

CURRICULUM VITAE

Lena Nguyen

Department of Neuroscience
School of Behavioral and Brain Sciences
The University of Texas at Dallas
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EDUCATIONAL HISTORY:

B.S., Biology (2009), University of Houston, Houston, TX

Honors thesis: The role of microRNA mmu-miR-691 in the homeostatic regulation of potassium channels in an in vitro seizure model

Advisor: Jokubas Ziburkus, PhD

Ph.D., Neuroscience (2016), Baylor College of Medicine, Houston, TX

Dissertation: Roles of mTOR signaling in the maintenance of epilepsy and modulation of ion channels in a mouse model of cortical dysplasia

Advisor: Anne E. Anderson, MD

Postdoctoral Associate, Neuroscience (2016-2022), Yale University School of Medicine, New Haven, CT

Advisor: Angelique Bordey, PhD

EMPLOYMENT HISTORY – principal positions since the Bachelor's degree:

2009-2010 Research Assistant, Biology & Biochemistry, University of Houston, Houston, TX

2010-2016 Graduate Research Assistant, Neuroscience, Baylor College of Medicine, Houston, TX

2016-2022 Postdoctoral Associate, Neurosurgery, Yale School of Medicine, New Haven, CT

2022 Associate Research Scientist, Neurosurgery, Yale School of Medicine, New Haven, CT

2023-present Assistant Professor (tenure-track), Neuroscience, University of Texas at Dallas, Richardson, TX

PROFESSIONAL RECOGNITION AND HONORS:

2007 Summer Undergraduate Research Fellowship, University of Houston

2009 Magna Cum Laude, University of Houston

2009 University Honors and Honors in Biology (highest graduation distinction), University of Houston

2012 Best Poster Award, Graduate Student Research Symposium, Baylor College of Medicine

2014 Travel Award, Steed Fellowship

2014 Travel Award, Grass Foundation-American Epilepsy Society Young Investigator

2015 Best Poster Award, Institute for Neuroscience Symposium, University of Texas at Austin

2016 *Epilepsia* Basic Science Prize

*Awarded by the International League Against Epilepsy (ILAE) to the first author of an original research article published in the journal *Epilepsia* for contribution to the most significant basic science advances in the epilepsy field - one prize awarded per year

2019 Travel Award, Park City Epilepsy Meeting

2019 Selection to the American Epilepsy Society Fellows Program

2020 Travel Award, NIH Curing the Epilepsies Conference

2020 Travel Award, ILAE North American Epilepsy Congress

2021 Travel Award, International TSC & LAM Research Conference

PROFESSIONAL MEMEBRSHIPS:

Society for Neuroscience, 2013-present

American Epilepsy Society, 2016-present

ACHIEVEMENTS IN ORIGINAL INVESTIGATION:

Articles in refereed journals:

1. **Nguyen LH**, Brewster AL, Clark ME, Regnier-Golanov A, Sunnen CN, Patil VV, D’Arcangelo G, and Anderson AE. (2015) mTOR inhibition suppresses established epilepsy in a mouse model of cortical dysplasia. *Epilepsia* 56(4):636-46. PMID: PMC4459784. Journal cover.
2. **Nguyen LH** and Anderson AE. (2018) mTOR-dependent alterations of Kv1.1 subunit expression in the neuronal subset-specific Pten knockout mouse model of cortical dysplasia with epilepsy. *Scientific Reports* 8(1):3568. PMID: PMC5824782.
3. Huang T, **Nguyen LH**, Lin TV, Gong X, Zhang L, Kim GB, Sarkisian MR, Breunig J, and Bordey A. (2019) *In utero* electroporation-based translating ribosome affinity purification identifies age-dependent mRNA expression in cortical pyramidal neurons. *Neuroscience Research* 143:44-52. PMID: PMC6265126.
4. **Nguyen LH**, Mahadeo T, and Bordey A. (2019) mTOR hyperactivity levels influence the severity of epilepsy and associated neuropathology in an experimental model of tuberous sclerosis complex and focal cortical dysplasia. *Journal of Neuroscience* 39(14):2762-2773. PMID: PMC4459784.
5. Zhang L, Huang T, Teaw S, **Nguyen LH**, Hsieh LS, Gong X, Burns LH, and Bordey A. (2020) Filamin A inhibition reduces seizure activity in a mouse model of focal cortical malformations. *Science Translational Medicine* 12(531): eaay0289. PMID: 32075941.
6. Hsieh LS, Wen JH, **Nguyen LH**, Zhang L, Getz S, Torres-Reveron J, Wang Y, Spencer DD, and Bordey A. (2020) Ectopic HCN4 expression drives mTOR-dependent epilepsy in mice. *Science Translational Medicine* 12(570): eabc1492. PMID: PMC9888000.
7. **Nguyen LH** and Bordey A. (2021) Converging and diverging mechanisms of epileptogenesis in mTORopathies. *Frontiers in Neuroanatomy* 15:664695. PMID: PMC8064518.
8. **Nguyen LH**, Xu Y, Mahadeo T, Zhang L, Lin TV, Born HA, Anderson AE, and Bordey A. (2022) Expression of 4E-BP1 in juvenile mice alleviates mTOR-induced neuronal dysfunction and epilepsy. *Brain*, 145(4):1310-1325 (epub 25 Nov 2021). PMID: PMC9128821.
9. **Nguyen LH**, Leiser SC, Dekun S, Brunner D, Roberds SL, Wong M, and Bordey A. (2022) Inhibition of MEK-ERK Signaling Reduces Seizures in Two Mouse Models of Tuberous Sclerosis Complex. *Epilepsy Research*, 181:106890. PMID: PMC8930622.
10. **Nguyen LH** and Bordey A. (2022) Animal Model of Focal Cortical Dysplasia and Epilepsy. *Epilepsy Currents* 15357597221098230. PMID: PMC9483763.
11. **Nguyen LH***, Sharma M, and Bordey A. (2023) 4E-BP1 expression in embryonic postmitotic neurons mitigates mTORC1-induced cortical malformations and behavioral seizure severity but does not prevent epilepsy in mice. *Frontiers in Neuroscience* 17:1257056. PMID: PMC10480503. *Corresponding author

Google Scholar link: <https://scholar.google.com/citations?user=26uuJjsAAAAJ&hl=en&oi=ao>

Articles submitted for publication:

1. **Nguyen LH***, Xu Y, and Bordey A. (2023) The mTOR pathway genes *mTOR*, *Rheb*, *Depdc5*, *Pten*, and *Tsc1* have convergent and divergent impacts on cortical neuron development and function. *Corresponding author. Submitted to *eLife* on July 7, 2023. Status: in press.

Articles in progress:

1. Krenzer M, **Nguyen LH**, Weiss Claudia, Bistis B, Healey M, Larios MR, Rivas D, Bordey A, Noonan J, and Muhle R. A late-onset seizure phenotype in a mouse model of CHD8 haploinsufficiency.

Conference abstracts/posters:

1. **Nguyen LH**, Sunnen CN, Brewster AL, and Anderson AE. Ion channel dysregulation in NS-Pten KO mice. Helen and Rush Record Neuroscience Research Forum, Galveston, TX. Feb 2012.

