Thiago Arzua, Ph.D.

Postdoctoral Research Scientist
Columbia University – Mortimer B. Zuckerman Mind Brain Behavior Institute

Contact Information

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Education

Doctor of Philosophy – Neuroscience **2021**
Concentration in Basic and Translational Science
Medical College of Wisconsin – Milwaukee, WI

Interactive Track Certificate – Neuromatch Academy **2020**
Neuromatch is a worldwide academy aimed at training neuroscientists to learn computational tools.
Online

Bachelor of Arts – Chemistry **2016**
French Minor
University of South Florida – Honors College – Tampa, FL

Research Experience

Columbia University **2022 – Present**
Postdoctoral Research Scientist – Department of Neuroscience – Mentor: Bianca Jones-Marlin, Ph.D.
Focus: The neurodevelopmental aspects of transgenerational epigenetic inheritance of traumatic experiences

Medical College of Wisconsin **2016 – 2021**
Doctoral Candidate – Department of Physiology – Mentor: Xiaowen Bai, M.D., Ph.D.
Dissertation Title: Brain Organoids and Long Non-Coding RNAs: Neuroprotective pathways in alcohol-induced developmental neurotoxicity

University of South Florida **2015 – 2016**
Thesis Candidate – Department of Psychiatry and Neuroscience – Mentor: Lynn Wecker, Ph.D.
Thesis Title: The Neurochemical Effects of Choline in Chemotherapy-Induced Cognitive Deficits

Byrd Alzheimer's Institute **2014 – 2015**
Research Assistant – Department of Molecular Pharmacology & Physiology – Mentor: Edwin Weeber, Ph.D.
Focus: Cellular and molecular mechanisms behind Alzheimer's and Angelman Syndrome

University of South Florida **2012 – 2014**
Undergraduate Researcher – Department of Chemistry – Mentor: X. Peter Zhang, Ph.D.
Focus: Metalloradical Catalysis for Stereoselective Organic Synthesis.

Honors and Awards

Achievement in Physiology Award – Medical College of Wisconsin	**2022**
Outstanding Scholars in Neuroscience Award Program – **National Institutes of Health**	**2021**
Trainee Professional Development Award **– Society for Neuroscience**	**2020**
Early Career Policy Ambassador **– Society for Neuroscience**	**2020**
Graduate Student Travel Award – **Medical College of Wisconsin**	**2019**
Undergraduate Scholar – **University of South Florida**	**2016**
Outstanding Rookie Student Leader – **INTO University of South Florida**	**2016**
Clear Springs Land Undergraduate Research Award – **University of South Florida**	**2014**
Martin Travel Awards for Undergraduates **– University of South Florida**	**2013**
1st Place Poster Award **– Castle Student Research Conference**	**2013**
International Student Scholarship **– University of South Florida**	**2012**

