

SOFIA B. LIZARRAGA

CURRICULUM VITAE

Department of Molecular Biology, Cell Biology & Biochemistry
Brown University
70 Ship Street, LMM Rm 327
Providence, RI 29206
sofia_lizarraga@brown.edu

EDUCATION

UNIVERSITY OF CONNECTICUT, STORRS, CT
B.S. Biochemistry and Genetics
Sept. 1992 – May 1996

THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD
Ph.D. Cell Biology
Sept. 1997 – Feb. 2003

RESEARCH EXPERIENCE

BROWN UNIVERSITY, PROVIDENCE, RI
Assistant Professor, Dept. of Molecular Bio, Cell Bio & Biochemistry
Neurodevelopmental disorders
Jan. 2023 – present

UNIVERSITY OF SOUTH CAROLINA, COLUMBIA, SC
Assistant Professor, Dept. of Biological Sciences
Neurodevelopmental disorders
Feb. 2015 – Dec. 2022

BROWN UNIVERSITY, PROVIDENCE, RI
Investigator, with Dr. Eric Morrow, Dept. of Molecular
Biology, Cell Biology & Biochemistry
Endosomal mechanisms underlying the pathophysiology of autism.
** In addition, trained with Dr. Julie Kauer in electrophysiology*
Aug. 2010 – Dec. 2014

CHILDREN'S HOSPITAL BOSTON,
HARVARD MEDICAL SCHOOL, BOSTON, MA
Postdoctoral Fellow, with Dr. Christopher A. Walsh, Division of Genetics
Cytoskeletal mechanisms regulating brain size control.
Jul. 2003 – Jul. 2010

THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD
Ph.D. Thesis with Dr. Yixian Zheng, Dept. of Biology
Regulation of Mitotic Spindle Assembly by the Ran Pathway
Jul. 1998 – Feb. 2003

TEACHING AND MENTORING EXPERIENCE

BROWN UNIVERSITY, PROVIDENCE, RI
Assistant Professor, Dept. of Molecular Bio, Cell Bio & Biochemistry
Neurodevelopmental disorders
Jan. 2023 – present

UNIVERSITY OF SOUTH CAROLINA
Assistant Professor, Graduate & Undergraduate Research Supervision
Department of Biological Sciences
Feb. 2015 – Dec. 2022

BROWN UNIVERSITY, PROVIDENCE, RI Graduate and Undergraduate Research Supervision, Laboratory of Dr. Eric Morrow Department of Molecular Biology, Cell Biology and Biochemistry.	Sept. 2011 – Dec. 2014
HARVARD MEDICAL SCHOOL, BOSTON, MA Lecturer for “Introductory Laboratory Techniques” graduate level course, Department of Systems Biology	May 2005 – Aug. 2005
HARVARD MEDICAL SCHOOL, BOSTON, MA Graduate and Undergraduate Research Supervision Supervised two HHMI undergraduate fellows and 1 graduate student	Jun. 2006 – Jul. 2009
JOHNS HOPKINS UNIVERSITY Teaching Assistant in Biochemistry & Cell Biology. Undergraduate level course, Department of Biology	Sept. 1998 – May. 1999
JOHNS HOPKINS UNIVERSITY Dean’s Lecturer “Model Organisms in Biological Research” Upper undergraduate level course, Department of Biology	Sept. 2001 – Dec. 2001

