Briana Ondatje

ASU-BNI IGPN Graduate Student
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Education

Arizona State University-Barrow Neurological Institute **August 2022 - Present**
PhD in Neuroscience: research at Barrow Neurological Institute, course work at Arizona State University

Arizona State University **May 2025**
M.S. in Neuroscience

University of California, Santa Barbara **September 2013 - June 2017**
B.S. in Cell and Developmental Biology
Study Abroad: University College Dublin 1 academic year **September 2016 – May 2017**

Research

Graduate Research Associate- Barrow Neurological Institute **August 2022 - Present**
Principle Investigator: Dr. Rita Sattler, PhD

- Culture human induced pluripotent stem cells (iPSCs) and differentiate into astrocytes, microglia, and cortical neurons in order to examine glia-glia cell regulatory mechanisms and glial effects in disease onset and progression for C9orf72 amyotrophic lateral sclerosis (ALS) / Frontotemporal Dementia (FTD)
- Characterize secretory products of iPSC derived microglia and astrocytes via multiplexed ELISA, transcriptomics, proteomics, and cell pellet analysis to detect changes in RNA and protein expression as a result of exposure to other cell type secretory products.
- Establish commercially available cell lines including REN neural progenitor cells for astrocytes, HMC3 cells, and primary astrocytes in the lab for use in molecular mechanism investigations involving small molecule exposure, ASOs, and siRNA
- Optimize culture protocols for plasmid induced differentiation of microglia and astrocyte cells from iPSCs.
- Assess the effects of CASP3 activation in astrocytes to determine if induction downregulates the critical surface receptor EAAT2, and determine if using CASP3 inhibitors can restore function of astrocytes
- Characterize LOF of C9orf72 in microglia and astrocytes

Research Associate II- Cedars Sinai Medical Center **August 2018 – July 2022**
Principal Investigator: Dr. Clive Svendsen, PhD

- Coordinated the cell production and project planning in concert with the project scientist for two multimillion-dollar NIH tissue chip grants investigating sporadic ALS and C9orf72 FTD, and Parkinson's Disease
- Cultured human iPSCs and differentiated into motor neurons, cortical motor neurons, dopaminergic neurons, astrocytes, neural spheres, microglia, and brain-microvascular endothelial cells (BMECs) from Parkinson's Disease (PD), ALS, and FTD patients to elucidate disease specific biomarkers which can be used as potential therapeutic targets
- Utilized microfluidic organ chip technology to co-culture iPSC derived neural cells and BMECs as a model for the blood brain barrier (BBB) to assess possible drug therapies and their ability to cross the BBB
- Developed a new method of sectioning, tissue clearing, and staining microfluidic chips which allows further investigation within the chips through improved visualization
- Wrote RStudio script to aid in analysis of translucence measurements from ImageJ used to measure relative tissue growth within a tissue chip, measuring light penetrance, as well as a measurement of tissue clearing efficiency, and a second script for analysis of positional data which is capable of determining tissue thickness at various points along the chip
- Studied the effects of human serum on BMEC growth, maturity, and health as well as the effects when used in the co-culture of BMECs and neurons
- Collected metabolomics, RNA, and protein samples from cell cultures
- Performed Multiple Assays: ELISA, permeability assays, qPCR, transendothelial electrical resistance recordings, immunohistochemistry, western blot
- Conducted confocal, fluorescent, and phase contrast microscopy of 2D and 3D cultures
- Optimized quality control (QC) measures for differentiated cells as well as the tissue chip culture paradigms

Research Intern- City of Hope **February 2018 - August 2018**

Principal Investigator: Dr. Ke Ma, MD/PhD

- Cultured C2C12 cells exposing them to glucose or insulin and subsequently analyzed these additions' effects on RNA and protein levels of CLOCK genes to elucidate the relationship of metabolic pathways and circadian circuits
- Analyzed myofiber immunocytochemistry and histology of MDX mice, mice simulating muscular dystrophy, muscle samples to determine the effects of knockout of specific CLOCK genes on the health and morphology of muscle fibers and look at how metabolism affects skeletal muscle development
- Processed tissue samples from mice and analyzed RNA/protein contents for CLOCK-related genes and products to study temporal mechanisms involved in tissue growth and function of adipose and skeletal muscle tissue which can help elucidate circadian mechanisms involved in metabolic disorders and distinguish possible therapeutic targets
- Genotyped mice colonies used in subsequent studies

