UNIVERSITY OF MICHIGAN
Curriculum Vitae

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Joanna Mattis, M.D., Ph.D.

Address: Biomedical Science Research Building
109 Zina Pitcher Pl
Ann Arbor, MI 48109

Education:

2006	B.S.	Yale University (Molecular, Cellular, & Developmental Biology)
2006	M.S.	Yale University (Molecular, Cellular, & Developmental Biology)
2007	M.Phil.	University of Cambridge (Physiology, Development, & Neuroscience)
2013	Ph.D.	Stanford University (Neuroscience)
2015	M.D.	Stanford University (Medicine)

Postgraduate Training and Fellowship Appointments:

2015-2016	Intern in Internal Medicine, University of Pennsylvania
2016-2019	Resident in Neurology, University of Pennsylvania
2020-2021	Fellow in Epilepsy, University of Pennsylvania

Hospital and/or Administrative Appointments:

2019-2020	Instructor in Neurology, University of Pennsylvania
2021-2022	Instructor in Neurology, University of Pennsylvania
2022-present	Assistant Professor of Neurology, University of Michigan

Specialty Certification:

2019	American Board of Psychiatry and Neurology

Licensure:

2015-2019	Commonwealth of Pennsylvania, Graduate Medical Trainee
2019-2020	Commonwealth of Pennsylvania, Medical Physician and Surgeon
2020-2021	Commonwealth of Pennsylvania, Graduate Medical Trainee
2021-	Commonwealth of Pennsylvania, Medical Physician and Surgeon
2022-	Michigan, Medical Physician and Surgeon

Awards, Honors and Membership in Honorary Societies:

2004	Mellon Research Grant, Yale University
2004	Richter Summer Fellowship, Yale University
2005	Science and Engineering Research Presentation Travel Prize, Yale University

2005	Scholarship for Academic Excellence, Big Y
2005	Rhodes Scholarship Finalist, Rhodes Trust
2005	Alan S. Tetelman Traveling Fellowship, Yale University
2006	Edgar J. Boell Prize for Excellence in Biology, Yale University
2006-2007	Winston Churchill Foundation Scholarship, Winston Churchill Foundation
2006	First Prize, Poster for Intensive Research, Undergraduate Research Symposium, Yale University
2007-2015	Medical Scientist Training Program Scholarship, Stanford University
2010-2013	Bio-X Graduate Student Fellowship, Stanford University
2011	Bio-X Graduate Student Travel Award, Stanford University
2019	Marc A. Dichter Award for Excellence in Translational Research, Department of Neurology, Penn
2020	Fellow, American Epilepsy Society
2020	Young Investigator Award, American Epilepsy Society (also selected for the Grass Foundation Young Investigator Award but could only accept one AES award)
2021	Grass Foundation Young Investigator Award, American Epilepsy Society

Memberships in Professional and Scientific Societies and Other Professional Activities:

2009-2013	Society for Neuroscience
2016-Present	American Epilepsy Society
2021-Present	American Neurological Association

Editorial Positions:

2021-Present	Brain, ad hoc reviewer
2022-Present	Journal of Neuroscience, ad hoc reviewer
2022-Present	Journal of Clinical Investigation, ad hoc reviewer

Academic and Institutional Committees:

2017-2019	Member, Department of Neurology Grand Rounds Committee, University of Pennsylvania
2017-2018	Member, Planning Committee, FOCUS on Health & Leadership for Women (FOCUS), Section for Women Residents & Fellows, University of Pennsylvania
2021-2022	Member, Department of Neurology's Inclusion, Diversity, Anti-Racism, and Equity (IDARE) Recruitment and Retention Committee, University of Pennsylvania

Major Academic and Clinical Teaching Responsibilities:

2009-2010	Teaching Assistant for Stanford's Neuroscience course NBIO 206, "The Nervous System"
2010-2013	Research mentor for undergraduate Stanford student (Minsuk

	Hyun); awarded multiple grants and Stanford's Firestone Medal for excellence in undergrad research
2018	Grand Rounds lecture to Penn neurology department, "Penn Neurology Grand Rounds Morbidity and Mortality"
2019-2021	Research mentor for undergraduate Penn student (Jina Yom)
2019	Research mentor for undergraduate Penn student (Anushree Aneja), Penn Undergraduate Research Mentorship (PURM) summer program
2019	Grand Rounds lecture to Penn neurology department, "Cortico-hippocampal circuit dissection in a mouse model of Dravet Syndrome"
2019	Lecture to Penn neurology residency, "AEDs and EEG"
2020	Career mentor for multiple undergraduate Penn students (Jo Ann Sun, Camryn Kozuch, Eitan Goodman), MindCORE Step-Ahead Mentorship Program (STAMP)
2020	Lecture to Penn epilepsy division, "Generalized epilepsy"
2021	Research mentor for technician (Evan Jiang)
2021	Faculty mentor for Penn neurology resident (Jessica Little)
2021	Lecture to Penn epilepsy division, "Reflex epilepsy"
2021	Lecture to Penn epilepsy division, "Epilepsy and the brainstem"
2022	Lecture to Penn epilepsy division, "Epilepsy and headache"
2022	Lecture to Penn neurology residency, “Epilepsy syndromes”