AWARDS & FELLOWSHIPS TO LIZARRAGA

R01 MH127081-01A1 NIH/NIMH (awarded on Feb 2022) MPI lead: Lizarraga ; Co-PI: Liu	Mar. 2022 – Feb. 2027
ASPIRE AWARD Track-I VPR Office UofSC \$15,000– <i>Lizarraga</i> PI: Lizarraga	Jun. 2022 – May. 2023
ASPIRE AWARD Track-2 VPR Office UofSC \$100,000 PI: Frizzell, Co-PI: Shtutman, Co-PI: Lizarraga	Jun. 2021 – May. 2022
ASPIRE AWARD Track-I VPR Office UofSC \$15,000– <i>Lizarraga</i> PI: Lizarraga	Jun. 2020 – May. 2021
NIH COBRE Center for Dietary Supplements & Inflammation University of South Carolina 4P20GM103641-06 Phase II subaward \$10,000,000 total & \$450,000 direct costs – <i>Lizarraga</i> PI: Nagarkatti P, Target PI subproject 2: Lizarraga SB	Sept. 2018 – May. 2021
NIH /NIDA 5R21DA047936-02 \$400,000 total & \$7,000 – <i>Lizarraga</i> PI: Shtutman M, Co-I: Lizarraga SB	Feb. 2019 – Jan. 2021
Keystone Symposia Early Career Investigator Travel Award	Mar. 2018

SC EPSCOR stimulus award 18-SR04 Mar. 2018 – Feb. 2020
 \$300,000 total & \$60,000 – Lizarraga
 PI: Twiss J, Co-PI: **Lizarraga SB**

South Carolina INBRE University of South Carolina Jul. 2017 – Jun. 2018
 5P20GM103499-17 Bioinformatics Pilot award
 \$10,000 – Lizarraga
 PI: Pirisi L, Pilot Project PI: **Lizarraga SB**

NIH COBRE Center for Dietary Supplements & Inflammation Jul. 2016 – Jun. 2017
 4P20GM103641-05 Phase I
 \$75,000 – Lizarraga
 PI: Nagarkatti, P, Pilot project PI: **Lizarraga**

ASPIRE AWARD Track-I VPR Office UofSC Jul. 2016 – Jun. 2017
 \$15,000 – Lizarraga
 PI: **Lizarraga**

NIH COBRE perinatal biology Sept. 2011 – Aug. 2013
 Women & Infants Hospital
 5P20RR018728-08
 \$120,000 – Lizarraga
 PI: Padbury J. Pilot Project Co-PI: **Lizarraga**

NIH neuroscience training grant Aug. 2010 – Aug. 2011
 Brown Brain Science Institute

NIH Neuronal degeneration Training Grant Apr. 2004 – Apr. 2006
 Harvard Medical School

LIZARRAGA LABORATORY TRAINEES AWARDS & FELLOWSHIPS

1. UofSC Office of Research Magellan Journey Award. *Interrogating the effect of neuroinflammation in human neurons.* Hailey Xu, trainee & **Sofia B. Lizarraga PI.** 01/15/2022 - 12/31/2022. \$3,000.
2. UofSC Office of Research Magellan Journey Award. *Interrogating the effect of ASH1L pathogenic variants in its interaction with MRG15 in HEK cells.* Brian Yoon, trainee & **Sofia B. Lizarraga PI.** 01/15/2022 - 06/01/2022. \$3,000.
3. UofSC Office of Research SPARC graduate award. *Regulation of the mTOR signaling pathway by the chromatin regulator ASH1L.* Janay M. Vacharasin trainee & **Sofia B. Lizarraga PI.** 02/01/2022 - 02/01/2023. \$3,000.
4. UofSC Office of Research Magellan Award. *Modeling maternal immune activation using stem cell systems.* Mikayla McCord trainee & **Sofia B. Lizarraga PI.** 12/01/2019 - 5/15/2020. \$3,000.
5. Irene & Eric Simmons Foundation Summer Brain Research Fellowship. *Modeling maternal immune activation using stem cell systems.* Mikayla McCord trainee & **Sofia B. Lizarraga Mentor.** 06/01/2019 - 09/01/2019. \$2,500.
6. UofSC Office of Research Magellan Award. *Characterizing the impact of the gene ASH1L in the regulation of Neuronal Gene Expression.* Anna Bagnell trainee & **Sofia B. Lizarraga PI.** 09/01/2017 - 05/15/2019. \$3,000.
7. UofSC Office of Research Aspire Track IIB Postdoctoral Award. *Endosomal Signaling in neuronal circuitry development.* Pankaj Ghate Postdoctoral Fellow & **Sofia B. Lizarraga Mentor.** 08/01/2016 - 12/31/2017. \$5,000.

