they function in health and fail in disorders such as lazy eye (strabismus). The results will advance basic research on eye movements and provide critical preliminary data for future gene therapies for treating motor disorders of the brainstem, spine, and muscles. Role: Co-Investigator. **Total Direct Costs: $275,000 for 2 years.**

R01 ES025549, Bilbo, Staci (contact PI); Dzirasa, Kafui (multi-PI); Eroglu, Cagla (multi-PI): 09/30/16-08/31/21. ENVIRONMENTAL TOXINS AND MICROGLIA-SYNAPSE INTERACTIONS IN AUTISM. This grant proposes to dissect the neural mechanisms whereby maternal stress and environmental toxins interact to generate autism-like behavioral deficits. Role: MULTI-PI. **Total Cost: $1.5M direct costs for 5 years.**

1F30MH118888-01, Hughes, Dalton (PI). 3/1/19-2/28/23. Network Dynamics of Negative and Positive Valence Systems in Decision Making. Altered interaction between positive and negative valence systems may play a role in the maladaptive behaviors observed across many psychiatric illnesses. Using *in vivo* recordings of electrical activity across key brain regions, we will uncover how the brain balances reward and anxiety at the network level. Findings from this work will provide insight into the diagnosis of psychiatric illnesses characterized by valence imbalance. Role: Sponsor

n/a, WM Keck Foundation, Wang, Fan (contact PI); Dzirasa (Multi-PI). 07/01/16-06/30/20. UNRAVELLING THE NEURAL GATE TO CONSCIOUSNESS. This grant proposes to dissect the neural mechanisms that regulate and sustain consciousness. Role: CO-PI. **Total Costs: $1,000,000 for 3 years +NCE.**

R21 MH115241, McClung, Colleen (contact PI); Dzirasa (Multi-PI). 7/6/2018-3/31/2020. NEUROPHYSIOLOGY OF IMPULSIVE SENSATION SEEKING. The aim in this proposal is to determine the underlying neuronal mechanisms that lead to impulsive sensation seeking and increased reward expectancy in bipolar disorder. Role: CO-PI. **Total Direct Costs: $275,000 for 2 years.**

R21EY029451, Dzirasa, Kafui (PI). 09/01/2018- 08/30/2020. A FULLY BIOLOGICAL PLATFORM FOR MONITORING MESOSCALE NEURAL ACTIVITY. The goal of this grant is to develop a new electrode technology that will allow for the concurrent acquisition of single cell activity from all depths of fully intact brain tissue. Role: PI. **Total Direct Costs: $300,000 for 2 years.**

1R21MH117304-01, Caron, Marc (PI). 08/16/2018-07/31/2020. UNMASKING A ROLE FOR CORTICAL DOPAMINE D4 RECEPTORS IN CONTROLLING CIRCUIT DYNAMICS AND BEHAVIOR. The proposed investigations will establish a role for the dopamine D4 receptor in the control of the brain cortico-striatal thalamo-cortical circuit that regulates behavioral domains, including executive function, cognition, memory, and sociability. Role: CO-I

1R21MH114129-01, Caron, Marc (PI). 04/01/2018-02/29/2020. SIMULTANEOUS AND BIDIRECTIONAL CHEMOGENETIC CONTROL OF MESOLIMBIC AND NIGROSTRIATAL CIRCUITS. The proposed investigations will use a chemogenetic approach in which tunable and simultaneous activation or inhibition of select brain circuits can be neurochemically, behaviorally, and electrophysiologically investigated. Role: CO-I

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.

Completed Research Support

R01 MH099192, Dzirasa, Kafui (PI). 12/01/12-11/30/18. ENABLING STRESS RESISTANCE. This grant proposes to identify neural circuits that mediate susceptibility and resilience to chronic stress and to modify these circuits to enhance stress resistance. Role: PI. **Total Direct Costs: $1.5M direct costs for 6 years**

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.