Lectures by Invitation (Last 5 years):

May, 2018	"Shedding light on epilepsy: Treating seizures via optogenetic activation of the Locus Coeruleus"; Women's Committee at Children's Hospital of Philadelphia (CHOP); Philadelphia, PA
Jun, 2019	"Cortico-hippocampal circuit dissection in a mouse model of Dravet Syndrome"; Neurobiology Seminar, Children's Hospital of Philadelphia (CHOP); Philadelphia, PA
Feb, 2020	"Cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Neuroscience Chalk Talk, Children's Hospital of Philadelphia (CHOP); Philadelphia, PA
Nov, 2020	"Shining light on epilepsy: cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Epilepsy Research Seminar, Yale Comprehensive Epilepsy Center; New Haven, CT
Dec, 2020	"Cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Platform Presentation, American Epilepsy Society Annual Meeting
Feb, 2021	"Cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; NextGen Epilepsy Seminar Series, University of California Irvine; Irvine, CA
Jul, 2021	"Shining light on epilepsy: cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Grand Rounds; Department of Neurology; University of Utah; Salt Lake City, UT
Sep, 2021	"Shining light on epilepsy: cortico-hippocampal circuit dysfunction

	in a mouse model of Dravet Syndrome"; Research Seminar; Department of Neurobiology; University of Utah; Salt Lake City, UT
Oct, 2021	"Cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Emerging Scholar Lecture Series; American Neurological Association
Oct, 2021	"Shining light on epilepsy: cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Research Seminar; Department of Neurology and Neuroscience Program; University of Michigan; Ann Arbor, MI
Nov, 2021	"Shining light on epilepsy: Cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Neuroscience "Chalk Talk"; CHOP; Philadelphia, PA
Nov, 2021	"Shining light on epilepsy: cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Grand Rounds; Department of Neurology; Yale University; New Haven, CT
Dec, 2021	"Modulating cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Platform Presentation, American Epilepsy Society
Dec, 2021	"Shining light on epilepsy: Cortico-hippocampal circuit dysfunction in a mouse model of Dravet Syndrome"; Neurology Seminar and Chalk Talk; Hospital of the University of Pennsylvania; Philadelphia, PA

Bibliography:

Research Publications, peer reviewed (print or other media):

1. Trommershäuser J, Mattis J, Maloney LT, Landy MS: Limits to human movement planning with delayed and unpredictable onset of needed information. Experimental Brain Research 175(2): 276-84, November 2006.

2. Zhang F, Prigge M, Beyrière F, Tsunoda SP, Mattis J, Yizhar O, Hegemann P, Deisseroth K: Red-shifted optogenetic excitation: a tool for fast neural control derived from Volvox carteri. Nature Neuroscience 11(6): 631-3, June 2008.

3. Onkal R, Mattis JH, Fraser SP, Diss JK, Shao D, Okuse K, Djamgoz MB: Alternative splicing of Nav1.5: an electrophysiological comparison of 'neonatal' and 'adult' isoforms and critical involvement of a lysine residue. Journal of Cellular Physiology 216(3): 716-26, September 2008.

4. Paspalas CD, Perley CC, Venkitaramani DV, Goebel-Goody SM, Zhang Y, Kurup P, Mattis JH, Lombroso PJ: Major vault protein is expressed along the nucleus-neurite axis and associates with mRNAs in cortical neurons. Cerebral Cortex 19(7): 1666-77, July 2009.

5. Gradinaru V, Zhang F, Ramakrishnan C, Mattis J, Prakash R, Diester I, Goshen I, Thompson KR, Deisseroth K: Molecular and cellular approaches for diversifying

and extending optogenetics. Cell 141(1): 154-165, April 2010.

6. Berndt A, Schoenenberger P, Mattis J, Tye KM, Deisseroth K, Hegemann P, Oertner TG: High-efficiency channelrhodopsins for fast neuronal stimulation at low light levels. Proceedings of the National Academy of Sciences of the United States of America 108(18): 7595-600, May 2011.

7. Mattis J, Tye KM, Ferenczi EA, Ramakrishnan C, O'Shea DJ, Prakash R, Gunaydin LA, Hyun M, Fenno LE, Gradinaru V, Yizhar O, Deisseroth K: Principles for applying optogenetic tools derived from direct comparative analysis of microbial opsins. Nature Methods 9(2): 159-72, December 2011.

8. Kim SY, Adhikari A, Lee SY, Marshel JH, Kim CK, Mallory CS, Lo M, Pak S, Mattis J, Lim BK, Malenka RC, Warden MR, Neve R, Tye KM, Deisseroth K: Diverging neural pathways assemble a behavioural state from separable features in anxiety. Nature 496(7444): 219-23, April 2013.