8. UofSC Office of Research Magellan Award. *Understanding the role of Rab3Gap1 in neuronal development*. Mara Cowen trainee & **Sofia B. Lizarraga PI**. 08/01/2016 - 12/31/2017. \$3,000.
9. Irene & Eric Simmons Foundation Summer Brain Research Fellowship. *Understanding the role of Rab3Gap1 in neuronal development*. Mara Cowen trainee & **Sofia B. Lizarraga Mentor**. 06/01/2016 - 09/01/2016. \$2,500.
10. UofSC Office of Research Magellan Award. *The impact of environmental toxins in the molecular mechanisms underlying autism spectrum disorders*. Nicholas Marinelli trainee & **Sofia B. Lizarraga PI**. 05/01/2016 - 04/31/2017. \$3,000.

PUBLICATIONS

In Preparation

1. Vacharasin JM, Ward JA, McCord MM*, Cox KM*, Imitola J, and **Lizarraga SB**. *Modeling the effect of inflammation in stem cell derived models of neuronal development*. Review Manuscript to be submitted to Cells Journal * Equal contribution.

Under Review

1. Cheon SH*, Ritchie FD*, Vacharasin JM, Cheatle C, McCord MM, Cox KM, and **Lizarraga, SB**. *Development of genome editing and neuronal induction protocols for Chromatin regulators that impact stem cell pluripotency*. (2022) Under review in Stem Cells and Development. * Equal contribution.
2. Ghate PG*, Vacharasin JM*, Ward, JA, Nowling D, Lawlor MK, Cowen MH, Kay W, Cheon SH, Chukwurah, E, and **Lizarraga SB**. *Axonal elongation and membrane trafficking mechanisms associated with Warburg Microsyndrome*. Under review in Neurobiology of Disease. * Equal contribution.

In Press

1. Ritchie, FD and **Lizarraga, SB**. "The Role of Histone Methyltransferases in Neurocognitive Disorders Associated with Brain Size Abnormalities." Accepted for publication at Frontiers in Neuroscience, section Neurodevelopment (2023)

In Print

1. Leung CS, Rosenzweig S, Yoon B, Marinelli N, Hollingsworth EW, Maguire AM, Cowen MH, Schmidt M, Imitola J, Gamzis Uzun ED*, and **Lizarraga, SB***. *Dysregulation of the chromatin environment leads to differential alternative splicing as a mechanism of disease in autism spectrum disorders*. Human Mol Genet (2023). doi: 10.1093/hmg/ddad002. Accelerated publication. *co-corresponding authors ** Work highlighted by SFARI spectrum news <https://www.spectrumnews.org/news/chromatin-remodeling-tied-to-altered-splicing-in-autism-model/>
2. Cheon SH*, Culver AM*, Bagnell, AM, Ritchie FD, Vacharasin JM, McCord M, Papendorp CM, Chukwurah E, Smith AJ, Cowen MH, Moreland, TA, Ghate PS, Davis SD, Liu JS, **Lizarraga SB**. *Counteracting epigenetic mechanisms regulate the structural development of neuronal circuitry in human neurons*. Mol Psychiatry (2022) Feb 24. PMID: 35210569. * These authors contributed equally to this work. ** Work portrayed by SFARI spectrum news <https://www.spectrumnews.org/news/drug-boosts-growth-of-neurons-deficient-in-autism-linked-protein/>
3. **Lizarraga SB**, Ma, L, Maguire AM, van Dyck LI, Wu Q, Nagda D, Livi LL, Pescosolido MF, Schmidt M, Alabi S, Cowen MH, Brito-Vargas P, Hoffman-Kim D, Gamsiz-Uzun ED, Schlessinger A, Jones RN, Morrow EM. *Human neurons from Christianson syndrome iPSCs reveal mutation-specific responses to rescue strategies*. Sci Transl Med (2021) Feb 10;13(580):eaaw0682 PMID:33568516.