2. **Nguyen LH**, Brewster AL, and Anderson AE. Dysregulation of voltage-gated ion channel expression in a mouse model of cortical dysplasia. BCM Graduate School Research Symposium, Houston, TX. Oct 2012. Best poster award.
3. **Nguyen LH**, Brewster AL, and Anderson AE. Dysregulation of voltage-gated ion channel expression in a mouse model of cortical dysplasia. American Epilepsy Society Annual Meeting, San Diego, CA. Nov 2012. Selected for Investigator's workshop poster session.
4. **Nguyen LH**, Brewster AL, and Anderson AE. Voltage-gated ion channel alterations in mice with neuronal subset-specific conditional knockout of Pten. Helen and Rush Record Neuroscience Research Forum, Galveston, TX. Feb 2013.
5. **Nguyen LH**, Brewster AL, and Anderson AE. Evidence for hippocampal micro- and astroglial activation in the NS-Pten KO mouse model of cortical dysplasia. BCM Graduate School Research Symposium, Houston, TX. Oct 2013.
6. AL Brewster, **LH Nguyen**, and AE Anderson. The NS-Pten KO mouse model of cortical dysplasia with epilepsy is associated with inflammation. American Epilepsy Society Annual Meeting, Washington, DC. Dec 2013.
7. **Nguyen LH**, Brewster AL, and Anderson AE. The NS-Pten KO mouse model of cortical dysplasia with epilepsy is associated with alterations in the Kv1.1 potassium channel. American Epilepsy Society Annual Meeting, Washington, DC. Dec 2013. Selected for Investigator's workshop poster session.
8. **Nguyen LH**, Brewster AL, Clark ME, Sunnen CN, Patil VV, and Anderson AE. mTOR inhibition suppresses established epilepsy and associated histopathologies in the NS-Pten KO mouse model of cortical dysplasia. Jan and Dan Duncan Neurological Research Symposium, Houston, TX. April 2014.
9. **Nguyen LH**, Brewster AL, and Anderson AE. Alteration of Kv1.1 expression in the NS-Pten KO mouse model of epilepsy. Gordon Research Conference: Mechanisms of Epilepsy & Neuronal Synchronization, West Dover, VT. Aug 2014.
10. **Nguyen LH**, Brewster AL, Clark ME, Sunnen CN, Patil VV, and Anderson AE. Late mTOR inhibition suppresses established epilepsy and associated neuropathology in the NS-Pten KO mouse model of cortical dysplasia. BCM Graduate School Research Symposium, Houston, TX. Oct 2014.
11. **Nguyen LH**, Brewster AL, Clark ME, Regnier-Golanov A, Sunnen CN, Patil VV, and Anderson AE. mTOR inhibition suppresses established epilepsy and associated neuropathology in the NS-Pten KO mouse model of cortical dysplasia. American Epilepsy Society Annual Meeting, Seattle, WA. Dec 2014. Selected for travel award, selected for Investigator's workshop poster session.
12. **Nguyen LH** and Anderson AE. mTOR inhibition suppresses established epilepsy in a mouse model of cortical dysplasia. The Institute for Neuroscience Symposium at the University of Texas, Austin, TX. Jan 2015. Best poster award.
13. **Nguyen LH**, Brewster AL, Clark ME, Regnier-Golanov A, Sunnen CN, Patil VV, and Anderson AE. mTOR inhibition suppresses established epilepsy in a mouse model of cortical dysplasia. Helen and Rush Record Neuroscience Research Forum, Galveston, TX. Feb 2015.
14. **Nguyen LH** and Anderson AE. mTOR-associated Kv1.1 channel dysregulation in the NS-Pten KO mouse model of cortical dysplasia. American Epilepsy Society Annual Meeting, Philadelphia, PA. Dec 2015
15. **Nguyen LH** and Bordey A. mTOR activity levels influence severity of epilepsy and associated neuropathology in a mouse model of tuberous sclerosis complex and focal cortical dysplasia. Gordon Research Conference: Mechanisms of Epilepsy & Neuronal Synchronization. West Dover, VT. Aug 2018.
16. **Nguyen LH**, Roberds S, Brunner D, Leiser S, Wong M, and Bordey A. MEK/ERK pathway inhibition decreases seizures in mouse models of tuberous sclerosis complex and focal cortical dysplasia. American Epilepsy Society Annual Meeting, New Orleans, LA. Dec 2018.
17. **Nguyen LH**, Mahadeo T, Born HA, Anderson AE, and Bordey A. Targeting mTORC1-4E-BP1-Regulated Translation Attenuates Epilepsy in a Mouse Model of Tuberous Sclerosis Complex and Focal Cortical Dysplasia Type II. Park City Epilepsy Meeting, Park City, UT. Oct 2019. Selected for travel award.
18. **Nguyen LH**, Mahadeo T, Born HA, Anderson AE, and Bordey A. Targeting mTORC1-4E-BP1-Regulated Translation Attenuates Epilepsy in a Mouse Model of Tuberous Sclerosis Complex and Focal Cortical Dysplasia Type II. American Epilepsy Society Annual Meeting, Baltimore, MD. Dec 2019.