9. Chung K, Wallace J, Kim SY, Kalyanasundaram S, Andalman AS, Davidson TJ, Mirzabekov JJ, Zalocusky KA, Mattis J, Denisin AK, Pak S, Bernstein H, Ramakrishnan C, Grosenick L, Gradinaru V, Deisseroth K: Structural and molecular interrogation of intact biological systems. Nature 497(7449): 332-7, May 2013.

10. Stamatakis AM, Jennings JH, Ung RL, Blair GA, Weinberg RJ, Neve RL, Boyce F, Mattis J, Ramakrishnan C, Deisseroth K, Stuber GD: A unique population of ventral tegmental area neurons inhibits the lateral habenula to promote reward. Neuron 80(4): 1039-53, November 2013.

11. Fenno LE, Mattis J, Ramakrishnan C, Hyun M, Lee SY, He M, Tucciarone J, Selimbeyoglu A, Berndt A, Grosenick L, Zalocusky KA, Bernstein H, Swanson H, Perry C, Diester I, Boyce FM, Bass CE, Neve R, Huang ZJ, Deisseroth K: Targeting cells with single vectors using multiple-feature Boolean logic. Nature Methods 11(7): 763-72, July 2014.

12. Mattis J, Brill J, Evans S, Lerner TN, Davidson TJ, Hyun M, Ramakrishnan C, Deisseroth K, Huguenard JR: Frequency-dependent, cell type-divergent signaling in the hippocamposeptal projection. Journal of Neuroscience 34(35): 11769-80, August 2014.

13. Ferenczi EA, Vierock J, Atsuta-Tsunoda K, Tsunoda SP, Ramakrishnan C, Gorini C, Thompson K, Lee SY, Berndt A, Perry C, Minniberger S, Vogt A, Mattis J, Prakash R, Delp S, Deisseroth K, Hegemann P.: Optogenetic approaches addressing extracellular modulation of neural excitability. Scientific Reports 6(23947), April 2016.

14. Hofmann G, Balgooyen L, Mattis J, Deisseroth K, Buckmaster PS.: Hilar

somatostatin interneuron loss reduces dentate gyrus inhibition in a mouse model of temporal lobe epilepsy. Epilepsia 57(6): 977-83, June 2016.

15. Brill J, Mattis J, Deisseroth K, Huguenard JR: LSPS/Optogenetics to Improve Synaptic Connectivity Mapping: Unmasking the Role of Basket Cell-Mediated Feedforward Inhibition. eNeuro 3(4): 0142-15, August 2016.

16. Conrad EC, Siegler JE, Mattis J, Schnure N, Messé SR: Clinical Reasoning: A young woman with progressive headache and pancytopenia. Neurology 88(14): e132-e136, April 2017.

17. Fenno LE, Mattis J, Ramakrishnan C, Deisseroth K.: A Guide to Creating and Testing New INTRSECT Constructs. Current Protocols in Neuroscience 80(4): 4.39.1-4.39.24, July 2017.

18. Gazea M, Furdan S, Sere P, Oesch L, Molnár B, Di Giovanni G, Fenno LE, Ramakrishnan C, Mattis J, Deisseroth K, Dymecki SM, Adamantidis AR, LÅ‘rincz ML.: Reciprocal Lateral Hypothalamic and Raphe GABAergic Projections Promote Wakefulness. J Neurosci. 41(22): 4840-4849, June 2021.

19. Joanna H Mattis, Ala Somarowthu, Kevin M Goff, Evan Jiang, Jina Yom, Nathaniel P Sotuyo, Laura M Mcgarry, Huijie Feng, Keisuke Kaneko, Ethan Michael Goldberg: Corticohippocampal circuit dysfunction in a mouse model of Dravet syndrome. eLife 11:e69293, February 2022 Notes: doi: 10.7554/eLife.69293.

Research Publications, peer-reviewed reviews:

1. Mattis J, Sehgal A.: Circadian Rhythms, Sleep, and Disorders of Aging. Trends in Endocrinology & Metabolism 27(4): 192-203, April 2016.

Abstracts (Last 3 years):

1. Mattis J, Conrad E, Goldberg E: Cortico-hippocampal dysfunction in a mouse model of Dravet syndrome. American Epilepsy Society 2019.

2. Mattis J, Yom J, Goff G, Sotuyo N, Kaneko K, Feng H, Somarowthu A, Goldberg E: Cortico-hippocampal circuit dysfunction in a mouse model of Dravet syndrome. American Epilepsy Society 2020.

3. Mattis J, Somarowthu A, Goff K, Yom J, Sotuyo N, McGarry L, Feng H, Kaneko K, Goldberg E: Cortico-hippocampal circuit dysfunction in a mouse model of Dravet syndrome. American Neurological Association 2021.

4. Mattis J, Somarowthu A, Goff K, Yom J, Sotuyo N, McGarry L, Feng H, Kaneko K, Goldberg E: Modulating cortico-hippocampal circuit dysfunction in a mouse model of Dravet syndrome. American Epilepsy Society 2021.