4. Cui CB, Sikirzhyski S, Aksenova M, Lucius MD, Levon G, Mack ZM, Pollack C, Odhiambo D, Broude E, **Lizarraga SB**, Wyatt MD, Shtutman M. *Pharmacological inhibition of DEAD-Box RNA Helicase 3 attenuates stress granule assembly*. *Biochem Pharmacol* (2020). Dec; 182:114280. PMID: 33049245.
5. Chukwurah E*, Osmundsen A*, Davis SW, & **Lizarraga SB**. *All Together Now: Modeling the interaction of Neural with non-neural systems using organoid models*. *Frontiers in Neuroscience*. (2019). Jun 21;13:582. PMID:3129226. *These authors contributed equally to this work
6. Aksenova M, Sybrandt J, Cui B, Sikirzhysiki V, Ji H, Odhiambo D, Lucius MD, Turner JR, Broude E, Peña E, **Lizarraga S**, Zhu J, Safro I, Wyatt MD, & Shtutman M. *Inhibition of Dead Box RNA Helicase 3 prevents HIV-1 Tat and Cocaine-Induced Neurotoxicity by Targeting Microglia Activation*. *Journal of Neuroimmune Pharmacology*. (2020). Jun;15:209-223. PMID: 31802418.
7. Xu M, Ouyang Q, Gong J, Pescosolido MF, Pruett BS, Mishra S, Schmidt M, Jones RN, Gamsiz Uzun ED, **Lizarraga SB** and Morrow EM. *Mixed neurodevelopmental and neurodegenerative pathology in Nhe6-null mouse model of Christianson syndrome*. *eNeuro*. (2018). Jan 17;4(6):ENEURO0388-17.2017 eCollection 2017 Nov-Dec. PMID 29349289.
8. Hollingsworth EW, Vaughn JE, Orack JC, Skinner C, Khouri J, **Lizarraga SB**, Hester ME, Watanabe F, Kosik KS, Imitola J. *iPhemap: an atlas of phenotype to genotype relationships of human iPSC models of neurological diseases*. *EMBO Molecular Medicine*. (2017) Dec;9(12):1742-1762. PMID:29051230.
9. Ouyang Q, Nakayama T, Baytas O, Davidson SM, Yang C, Schmidt M, **Lizarraga SB**, Mishra S, Ei-Quessny M, Niaz S, Gul Butt M, Imran Murtaza S, Javed A, Chaudhry HR, Vaughan DJ, Hill RS, Partlow JN, Yoo SY, Lam AN, Nasir R, Al-Saffar M, Barkovich AJ, Schwede M, Nagpal S, Rajab A, DeBerardinis RJ, Housman DE, Mochida GH, Morrow EM. *Mutations in mitochondrial enzyme GPT2 cause metabolic dysfunction and neurological disease with developmental and progressive features*. *Proc Natl Acad Sci*. (2016). Sep 20;113(38):E5598-607. PMID: 27601654.
10. **Lizarraga SB**, and Morrow EM. *Uncovering a role of SK2 in Angelman syndrome*. *Cell Reports*. (2015). Jul 21;12(3):359-60. PMID:26200312.
11. Manzini CM, Xiong L, Shaheen R, Tambunan DE, Di Constanzo S, Mitisalis V, Tischfield DJ, Cinquino A, Ghaziuddin M, Christian M, Jian Q, Laurent S, Nanjiani ZA, Rasheed S, Hill R.S., **Lizarraga SB**, Gleason D, Sabbagh D, Salih MA, Alkuraya FS, Walsh CA. *CC2D1A Regulates Human Intellectual and Social Function as well as NF- κ B Signaling Homeostasis*. *Cell Reports*. (2014). Aug 7;8(3):647-55. PMID: 25066123
12. Ouyang Q*, **Lizarraga SB***, Schmidtt M, Yang U, Gong J, Ellisor D, Kauer JA, Morrow EM. *Christianson Syndrome Protein NHE6 Modulates TrkB Endosomal Signaling Required for Neuronal Circuit Development*. *Neuron*. (2013). Oct 2;80(1):97-112. PMID:24035762. *Equal contributors. This work was the cover art; highlighted by commentary in same issue in *Neuron*; chosen as Editors' Choice at *Science Signaling*.
13. **Lizarraga SB**, Coser KR, Sabbagh M, Morrow EM. *Methods for study of neuronal morphogenesis: Ex-vivo RNAi electroporation in embryonic murine cerebral cortex*. *Journal of Visualized Experiments*. (2012). May 18;(63):e3621. PMID: 22643694.
14. **Lizarraga SB**, Margossian SP, Harris MH, Campagna DR, Han AP, Blevins S, Mudbhary R, Barker JE, Walsh CA, Fleming MD. *Cdk5rap2 regulates centrosome function and chromosome segregation in neuronal progenitors*. *Development*. (2010). Jun;137(11):1907-17. PMID: 20460369. *This work was highlighted in Development "in this issue" section*.
15. Sepp KJ, Hong P, **Lizarraga SB**, Liu JS, Mejia LA, Walsh CA, Perrimon N. *Identification of neural outgrowth genes using genome-wide RNAi*. *PLoS Genetics*. (2008). Jul 4;4(7):e1000111 PMID: 18604272.
16. Bond J, Roberts E, Springell K, **Lizarraga SB**, Scott S, Higgins J, Hampshire DJ, Morrison EE, Leal GF, Silva EO, Costa SM, Baralle D, Raponi M, Karbani G, Rashid Y, Jafri H, Bennett C, Corry P, Walsh