Publications

1. **Arzua T**, Yan Y, Liu X, Liu Q, Bai X. Synaptic and mitochondrial dysfunctions bridge the molecular and behavioral effects of neurodevelopmental alcohol exposure. In Preparation. (2022).
2. Yan Y, Logan S, Liu X, Chen B, Jiang C, **Arzua T**, Ramchandran R, Liu Q, Bai X. Integrated excitatory/imbalance and transcriptomic analysis reveals an association between dysregulated synaptic genes and anesthetic-induced cognitive dysfunction. Under Review. *Journal of Brain Communication.* (2022).
3. Daskalska, L, O'Brien B, **Arzua T**, Bakken B. Family Support Policy for Pharmacy, Medical, and Graduate Students. In Press, *Journal of Science Policy* & *Governance.* 20-02, May 16 (2022).
4. Gunaratne GS, Rebbeck RT, McGurran LM, Yan Y, **Arzua T**, Frolkis T, Bai X, Cornea RL, Walseth TF, Marchant JS. Identification of a dihydropyridine scaffold that blocks ryanodine receptors. *iScience.* 25(1), 103706 (2022).
5. Jeong N, Sefik E, Shiu FH, **Arzua T**. Investing in International Graduate Students for the Scientific Endeavour Keeps the US Competitive. *Journal of Science Policy* & *Governance.* 18-03, Aug 30 (2021).
6. **Arzua T**, Jiang C, Yan Y, Bai X. The importance of non-coding RNAs in environmental stress-related developmental brain disorders: a systematic review of evidence associated with exposure to alcohol, anesthetic drugs, nicotine, and viral infections. *Neuroscience* & *Biobehavioral Reviews.* 128:633-647 (2021).
7. Jiang C, **Arzua T**, Yan Y, Bai X. Expression Signature of lncRNAs and mRNAs in Sevoflurane-Induced Mouse Brain Injury: Implication of Involvement of Wide Molecular Networks and Pathways. *International Journal of Molecular Sciences.* 22.3:1389 (2021).
8. Yan Y, **Arzua T**, Logan S, Bai X. Isolation and Culture of Human Induced Pluripotent Stem Cell-derived Cerebral Organoid Cells. *Methods in Molecular Biology.* 1-12 (2020).
9. **Arzua T**, Yan Y, Allison RL, Jiang C, Logan S, Wells C, Kumar S, Schäfer R, Bai X. Modeling Alcohol-induced Neurotoxicity using Human Induced Pluripotent Stem Cell-derived Three-Dimensional Cerebral Organoids. *Translational Psychiatry.* 10.1, 1-21 (2020).
10. Logan S, **Arzua T**, Jiang C, Yan Y, Bai X. Dynamic Characterization of Structural, Molecular, and Electrophysiological Phenotypes of Human-Induced Pluripotent Stem Cell-Derived Cerebral Organoids, and Comparison with Fetal and Adult Gene Profiles. *Cells.* 9(5), 1301 (2020).

11. Logan S, **Arzua T**, Canfield SG, Seminary ER, Sison SL, Ebert AD, Bai X. Studying human neurological disorders using induced pluripotent stem cells: from 2D monolayer to 3D organoid and blood brain barrier models. *Comprehensive Physiology*. Jan 17;9(2):565-611 (2019).
12. Logan S, Jiang C, Yan Y, Inagaki Y, **Arzua T**, Bai X. Propofol alters long non-coding RNA profiles in the neonatal mouse hippocampus: Implication of novel mechanisms in anesthetic-induced developmental neurotoxicity. *Cellular Physiology and Biochemistry*. 49(6):2496-510 (2018).
13. Jiang C, Logan S, Yan Y, Inagaki Y, **Arzua T**, Ma P, Lu S, Bosnjak ZJ, Bai X. Signaling network between the dysregulated expression of microRNAs and mRNAs in propofol-induced developmental neurotoxicity in mice. *Scientific Reports*. Sep 21;8(1):1-3 (2018).
14. Moehring F, Cowie AM, Menzel AD, Weyer AD, Grzybowski M, **Arzua T**, Geurts AM, Palygin O, Stucky CL. Keratinocytes mediate innocuous and noxious touch via ATP-P2X4 signaling. *eLife*. Jan 16;7:e31684 (2018).
15. Yan Y, Qiao S, Kikuchi C, Zaja I, Logan S, Jiang C, **Arzua T**, Bai X. Propofol induces apoptosis of neurons but not astrocytes, oligodendrocytes, or neural stem cells in the neonatal mouse hippocampus. *Brain Sciences*. Oct;7(10):130 (2017).
16. Jin LM, Lu H, Cui Y, Lizardi CL, **Arzua T**, Wojtas L, Cui X, Zhang XP. Selective radical amination of aldehydic C (sp 2)–H bonds with fluoroaryl azides via Co (II)-based metalloradical catalysis: synthesis of N-fluoroaryl amides from aldehydes under neutral and nonoxidative conditions. *Chemical Science*. 5(6):2422-7 (2014).