Publications

- **"C9orf72 ALS/FTD iPSC astrocyte secretome induces increased THBS1-VEGF signaling in iPSC microglia"**, Ondatje et al. (*in preparation)*
- **"C9orf72 ALS/FTD iPSC astrocytes show increased CRYZ expression, and altered membrane trafficking when exposed to microglia secretome",** Ondatje et al. (*in preparation*)
- **"An organ-chip model of C9orf72 FTD"**, Lall et al. (*in preparation*)
- "**Tissue clearing of human iPSC derived tissue chips enables high resolution imaging and analysis",** Briana N Ondatje, Samuel Sances, Michael Workman, Clive Svendsen. DOI: 10.1039/D2LC00116K *Lab Chip*, Oct 7, 2022
- **"An organ-chip model of sporadic ALS using iPSC-derived spinal cord motor neurons and an integrated blood-brain-like-barrier",** Deepti Lall, Samuel Sances, Michael Workman, Briana N Ondatje, Shaughn Bell, Amanda Woodbury, Dylan West, Amanda Meyer, Alex Laperle, Kareem El-Ghazawi, Andrea Matlock, Vineet Viabhav, Jennifer Van Eyk, Clive Svendsen. DOI: 10.1016/j.stem.2025.05.015 *Cell Stem Cell,* July 3, 2025
- **"Systemic HER3 ligand-mimicking nanobioparticles enter the brain and reduce intracranial tumor growth",** Felix Alonso-Valenteen, Simon Mikhael, HongQiang Wang, Jessica Sims, Michael Taguiam, James The, Sam Sances, Michelle Wong, Tianxin Miao, Dustin Srinivas, Nelyda Gonzalez-Almeyda, Ryan H. Cho, Romny Sanchez, Kimngan Nguyanle, Erik Serrano, Briana Ondatje, Rebecca L. Benhaghnazar, Harry B. Gray, Zeev Gross, John Yu, Clive N. Svendsen, Ravinder Abrol, Lali K. Medina-Kauwe. DOI: 10.1038/s41565-025-01867-7 *Nature Nanotechnology,* Feb 21, 2025
- **"Multi-lineage heart-chip models drug cardiotoxicity and enhances maturation of human stem cell-derived cardiovascular cells",** Maedeh Mozneb, Amelia Jenkins, Samuel Sances, Stephany Pohlman, Michael J. Workman, Dylan West, Briana N Ondatje, Kareem El-Ghazawi, Amanda Woodbury, Veronica J. Garcia, Shachi Patel, Madelyn Arzt, Felipe Dezem, Alex H. Laperle, V. Alexandra Moser, Ritchie Ho, Nur Yucer, Jasmine Plummer, Robert J. Barrett, Clive N. Svendsen and Arun Sharma. DOI: **10.1039/D3LC00745F** *Lab Chip,* Jan 22, 2024

Feature Publications

- Ondatje, Briana. Scholar Spotlight, ARCS Foundation Phoenix, 3 Dec 2025
- Smith, Fran. "Every Body Is Unique." *National Geographic*, 1 Jan. 2019, pp. 40–67.

Posters

- "***VEGF signaling is altered in C9orf72 ALS/FTD and enhanced by C9orf72 ALS/FTD ACM***", ARCS Phoenix Chapter, Phoenix, AZ, April 2026 (presentation)
- March 2026, ***"Molecular profiling of microglia-astrocyte crosstalk in C9orf72 ALS/FTD reveals dysregulation of critical signaling pathways",*** Packard Center for ALS Meeting, Baltimore, MD (presenter)
- January 2026, ***"Molecular profiling of microglia-astrocyte crosstalk in C9orf72 ALS/FTD reveals dysregulation of critical signaling pathways",*** ASU-BNI Graduate Research Symposium, Phoenix, AZ (presenter)
- January 2026, ***"Molecular profiling of microglia-astrocyte crosstalk in C9orf72 ALS/FTD reveals dysregulation of critical signaling pathways"***, ALS Network Research Summit, Pasadena, CA (presenter)
- September 2025, ***"Defining microglia-astrocyte crosstalk in C9orf72 ALS/FTD***, Arizona Alzheimer's Consortium, Tempe, AZ (presenter)