- CA, Woods CG. *A centrosomal mechanism involving CDK5RAP2 and CENPJ controls brain size*. Nature Genetics. (2005). April;37(4):353-5 PMID: 15793586.
17. O'Brien LL, Albee AJ, Liu L, Tao W, Dobrzyn P, **Lizarraga SB**, Wiese C. *The Xenopus TACC homologue, Maskin, functions in mitotic spindle assembly*. Molecular Biology of the Cell. (2005). Jun;16(6):2836-47 PMID: 15788567.
18. **Lizarraga SB**, Zheng Y, Wilde AR. *Characterization of the effect of RanGTP on the microtubule cytoskeleton in GTPase protocols: The Ras superfamily*. Methods in Molecular Biology. (2002). 189:247-60. Edited by EJ. Manser & T Leung, Humana Press Inc. Totowa NJ. PMID: 12094591.
19. Wilde A*, **Lizarraga SB***, Zhang L, Wiese C, Gliksman NR, Walczak CE, Zheng Y. *Ran stimulates spindle assembly by altering microtubule dynamics and the balance of motor activities*. Nature Cell Biology. (2001). Mar;3(3):221-7. PMID: 11231570. *Equal contribution.
20. Gunawardane RN, **Lizarraga SB**, Wiese C, Wilde A, Zheng Y. *γ -tubulin complexes and their role in microtubule nucleation in centrosome in cell replication and early development*. Current Topics in Developmental Biology. (2000). 49:55-73 PMID: 11005014 .