Invited Talks

Medical College of Wisconsin – Clinical Research Scholars Program **05/2022**
Using Social Media to Promote Your Research

Loyola University – Seminar in Molecular/Cellular Neuroscience **11/2021**
Brain organoids: Modeling neuroprotective signaling in developmental neurotoxicity

Federal University of Rio de Janeiro – Caxias É Live **10/2021**
Black in Neuro – Empoderando Negros na Ciência (Portuguese)

Loyola University – Seminar in Molecular/Cellular Neuroscience **04/2021**
Modeling Alcohol-induced Neurotoxicity using hiPSCs-derived Cerebral Organoids

Federal University of Santa Catarina – Postgraduate Program in Neuroscience **11/2020**
Black in Neuro Week: A Successful Diversity, Equity, and Inclusion Initiative

Loyola University – Neuroscience Society **10/2020**
Brain Organoids as Models for Alcohol-induced Neurotoxicity

Congresso Brasileiro Interligas de Neurologia, Neurocirurgia e Neurociências **09/2020**
Carreira Acadêmica no Exterior (Portuguese)

Grad Chat with PhD Balance **07/2020**
International Students and Being Abroad

Ask Me, I'm a Scientist with Dr. Susanna Harris **03/2020**
Why Pregnant Moms Shouldn't Drink

Medical College of Wisconsin – 2nd Annual Student Health Sciences Conference **01/2020**
Discovery of Purpose, Passion, and Perseverance in the Health Sciences

Underground Science Society **07/2019**
Mini Brains: The Exciting World of Lab Grown Mini Organs

Scientific Talks

NIH Outstanding Scholars in Neuroscience Award Program Symposium **12/2021**
Brain Organoids and Long non-coding RNAs

Regenerative Medicine and Stem Cell Biology Forum **10/2021**
Studying IncRNA regulation of neuroprotective signaling in developmental neurotoxicity

Department of Physiology **06/2021**
NPAS4-mediated Neuroprotection from Alcohol-Induced Neurotoxicity on Brain Organoids

Developmental Biology Club **11/2020**
Modeling Neuroprotection from Alcohol-Induced Neurotoxicity with Brain Organoids

Developmental Biology Club **09/2019**
Mini Brains and Alcohol-Induced Developmental Brain Injury

Basic and Translational Science Seminar Series **08/2019**
Stem Cells and Disease Modeling

Department of Physiology **07/2019**
Long noncoding RNAs and Alcohol-Induced Developmental Brain Injury

Conference Presentations

1. **Arzua T**, Yan Y, Jiang C, Logan S, Bai X. Brain Organoids and Long non-coding RNAs: Neuroprotective pathways in Developmental Neurotoxicity. *NIH Outstanding Scholars in Neuroscience Award Program Symposium* (12/2021).
2. **Arzua T**, Yan Y, Jiang C, Logan S, Bai X. Honokiol acts as a neuroprotective in alcohol-induced developmental neurotoxicity in brain organoids. *Society for Neuroscience* (11/2021).
3. **Arzua T**, Yan Y, Jiang C, Logan S, Allison RL, Wells C, Kumar S, Schäfer R, Bai X. Brain Organoids as a Models for Alcohol-induced Developmental Neurotoxicity. *Society for Neuroscience Global Connectome* (01/2021).
4. **Arzua T**, Yan Y, Jiang C, Logan S, Allison RL, Wells C, Kumar S, Schäfer R, Bai X. Stem Cell-derived Cerebral Organoids as Models for Studying Alcohol-induced Developmental Neurotoxicity: Analyses at Tissue, Cellular, Subcellular, and Gene Levels. *EMBO | EMBL Organoids: Modelling Organ Development and Disease in 3D Culture* (10/2020).
5. **Arzua T**, Yan Y, Jiang C, Logan S, Allison RL, Wells C, Kumar S, Schäfer R, Bai X. Modeling Alcohol-Induced Neurotoxicity using Human iPSC-Derived Cerebral Organoids. *International Society for Stem Cell Research Annual Meeting* (06/2020).
6. **Arzua T**, Logan S, Yan Y, Bai X Exposure to ethanol leads to abnormal signaling network of long non-coding RNAs and mRNAs in neonatal mouse brains *Medical College of Wisconsin Graduate Student Poster Session* (11/2019).
7. **Arzua T**, Logan S, Jiang C, Yan Y, Liu X, Liu QS, Bai X. Excitatory and inhibitory imbalance may contribute to the propofol-induced developmental neurotoxicity through NPAS4 signaling. *Society for Neuroscience* (11/2018).
8. **Arzua T**, Jiang C, Logan S, Yan Y, Bosnjak Z, Bai X. Anesthetic-induced downregulation of NPAS4 might contribute to developmental neurotoxicity in neonatal mice. *Medical College of Wisconsin 1st Annual Graduate Student Symposium* (03/2018).