19. **Nguyen LH** and Bordey A. Decreasing translation attenuates epilepsy in mTOR-related cortical malformations. ILAE North American Epilepsy Congress. Virtual. Sep 2020. Selected for travel award.
20. **Nguyen LH**, Xu Y, Mahadeo T, and Bordey A. Conditional expression of 4E-BP1 attenuates epilepsy and neurophysiological abnormalities associated with mTOR hyperactivation. American Epilepsy Society Annual Meeting. Virtual. Dec 2020.
21. **Nguyen LH**, Xu Y, and Bordey A. 4E-BP1 expression reverses aberrant HCN4 channel acquisition in mTOR hyperactive neurons. Society for Neuroscience Annual Meeting. Virtual. November 2021.
22. **Nguyen LH**, Xu Y, and Bordey A. Comparing the impact of epilepsy-associated mTOR pathway mutations on cortical neuron development and function. Gordon Research Conference: Mechanisms of Epilepsy & Neuronal Synchronization. Barcelona, Spain. Aug 2022.
23. **Nguyen LH**, Xu Y, and Bordey A. Impact of Epilepsy-associated mTOR Pathway Variants on the Electrophysiological Profile of Medial Prefrontal Cortex Pyramidal Neurons. American Epilepsy Society Annual Meeting, Nashville, TN. Dec 2022.

Since UT Dallas employment:

Underscored names indicate supervised student/trainee at UT Dallas

24. Mageshkumar H and **Nguyen LH**. Analyzing changes in phosphorylated eIF4E levels and MNK activity during cortical development. Summer Platform for Undergraduate Research (SPUR), Richardson, TX. July 2023.

Invited talks at professional meetings and seminars:

1. **Effects of mTOR inhibition on late-stage epilepsy in a mouse model of cortical dysplasia.** Helen and Rush Record Neuroscience Research Forum, Galveston, TX. Feb 2014.
2. **Role of mTOR in the maintenance of epilepsy and ion channel dysregulation in a mouse model of cortical dysplasia.** Jan and Dan Duncan Neurological Research Institute Seminar Series, Houston, TX. Nov 2015.
3. **Dysregulation of mTOR signaling in focal cortical dysplasia and epilepsy.** Yale Cellular & Molecular Physiology Research in Progress Seminar, New Haven, CT. Oct 2018.
4. **mTOR activity levels influence the severity of epilepsy and associated neuropathology in a mouse model of focal cortical dysplasia.** Yale Comprehensive Epilepsy Research Meeting, Old Saybrook, CT. Nov 2018.
5. **Postnatal expression of 4E-BP1 attenuates epilepsy in an mTORopathy mouse model.** Towards Targeted Therapies for Neurodevelopmental Disorders Symposium. Virtual. July 2020.
6. **Targeting translational dysregulation in mTOR-related epilepsy.** CURE Postdoctoral Data Blitz on Translational Research in Epilepsy. Virtual. April 2021.
7. **Mechanisms of mTOR-induced epilepsy.** 34th International Epilepsy Congress. Session: Toward Precision Medicine in Epileptogenic Cortical Malformation. Virtual. Aug 2021.
8. **Tuberous Sclerosis Complex: Understanding the molecular mechanisms of mTOR-induced epilepsy.** International TSC & LAM Research Conference. Virtual. Oct 2021.
9. **Targeting 4E-BP in mTOR-induced epilepsy.** American Epilepsy Society Annual Meeting. Session: Basic Mechanisms and Neuroscience of Epilepsy. Chicago, IL, Dec 2021.
10. **Mechanisms of mTOR signaling in neurodevelopmental disorders and epilepsy.** Department of Neuroscience, University of Texas at Dallas. Dallas, TX. Feb 2022.
11. **Untangling disorders of cortical development and epilepsy: a journey from mysterious origins to mechanism-based therapies.** University of Texas at Dallas Neuroscience and Psychology PhD Retreat, Lone Oak Ranch & Retreat, Gainesville, TX. Aug 2023.
12. **Downstream and parallel targets of mTOR signaling for epilepsy treatment.** 35th International Epilepsy Congress. Session: The Multifarious mTOR Signaling Pathway in the Epilepsies. Dublin, Ireland. Sept 2023.
13. **Cellular signaling dysregulation in neurodevelopmental disorders and epilepsy.** BioFrontier Seminar Series, Department of Biological Sciences, University of North Texas. Denton, TX. Oct 2023.