SELECTED POSTER & PLATFORM PRESENTATIONS SINCE 2017

- Ghate P*, **Lizarraga SB**. (2017). *Identification of Rab3Gap1 interacting proteins*. MUSC Neuroscience Research Symposium, Charleston, SC. March 2017. Poster presented by PG. *1st place award winning poster of entire conference.
- Marinelli N*, Cheon SH **Lizarraga SB**. (2017). *The role of ASH1L in neuronal development*. USC Discovery Day, Columbia, SC. April 2017. Poster presented by NM. *1st poster award winner in biology
- Cowen MH*, Nowling D, Ghate P, **Lizarraga SB**. (2017). *Rab3Gap1 in autophagy in human neurons*. USC Discovery Day, Columbia, SC. April 2017. Poster presented by MC *1st poster award winner in psych.
- Ghate P*, **Lizarraga SB**. (2017). *Identification of Rab3Gap1 interacting proteins*. USC Discovery Day, Columbia, SC. April 2017. Poster presented by PG. *1st place award winning poster in postdoc category.
- Ghate P, Nowling D, Cowen M, Wallac M, **Lizarraga SB**. (2017). *Investigating the molecular pathways underlying Warburg Microsyndrome in stem cell derived human neurons*. International Society Stem Cell Research (ISSCR), Boston, MA. June 2017. Poster presented by PG.
- Nowling D, Lawlor MK, Ghate P, **Lizarraga SB**. (2017). *Cellular mechanisms associated with RAB3GAP1 dysregulation and relevance to Warburg Microsyndrome Pathology*. SCAND symposium, Columbia, SC. October 2017. Poster presented by DK and MKL.
- Martinez G, Griffith K, Ghate P, and **Lizarraga SB**,. (2017). *Transcriptome signatures associated with maternal immune activation in the developing brain and autism spectrum disorders*. SCAND symposium, Columbia, SC. October 2017. Poster presented by GM
- Cheon SH, Bagnell A, Cowen MH, Chukwurah E, Ghate PG, **Lizarraga SB**, (2018) *Studies on the chromatin regulatory factor ASH1L in human neuronal development*. Keystone symposium on Chromatin Architecture & Chromatin Organization, Whistler, BC, Canada. March 2018. Poster presented by SBL.
- Lawlor MK*, Ghate PG, **Lizarraga SB**. (2018). *A study on the role of IL-17A in neuronal development and in autism pathogenesis*. UofSC DISCOVERY DAY, Columbia, SC. April 2018. Poster presented by MKL. *1st poster award winner on its category.
- Martinez G, Griffith K, Ghate PG, **Lizarraga SB**. (2018). *Transcriptome signatures associated with maternal immune activation in the developing brain and autism spectrum disorders*. SC-EPSCOR symposium, Columbia, SC. April 2018. Poster presented by GM.