9. **Arzua T**, Jiang C, Logan S, Yan Y, Bosnjak Z, Bai X. Anesthetic-induced downregulation of NPAS4 might contribute to developmental neurotoxicity in neonatal mice. *Medical College of Wisconsin Graduate Student Poster Session* (10/2017).
10. **Arzua T**, Moehring F, Reynolds A, Stucky CL. Light-modulated Keratinocytes and Sensory Neurons: Insights into Mechanotransduction. *Medical College of Wisconsin Graduate Student Poster Session* (10/2016).
11. **Arzua T**, Posner K, Ficken M, Philpot R, Wecker L. The Neurochemical Effects of Choline in Chemotherapy-Related Cognitive Deficits. *University of South Florida Undergraduate Research and Arts Colloquium* (04/2016).
12. **Arzua T**, Grieco JC, Ciarlone SL, KD Lamens, EJ Weeber. Determining the Neurobiological Effects of Minocycline in Angelman Syndrome Mouse Model. *University of South Florida Undergraduate Research and Arts Colloquium* (04/2015).
13. **Arzua T**, Grieco JC, Ciarlone SL, KD Lamens, EJ Weeber. Determining the Neurobiological Effects of Minocycline in Angelman Syndrome Mouse Model. *USF Health Research Day* (02/2015).
14. **Arzua T**, Jin LM, Zhang XP. Metalloradical catalyzed N=N bond formation with fluoroaryl azides: A new approach to the synthesis of fluoroazobenzene compounds. *Southeastern Regional Meeting of the American Chemical Society* (11/2013).
15. **Arzua T**, Jin LM, Zhang XP. Effective Synthesis of Chiral N-Fluoroaryl Aziridines via Enantioselective Aziridination of Alkenes with Fluoroaryl Azides. *University of South Florida Undergraduate 7th Annual Oktoberfest* (10/2013).
16. **Arzua T**, Jin LM, Lizardi CL, Zhang XP. N=N Bond Formation via Metalloradical Catalysis (MRC): An Efficient Synthesis of Fluoroazocompounds. *University of South Florida Undergraduate Research and Arts Colloquium* (04/2013).
17. **Arzua T**, Jin LM, Lizardi CL, Zhang XP. Highly Efficient Synthesis of Fluoroazocompounds by Metalloradical Catalysis. *11th Raymond Castle Student Research Conference* (04/2013).

Leadership and Outreach

Society for Neuroscience Trainee Advisory Committee **2021 – Present**

Committee Member

- The committee's goal is to assist the Society in supporting neuroscience trainee development and enhancing the trainee members' experience. Provided a trainee's perspective, as well as helped to monitor the effectiveness of developed programs in reaching trainees.

Black in Neuro **2020 – Present**

Co-founder and Organizer

- Black in Neuro is a unique professional development program highlighting Black contributions to neuroscience, neurology, and related fields. Helped the team create events, including multiple seminars, journal clubs, and digital content with preeminent Black neuroscientists across the world.

Clubes de Ciência (Science Clubs) Brasil **2020 – Present**

Organizer

- Science Clubs is an organization aiming at inspiring and developing scientific engagement in teenagers and young adults by offering free workshops and mentoring sections. Organizers prepare educational and scientific content for high school students in Brazil with a focus on neuroscience and stem cell biology

Society for Neuroscience **2020 – 2021**

Early Career Policy Ambassador

- This program is designed to develop skills to advocate for science and to encourage science policy conversations with policymakers at different levels. Engaged with members of Congress about the value of a strong national investment in scientific research, especially advocating for neuroscience research.