14. **Metabolism and epilepsy.** American Epilepsy Society Annual Meeting. Basic Science Skills Workshop: Metabolism. Orlando, FL. Dec 2023.

Published interviews:

1. Nehlig A, Sperling M, and Mathern G. Interview with Lena Nguyen, 2016 Epilepsia prize winner for Basic Science Research. *Epilepsia* (2016) 57(9):1347-8.
2. Mechanisms of mTOR-induced epilepsy. *VJ Neurology: The Video Journal of Neurology*. Aug 2021. <https://vjneurology.com/speaker/lena-nguyen/>

PATENTS:

Nguyen LH, Lin T, Hsieh LS, and Bordey A. Targeting 4E-BP-EIF4E to reduce seizures in mTOR disorders. Filing date: October 4, 2019. US Provisional Patent application, pending.

EXTERNAL FUNDING FOR ORIGINAL INVESTIGATION:

Active funding:

Translational control mechanisms in TSC-associated epilepsy

PI: Nguyen

Tuberous Sclerosis Complex (TSC) Alliance

12/1/2023-11/30/2025 \$150,000

Past funding:

Inflammation in epilepsy associated with cortical dysplasia

PI: Nguyen

Epilepsy Foundation Predoctoral Fellowship

1/2013-2/2013 \$20,000

mTORC1-dependent translational control of neuronal hyperexcitability and seizures

PI: Nguyen

Yale Brown-Coxe Postdoctoral Fellowship

7/2017-6/2018 \$47,848

mTORC1-dependent translational control in developmental epilepsy

PI: Nguyen

American Epilepsy Society Postdoctoral Fellowship

7/2018-6/2019 \$50,000

Role of mTORC1-dependent translation in developmental epilepsy

PI: Nguyen

NIH (National Institute of Child Health and Human Development) Ruth L. Kirschstein NRSA Award (F32)

2/2019-1/2022 \$196,942

4E-BP1 gene therapy for treating epilepsy in TSC and FCDII

PI: Nguyen

Yale Swebilius Foundation Grant

9/2020-8/2021 \$15,000

TEACHING:

Organized courses:

Rice University:

2014 Fall PSY 362 Biopsychology/Cognitive Neuroscience (instructed 4 lectures; TA for course)

2015 Spring NEUR 380 Fundamental Neuroscience Systems (instructed 4 lectures; TA for course and lab)

UT Dallas:

2023 Fall NSC 4362 Molecular Neuroscience

Individual research instruction:

UT Dallas:

2023 Spring	NSC 4V98	Directed Research (Tran)
2023 Spring	NSC 4390	Directed Research and Writing (T. Nguyen)
2023 Spring	BIOL 3V96	Undergraduate Research in Molecular and Cell Biology (M. Nguyen)
2023 Spring	BIOL 6V03	Research in Molecular and Cell Biology (Uppalapati)
2023 Spring	HSC 8V89	Research in Neuroscience (Chiu)
2023 Summer	BIOL 6V03	Research in Molecular and Cell Biology (Chiu)
2023 Fall	BIOL 3V96	Undergraduate Research in Molecular and Cell Biology (M. Nguyen)
2023 Fall	NSC 4V98	Directed Research (Devata)
2023 Fall	NSC4V98	Directed Research (Wang)
2023 Fall	HSC 8V89	Research in Neuroscience (Chiu)
2023 Fall	BIOL 6V03	Research in Molecular and Cell Biology (Uppalapati)
2023 Fall	BIOL 6V03	Research in Molecular and Cell Biology (Patel)

Research advising:

Baylor College of Medicine (Anderson lab):

Undergraduate students:

Madeline Clark, 2011-2015

Ana Drew, Houston Community College Summer Science Intern Program, 2013

Yale University (Bordey lab):

Undergraduate students:

Travorn Mahadeo, Senior Thesis, 2017-2020

Nadia Irwanto, STARS Summer Program, 2017-2018

Alexis Cook, STARS Summer Program, 2018

Manas Sharma, STARS Summer Program, 2021

Maanasi Nair, 2021-2023

Dhruv Patel, Senior Thesis, 2022-2023

UT Dallas:

Undergraduate students:

Michelle Nguyen, 2023-present

Tejas Devata, 2023-present

Timothy Wang, 2023-present

Helen Tran, 2023-present

Theresa Nguyen, 2023

Harshitha Mageshkumar, Clark Summer Research Program, 2023

Post-baccalaureate students:

Aastha Chaudhry, 2023

Juliana Ude, 2023

Master's students (non-thesis):

Ananya Uppalapati, 2023-present

Deval Patel, 2023-present

Master's students (thesis):

Harrison Chiu, Applied Cognition and Neuroscience, 2023-present

Doctoral students:

Daniella Rodriguez, Systems and Cellular Neuroscience, 2023-present

Minsung Kim, Systems and Cellular Neuroscience, 2023-present
Rachel Arnold, Systems and Cellular Neuroscience, rotation, 2023

Doctoral dissertation committees:

Elysandra Solis, Bioengineering, Dr. Joseph Pancrazio's lab
Nicole Pinzon, Biology (Southern Methodist University), Dr. Amy Brewster's lab

SERVICE:

University committees and service – Baylor College of Medicine:

2013-2014 **Student representative**, Neuroscience Graduate Admissions Committee, Baylor College of Medicine

University committees and service – Yale University School of Medicine:

2016-2022 **Mentor**, Women and Gender Minorities in Science at Yale (WISAY) Mentoring Program
2020-2022 **Mentor**, Yale Graduate-Undergraduate Mentorship Initiative (GUMI)
2020 **Panelist**, YNEURO Career Panel for Yale Neuroscience Majors

University committees and service – UT Dallas:

2023 **Faculty research mentor**, Clark Summer Research Program (June-Aug 2023)
2023 **Poster judge**, Summer Platform for Undergraduate Research Program (SPUR)
2023-2026 **Member**, Institutional Animal Care and Use Committee (IACUC)

Professional society positions, committees, and service:

2020-2022 **Member**, American Epilepsy Society – Scientific Program Committee
2020-2022 **Member**, American Epilepsy Society – Investigators Workshop Committee
2022 **Moderator**, Platform on Translational Research. American Epilepsy Society Annual Meeting, Nashville, TN. Dec 2022.
2022 **Incoming Vice Chair**, SIG Basic Mechanisms and Neuroscience of Epilepsy: Paradoxical Mechanisms of Hyperexcitability in Epileptic Circuits. American Epilepsy Society Annual Meeting, Nashville, TN. Dec 2022.
2023-2025 **Member**, American Epilepsy Society – Basic Science Committee
2023 **Panelist**, Research Career Pathways. American Epilepsy Society Annual Meeting, Orlando, FL. Dec 2023.
2023 **Vice Chair**, SIG Basic Mechanisms and Neuroscience of Epilepsy: Human iPSCs-Based Neuron and Brain Organoid Models to Dissect Genetic Epilepsy. American Epilepsy Society Annual Meeting, Orlando, FL. Dec 2023.
2023 **Chair**, Basic Science Skills Workshop: Metabolism and Metabolic Approaches to Study Epilepsy. American Epilepsy Society Annual Meeting, Orlando, FL. Dec 2023.

Grant reviewer:

2023 American Epilepsy Society Early Career Grants
2023 Netherlands Brain Foundation (Hersenstichting) Research Subsidy Program
2023 Ireland Health Research Board Investigator Led Projects

Journal reviewer:

Brain (1), Cell Reports (1), eLife (1), Epilepsia (1), Frontiers in Genetics (1), Frontiers in Neurology (2), iScience (1), Journal of Neuroscience (1), Neuroscience and Biobehavioral Reviews, Scientific Reports (2)

ETHICS TRAINING AND PROFESSIONAL DEVELOPMENT:

2016 Responsible Conduct of Research Training, Baylor College of Medicine
2018 Responsible Conduct of Research Training, Yale Office of Postdoctoral Affairs
2018 Effective Mentoring Workshop, Yale Center for Teaching and Learning