11. Cheon SH, Bagnell A, Cowen M, Ghaté PG, **Lizarraga SB**. (2018). *Studies on the chromatin regulatory factor ASH1L in human neuronal development*. SC-EPSCOR symposium, Columbia, SC. April 2018. Poster presented by SHC.
12. Cheon SH, Chukwurah E, Bagnell A, Zotovic P, Cowen MH, Ghaté PG, **Lizarraga SB**. (2018) *Studies on the chromatin regulatory factor ASH1L in human neuronal development*. Gordon Research Conference in Neuronal Development. Salve Regina University, Newport RI. August 2018. Poster presented by SBL.
13. Cheon SH, Bagnell A, Zotovic P, Cowen M, Ghaté PG, **Lizarraga S.B**. (2018) *Studies on the chromatin regulatory factor ASH1L in human neuronal development*. SCAND symposium, Charleston, SC. October 2018. Poster presented by SHC.
14. Chukwurah E*, Ghaté P, Cheon SH, **Lizarraga SB**. (2019) *The role of IL-17A in autism spectrum disorders*. UofSC COBRE/CAM external advisory committee meeting, Columbia, SC. April 2019. Poster presented by EC. *1st place winner for best postdoc poster presentation
15. Ghaté PG, Clytus JM*, Cheon SH, Nowling D, Lawlor MK, Cowen MH, Kay W, Martinez GA, and **Lizarraga SB**. (2019) *Axonal elongation and membrane trafficking mechanisms associated with Warburg Microsyndrome*. UofSC Biological Sciences graduate student retreat. April 2019. Oral presentation presented by JMC * 3rd best oral presentation award
16. Bagnell AM*, Cheon SH, **Lizarraga SB**. (2019) *The role of ASH1L in neuronal development*. UofSC Neuroscience Retreat, Columbia, SC. May 2019. Oral presentation by AB. *1st place winner for best trainee oral presentation
17. Chukwurah E*, Ghaté P, Cheon SH, **Lizarraga SB**. (2019). *The role of IL-17A in autism spectrum disorders*. UofSC Neuroscience Retreat, Columbia, SC. May 2019. Poster presented by EC. *1st place winner for best postdoc poster presentation
18. Clytus JM*, Ghaté PG, Chukwurah E, McCord M, Lawlor MK, Martinez G, **Lizarraga SB**. (2020). *A study on the role of IL-17A in autism pathogenesis*. CAM/COBRE external advisory meeting, Columbia, SC. February 2020. Poster presented by JMC. *2nd place winner for best graduate poster presentation
19. Cheon SH, Culver AM, Bagnell, AM, Ritchie FD, Clytus JM, McCord M, Papendorp CM, Chukwurah E, Smith AJ, Cowen MH, Ghaté PS, Davis SD, Liu JS, **Lizarraga SB**. (2020) *Counteracting epigenetic mechanisms regulate the structural development of neuronal circuitry by modulating BDNf/TrkB signaling in human stem cell derived neurons*. CAM/COBRE external advisory meeting, Columbia, SC. February 2020. Poster presented by AMC. *1st place winner for best graduate poster presentation
20. Ritchie, FD, Cheon SH, Culver AM, Bagnell, AM, McCord M, Vacharasin, JM, Papendorp CM, Chukwurah E, Smith AJ, Cowen MH, Ghaté PS, Davis SD, Liu JS, **Lizarraga SB**. (2021) *Counteracting epigenetic mechanisms regulate the structural development of neuronal circuitry by modulating BDNf/TrkB signaling in human stem cell derived neurons*. SC EPSCOR science symposium. Platform talk presented by FDR.
21. Vacharasin, JM, Cheon SH, Culver AM, Bagnell, AM, Ritchie FD, McCord M, Papendorp CM, Chukwurah E, Smith AJ, Cowen MH, Ghaté PS, Davis SD, Liu JS, **Lizarraga SB**. (2020) *Counteracting epigenetic mechanisms regulate the structural development of neuronal circuitry by modulating BDNf/TrkB signaling in human stem cell derived neurons*. GLOBAL CONNECTOME SFN VIRTUAL MEETING. Poster presented by JMV.
22. Ritchie, FD, Cheon SH, Culver AM, Bagnell, AM, McCord M, Vacharasin, JM, Papendorp CM, Chukwurah E, Smith AJ, Cowen MH, Ghaté PS, Davis SD, Liu JS, **Lizarraga SB**. (2021) *Counteracting epigenetic mechanisms regulate the structural development of neuronal circuitry in human stem cell derived neurons*. SFN virtual meeting. Poster presented by FDR.
23. Ritchie, FD, Ward JA, Culver AM, Vacharasin, JM, Liu JS, **Lizarraga SB**. (2021) *Modeling ASH1L haploinsufficiency on human stem cell derived neurons*. Gordon Research Conference. Newport, RI. August 2022, Poster presented by JAW.
24. Leung CS, Rosenzweig S, Yoon B, Marinelli N, Hollingsworth EW, Maguire AM, Cowen MH, Schmidt M, Imitola J, Gamzis Uzun ED*, and **Lizarraga, SB***. *Dysregulation of the chromatin environment leads to*

differential alternative splicing as a mechanism of disease in autism spectrum disorders. Gordon Research Conference. Newport, RI. August 2022, Poster presented by CSL.

25. Leung CS, Rosenzweig S, Yoon B, Marinelli N, Hollingsworth EW, Maguire AM, Cowen MH, Schmidt M, Imitola J, Gamzis Uzun ED*, and **Lizarraga, SB***. *Dysregulation of the chromatin environment leads to differential alternative splicing as a mechanism of disease in autism spectrum disorders.* ACNP annual meeting. Phoenix, AZ. December 2022, Poster presented by SBL.