Massive Science Consortium **2019 – 2021**

Freelance Writer

- Massive Science is a content and media company delivering bleeding-edge scientific research and expertise, and providing trustworthy, entertaining, and shareable science content. Authored several different articles about various neuroscience topics, including brain-machine interfaces, organoids, and space radiation among others.

Milwaukee Area Science Advocates **2017 – 2019**

Social Media Manager

- Milwaukee Area Science Advocates is a local non-profit aimed to increase scientific enthusiasm, understanding, and legislative value in the Milwaukee area. Managed online content to build meaningful connections and encourage community members to take action on different social media platforms.

BRASA Impāctus **2016 – 2018**

Co-founder and Content Coordinator

- Impāctus is a platform of social impact initiatives that intend to connect Brazilian students abroad with the reality of economically challenged communities in Brazil. Directed and analyzed case competitions in partnership with the biggest companies in Brazil.

Hospital do Trabalho ("Worker's Hospital" – Curitiba, Brazil) **2014**

Interpreter

- Ten weeks volunteer position as English, Spanish, and French interpreter for international patients during the FIFA world cup

Service and Committees

Medical College of Wisconsin – Milwaukee, WI

Columbia Postdoctoral Workers – Bargaining Committee **2022 – Present**

- Worked with the members of the postdoctoral union to bring the most pressing concerns of workers to the negotiation of a new contract with Columbia University.

Zuckerman Institute Trainee Advisory Committee **2022 – Present**

- Lead the committee with the goal of connecting the experiences of graduate students, postdocs, and research assistants to the leadership at the institute to improve mentorship.

Diversity and Inclusion Action Committee **2019 – 2021**

- Represented the graduate students in an institution-wide committee dedicated to developing an institutional culture that fosters the recruitment, nurturing, and retention of a diverse population.

Graduate Outreach Program **2016 – 2021**

- Assisted in planning visits and recruiting students for the graduate program and summer programs.

Graduate School Public Relations **2019 – 2020**

- Served as liaison between the Graduate Student Association and the general public by maintaining the webpage, email account, and social media accounts.

Brain Expo Organizing Committee **2019**
- Helped with the organization and presentation of an expo open to community members, aimed to raise awareness for neuroscience and neurological diseases.

Student Symposium Committee **2017-2019**
- Organized a student-ran symposium for over 100 graduate, pharmacy, and medical students, including reviewing and judging abstracts, posters, and oral talks.

Course Evaluation Committee **2017 – 2018**
- Responsible for reviewing course evaluations completed by the student at the end of each term as well as triennial course reviews.

University of South Florida – Tampa, FL

Phi Delta Epsilon Medical Fraternity **2015 – 2016**
Research Director
- Responsible for providing the chapter with research opportunities, both through the university and to other labs, as well as contributing with presentations and workshops.

Triathlon Club **2015 – 2016**
Treasurer
- Administrated the spending, reimbursements, purchases, and sponsorships of the club. Ensured the appropriate budgets for the year and for the fundraising events.

Alpha Epsilon Delta Pre-Med Honors Society **2014 – 2015**
Secretary
- Organized and maintained the meeting minutes, developed and emphasized events for the calendar in each term, e-mailed members with relevant information, and kept the organization of the rooms used

Chemistry Society **2013 – 2015**
Secretary and Events Coordinator
- Responsible for the bi-weekly newsletter, as well as e-mailing the members with relevant information about the upcoming events and lectures.

Mentoring

United Negro College Fund E.E. Just Biomedical Research Scholars Summer Mentor **2022**
Mentee: TQ Eberhart

Rotation Mentor in Dr. Xiaowen Bai's Lab **2018-2021**
Mentees: Reilly Allison, Damaris Nieves Torres, Angela Beltrame, Allison Gerk, and Yuqi Zhang

Summer Program for Undergraduate Research Mentor **2019**
Mentee: Lauren Gray

Diversity Summer Health-Related Research Education Program Mentor **2018 – 2019**
Mentees: Adora Wang and Jennifer Landeta

Annual Biomedical Research Conference for Minority Students Poster Judge **2019**

Wauwatosa STEM Elementary School Science Fair Judge **2019**

Milwaukee Public School Middle School Science Fair Judge **2017**