Briana Ondatje

ASU-BNI IGPN Graduate Student

Barrow Neurological Institute

(626) 260-5645

briana.ondatje@gmail.com

Education

ASU-Barrow Neurological Institute **August 2022 - Present**

PhD in Neuroscience: research at Barrow Neurological Institute, course work at Arizona State University

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 motor 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)

Research Associate II- Cedars Sinai Medical Center **August 2018 - Present**

Principal Investigator: Dr. Clive Svendsen, PhD

- Coordinate 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
- Culture 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) and ALS patients to elucidate disease specific biomarkers which can be used as potential targets for therapy
- Utilize 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
- Study 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
- Collect metabolomics, RNA, and protein samples from cell cultures

- Perform Multiple Assays: ELISA, permeability assays, qPCR, transendothelial electrical resistance recordings, immunohistochemistry
- Conduct confocal, fluorescent, and phase contrast microscopy of 2D and 3D cultures
- Optimize 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 with the introduction of 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

Posters

- 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)*
- 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)*
- March 2021 ***"Microphysiological systems for the establishment of biomarkers in young onset sporadic neurodegenerative disease"***, NIH Tissue Chip Consortia (*presenter)*
- Nov 2021 "***Spinal Cord-Chips from sporadic ALS patients reveal disease specific biomarkers"***, Society for Neuroscience, Chicago, IL (*presenter)*
- Nov 2021 "***Modeling C9orf72 ALS/FTD using a new organ-chip model to inform clinical trials"***, Society for Neuroscience, Chicago, IL
- Nov 2021 "***A Parkinson's Disease-Chip model system to study early onset sporadic Parkinson's Disease"***, Society for Neuroscience, Chicago, IL
- January 2022, ***"Increase in neurofilaments observed in early onset sporadic ALS"***, ALS Research Summit, online *(presenter)*
- June 2022, ***"Increase in neurofilaments observed in early onset sporadic ALS"***, MPS World Summit, New Orleans, LA *(presenter)*
- June 2022, ***"Spinal cord-chip from sporadic ALS patients reveal disease specific biomarkers"***, 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)*

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- June 2022, ***"Development of an organ-on-chip system to study Parkinson disease"***, ISSCR, San Francisco, CA
- July 2022, ***"Spinal cord-chip from sporadic ALS patients reveal disease specific biomarkers"***, Live Like Lou Foundation, Scottsdale, AZ *(presenter)*
- Oct 2023, ***"Microglia- Astrocyte crosstalk in C9orf72 ALS/FTD"***, NEALS, Clearwater, FL (*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*)

Conferences Attended

- NIH Tissue Chip Consortia 2019, Rockville, MD
- California ALS Research Summit 2020, Los Angeles, CA
- California ALS Research Summit 2021, online
- Packard ALS Research Symposium 2021, online
- NIH Tissue Chip Consortia 2021, online
- SFN 2021, Chicago, IL
- California ALS Research Summit, 2022, online
- MPS World Summit 2022, New Orleans, LA
- ISSCR 2022, San Francisco, CA
- LLL 2022, Scottsdale, AZ
- Arizona Alzheimer's Consortia 2022, Phoenix, AZ
- ASU-Banner Neurodegenerative Disease Research Conference, 2022
- Packard ALS Research Symposium 2023, Baltimore, Maryland
- NEALS 2023, Clearwater, FL
- ASU-Banner Neurodegenerative Disease Research Conference, Scottsdale, AZ, 2023
- Keystone Symposia Neuroimmune and Neurodegeneration, Santa Fe, NM, 2024

Publications

"**Tissue clearing of human iPSC derived tissue chips enables high resolution imaging and analysis",** Briana Ondatje, Samuel Sances, Michael Workman, Clive Svendsen. DOI: 10.1039/D2LC00116K (Paper) *Lab Chip*, Oct 7,2022

"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 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. *Lab Chip,* Jan 22, 2024

"Systemic ligand-mimicking bioparticles cross the blood-brain barrier and reduce growth of intracranial triple-negative breast cancer using the human epidermal growth factor receptor 3 (HER3) to mediate both routes", Felix Alonso-Valenteen, Sam Sances, Hong Qiang Wang, Simoun Mikhael, Jessica Sims, Michael Taguiam, Dustin Srinivas, Erik Serrano, Briana Ondatje, Dylan West, James The, Michelle Wong, Kimngan Nguyenle, Tianxin Miao, Rebecca Benhaghnazar, John S. Yu, Clive Svendsen, Ravinder Abrol, LK Medina Kauwe. DOI: 10.1101/2021.06.07.446634, *BioRxiv*, June 7, 2021. Submitted for peer review.

"Stem cell derived spinal cord-chips reproduce clinical biomarkers in young onset sporadic ALS patients", Deepti Lall, Samuel Sances, Michael Workman, Briana Ondatje, Shaughn Bell, Amanda Woodbury, Dylan West, Amanda Meyer, Alex Laperle, Kareem El-Ghazawi, Andrea Matlock, Vineet Viabhav, Jennifer Van Eyk, Clive Svendsen. *submitted*

Feature Publications

Smith, Fran. "Every Body Is Unique." *National Geographic*, 1 Jan. 2019, pp. 40–67.

Training Courses

Cedars- Sinai Medical Center: iPSC handling Training course, Los Angeles, CA (2018)
Cold Spring Harbor Laboratory: Tutorials in Genomics & Bioinformatics: RNA-Seq Analysis (2023)

Scholarships, Fellowships and Grants

ARCS Scholarship	**2024-25**
Keystone Symposia Future of Science Fund scholarship	**2024**
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**
Tuition Scholarship, Cold Spring Harbor Laboratory	**2023**
University Grad Fellowship, Arizona State University	**2022**

Awards

Live Like Lou Foundation Poster Award Winner, July 2022

Societies

Society for Neuroscience, 2021
International Society for Stem Cell Research, 2022

Teaching and Mentoring

Ryan Gutierrez, Muscular Dystrophy Association Scholar- Barrow Neurological Institute **June-Aug 2024**
Role of LOF of C9orf72 in microglia
Kim Preller, Research Associate -Barrow Neurological Institute **May 2023 - Present**
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**
Educator- California Science Center **September 2012 - March 2013**
Engaged guests using different interactive activities on subjects ranging from air pressure and electromagnetism to the brain and the heart

Oral Presentations

1. ***Unraveling human development and disease through iPSC modeling****, Barrow Neurological Institute Technology Bootcamp Summer Intern Seminar Series, Phoenix, AZ, 2023*
2. ***NLRP3 Inflammasome regulation in C9orf72 ALS/FTD Microglia and Astrocyte,*** *ASU Neuroscience Seminar Series, Tempe, AZ, 2023*
3. ***Utilizing iPSC technology to study neurodegeneration****, Barrow Neurological Institute Technology Bootcamp Summer Intern Seminar Series, Phoenix, AZ, 2024*

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