- July 2025, ***"Defining microglia-astrocyte crosstalk in C9orf72 ALS/FTD***, GRS/GRC ALS and Related Motor Neuron Diseases, Portland, ME (presenter)
- April 2025, ***"Microglia- Astrocyte crosstalk in C9orf72 ALS/FTD",*** ARCS, Phoenix, AZ (presenter)
- February 2025, ***"Microglia- Astrocyte crosstalk in C9orf72 ALS/FTD",*** ARCS, ASU, Tempe, AZ (presenter)
- January 2025, ***"NLRP3 Inflammasome activation in microglia incites reactive astrocytes in C9orf72 ALS/FTD"***, ASU-BNI Graduate student symposium, Phoenix, AZ (*presenter*)
- June 2024, ***"NLRP3 Inflammasome activation in microglia incites reactive astrocytes in C9orf72 ALS/FTD"***, Keystone Symposia on Neuroimmune and Neurodegeneration, Santa Fe, NM (*presenter*)
- April 2024, ***"Microglia- Astrocyte crosstalk in C9orf72 ALS/FTD"***, Phoenix, AZ (*presenter)*
- Oct 2023, ***"Microglia- Astrocyte crosstalk in C9orf72 ALS/FTD"***, NEALS, Clearwater, FL (*presenter*)
- July 2022, ***"Spinal cord-chip from sporadic ALS patients reveal disease specific biomarkers"***, Live Like Lou Foundation, Scottsdale, AZ *(presenter)*
- June 2022, ***"Development of an organ-on-chip system to study Parkinson disease",*** ISSCR, San Francisco, CA
- June 2022, ***"Modeling C9orf72 FTD/ALS using a new organ-chip model to inform clinical trials"***, ISSCR, San Francisco, CA *(presenter)*
- June 2022, ***"Spinal cord-chip from sporadic ALS patients reveal disease specific biomarkers",*** ISSCR, San Francisco, CA
- June 2022, ***"Increase in neurofilaments observed in early onset sporadic ALS",*** MPS World Summit, New Orleans, LA *(presenter)*
- January 2022, ***"Increase in neurofilaments observed in early onset sporadic ALS"***, ALS Research Summit, online *(presenter)*
- Nov 2021 "***A Parkinson's Disease-Chip model system to study early onset sporadic Parkinson's Disease",*** Society for Neuroscience, Chicago, IL
- Nov 2021 "***Modeling C9orf72 ALS/FTD using a new organ-chip model to inform clinical trials",*** Society for Neuroscience, Chicago, IL
- Nov 2021 "***Spinal Cord-Chips from sporadic ALS patients reveal disease specific biomarkers",*** Society for Neuroscience, Chicago, IL (*presenter)*
- March 2021 ***"Microphysiological systems for the establishment of biomarkers in young onset sporadic neurodegenerative disease"***, NIH Tissue Chip Consortia (*presenter)*
- March 2021 ***"Spinal Cord- Chips from sporadic ALS patients reveal disease specific biomarkers"***, Packard Center ALS Research Symposium 2021, Johns Hopkins University, Baltimore, MD (*presenter)*
- February 2020 ***"Spinal Cord-Chips from Sporadic ALS patients reveal altered neuronal pathways"***, California ALS Research Summit 2020, Cedars Sinai Medical Center, Los Angeles, CA (*presenter)*

Conferences Attended

- Packard Center for ALS Meeting 2026, Baltimore, MD
- ASU-BNI Graduate Research Symposium 2026, Phoenix, AZ
- ALS Network Research Summit 2026, Pasadena, CA
- ASU-Banner Neurodegenerative Disease Research Conference 2025, Scottsdale, AZ
- Arizona Alzheimer's Consortium 2025, Tempe, AZ
- Gordon Research Seminar/Conference ALS and Related Motor Neuron Diseases 2025, Portland, ME
- ASU-BNI Graduate Student Symposium 2025, Phoenix, AZ
- Arizona Alzheimer's Consortia 2024, Tempe, AZ
- Keystone Symposia Neuroimmune and Neurodegeneration 2024, Santa Fe, NM
- ASU-BNI Graduate Student Symposium 2024, Phoenix, AZ
- ASU-Banner Neurodegenerative Disease Research Conference 2023, Scottsdale, AZ
- Network of Excellence for ALS Symposium 2023, Clearwater, FL
- Packard ALS Research Symposium 2023, Baltimore, Maryland
- ASU-Banner Neurodegenerative Disease Research Conference 2022, Phoenix, AZ
- Arizona Alzheimer's Consortia 2022, Tempe, AZ
- Live Like Lou Symposium 2022, Scottsdale, AZ
- International Society for Stem Cell Research Conference 2022, San Francisco, CA
- Microphysiological Systems World Summit 2022, New Orleans, LA
- California ALS Research Summit 2022, online
- Society for Neuroscience 2021, online

- NIH Tissue Chip Consortia 2021, online
- Packard ALS Research Symposium 2021, online
- California ALS Research Summit 2021, online
- California ALS Research Summit 2020, Los Angeles, CA
- NIH Tissue Chip Consortia 2019, Rockville, MD

Training Courses

Cold Spring Harbor Laboratory: Tutorials in Genomics & Bioinformatics: RNA-Seq Analysis (2023)
Cedars- Sinai Medical Center: iPSC Handling Training Course (2018)

Scholarships, Fellowships and Grants

Penelope Davis Neuroscience Scholarship	**2026**
NIH F31 Fellowship 1F31NS139617-01A1	**2025-28**
Achievement Rewards for College Scientists Scholarship (ARCS)	**2024-27**
End the Legacy Grant Award	**2025**
Mensa Foundation Dr. Peter M Kendall Science Scholarship	**2025**
ASU Graduate Student Government Travel Award	**2025**
ASU Graduate and Professional Student Association Engagement Award	**2025**
The LoBrutto Family Fund Fellowship	**2025**
The College Graduate Excellence Award	**2025**
ASU School of Life Sciences Travel Award	**2025**
Keystone Symposia Future of Science Fund Scholarship	**2024**
BNI Translational Neuroscience Trainee Fast Track Grant	**2023**
ASU Graduate and Professional Student Association Career Development Travel Award	**2023**
ASU School of Life Sciences Travel Award	**2023**
Cold Spring Harbor Laboratory Tuition Scholarship	**2023**
ASU University Grad Fellowship	**2022**

Awards

ALS Network Barber Research Award, January 2026
Live Like Lou Foundation Poster Award Winner, July 2022

Administrative Board Member

ASU Graduate Association of Interdisciplinary Neuroscience Students (GAINS) **2024- 25**
Position: *Downtown Phoenix/BNI Student Representative*

Societies

American Association for the Advancement of Science, 2025
ASU Graduate Association for Interdisciplinary Neuroscience Students, 2022-2025
International Society for Stem Cell Research, 2022
Society for Neuroscience, 2021

Teaching and Mentoring

Nina Goetz, ASU WINURE undergraduate research intern- Barrow Neurological Institute **October 2024- August 2025**
CASP3 role in astrocytic dysfunction in C9orf72 ALS/FTD
Ryan Gutierrez, Muscular Dystrophy Association Scholar- Barrow Neurological Institute **May 2024-August 2024**
Role of LOF of TDP-43 in microglia
Kim Preller, Research Associate -Barrow Neurological Institute **May 2023 – September 2023**
Optimization of cortical astrocyte differentiation from iPSCs
Gabriela Morales-Lima, Summer Intern -Barrow Neurological Institute **June 2023 - July 2023**
Characterization of iPSC derived cortical neurons through fluorescent imaging
Career Panel - Barrow Neurological Institute Summer Program **June 2023, 2025, 2026**
Educator- California Science Center, Los Angeles **September 2012 - March 2013**
Engaged guests using different interactive activities on subjects ranging from air pressure and electromagnetism to the brain

Oral Presentations

1. ***Molecular profiling of microglia-astrocyte crosstalk in C9orf72 ALS/FTD reveals dysregulation of critical signaling pathways,*** ALS Network Summit, Pasadena, CA, January 2026
2. ***Unraveling mechanisms of immune response activation by microglia-astrocyte crosstalk in C9orf72 ALS/FTD***, Barrow Neurological Institute/ASU, Datablitz/Neuroscience Seminar, Phoenix, AZ, October 2025
3. ***Defining microglia-astrocyte crosstalk in C9orf72 ALS/FTD,*** ASU-Banner Neurodegenerative Disease Research Conference, Scottsdale, AZ, September 2025
4. ***Defining microglia-astrocyte crosstalk in C9orf72 ALS/FTD,*** Arizona Alzheimer's Consortium, Tempe, AZ, September 2025
5. ***Defining microglia-astrocyte crosstalk in C9orf72 ALS/FTD,*** Gordon Research Conference on ALS and Related motor neuron diseases, Portland, ME, July 2025
6. ***Defining microglia-astrocyte crosstalk in C9orf72 ALS/FTD***, Gordon Research Seminar on ALS and Related motor neuron diseases, Portland, ME, July 2025
7. ***Human systems modeling using iPSCs***, Barrow Neurological Institute Technology Bootcamp Summer Intern Seminar Series, AZ, July 2025
8. ***Characterizing the secretome crosstalk of microglia and cortical astrocytes in C9orf72 ALS/FTD,*** ASU Neuroscience Seminar Series, Tempe, AZ, Nov 2024
9. ***Role of TDP-43 in neuroinflammation,*** ARCS Phoenix Monthly Meeting, Phoenix, AZ, October 2024
10. ***Utilizing iPSC technology to study neurodegeneration***, Barrow Neurological Institute Technology Bootcamp Summer Intern Seminar Series, Phoenix, AZ, July 2024
11. ***NLRP3 Inflammasome regulation in C9orf72 ALS/FTD Microglia and Astrocyte,*** ASU Neuroscience Seminar Series, Tempe, AZ, Sep 2023
12. ***Unraveling human development and disease through iPSC modeling***, Barrow Neurological Institute Technology Bootcamp Summer Intern Seminar Series, Phoenix, AZ, July 2023