INVITED ORAL PRESENTATIONS SINCE 2014

1. "Chromatin regulatory mechanisms in autism spectrum disorders" Thompson Center for Autism & Neurodevelopment at University of Missouri, Columbia, MO, March 9, 2023.
2. "Chromatin regulatory mechanisms in autism spectrum disorders" UCONN School of medicine, Department of Neuroscience, Farmington, CT, February 23, 2023.
3. "Chromatin regulatory mechanisms in autism spectrum disorders" Carnegie Institution of Washington, Department of Embryology, Baltimore, MD, November 7, 2022.
4. "Counteracting epigenetic mechanisms in autism spectrum disorders" Seavers Autism Center Seminar Series, Worldwide Neuro platform- Seaver Autism series, October 12, 2022, virtual format
5. "Converging epigenetic and transcriptional mechanisms in autism spectrum disorders" Special Seminar, UMASS CHAN Medical School, April 2022, Worcester, MA.
6. "Converging epigenetic and transcriptional mechanisms in autism spectrum disorders" Special Seminar, Rutgers Robert Wood Johnson Medical School, Department of Neuroscience and Cell Biology, April 2022, virtual format.
7. "Converging epigenetic and transcriptional mechanisms in autism spectrum disorders" Special Seminar, Brown University, Carney Center for Translational Neuroscience, April 2022, Providence, RI.
8. "Counteracting epigenetic mechanisms in autism spectrum disorders" Chromatin and Transcriptional mechanisms in neurodevelopmental disorders minisymposium, Brown University Center for translation neuroscience, June 2021, virtual format
9. "Counteracting epigenetic mechanisms in autism spectrum disorders" Brigham & Young University, Department of Microbiology & Mol Biology, March 2021, virtual format
10. "Epigenetic regulation of neurotrophin signaling in autism spectrum disorders" NGF Webinar series, London, UK, May 2020, virtual format
11. "Counteracting epigenetic mechanisms modulating neurotrophin signaling in autism spectrum disorders" Clemson University, Department of Biological Sciences, March 2020, Clemson, SC
12. "Epigenetic regulation of neurotrophin signaling in autism spectrum disorders" Gordon Research Conference on Neurotrophin signaling in Development and Disease, July 2019, Newport, RI
13. "Epigenetic mechanisms in autism spectrum disorders" EPSCOR conference, Greenville, SC April 2019,
14. "Intersection between neuroinflammatory and epigenetic mechanisms in autism spectrum disorders", COBRE/CAM EAC Meeting, Columbia SC, March 2019,
15. "Studies on ASH1L. SC INBRE Science symposium", Columbia, SC, August 2018
16. "Modeling Neurodevelopmental disorders with stem cell technology" University of Maryland, Cell Biology and Molecular Genetics, College Park, MD April 2018
17. "Studies on the effect of IL-17A in human neuronal development" South East IdEA conference, Morgantown, WV, October 2017
18. "Modeling Neurodevelopmental disorders using stem cell technology" South Carolina autism and neurodevelopmental disorders symposium, UofSC, Columbia, SC, October 2017

19. "Modeling Neurodevelopmental disorders using stem cell technology" CAW mini-symposium, Harvard Medical School, Boston, MA, July 2017
20. "Stem cell studies in disorders of neuronal development" Stem cell mini-symposium at Brown University, Brain Neurosciences Institute, Providence, RI, June 2017
21. "Modeling Neurodevelopmental disorders with novel stem cell technology" Gordon Research Conference in Membrane Transport Proteins, Tuscany, Italy, June 2016
22. "Studies on Christianson Syndrome in Patient iPSCs" 1st International Basic Science and Clinical Conference on Christianson Syndrome, Hyatt Hotel Conference Center, The Woodlands, TX, July 2015
23. "Novel stem cell methods in the study of Christianson Syndrome" Neuroscience Retreat, University of South Carolina, Columbia, SC, May 2015
24. "Novel stem cell methods in the study of Christianson Syndrome" Genetics Conclave, Greenwood Genetics Center, Greenwood, SC, September 2014
25. "Cellular and Molecular Mechanisms in the study of severe forms of autism" Department of Psychiatry, UCSF, San Francisco, CA, April 2014
26. "Cellular and Molecular Mechanisms in the study of severe forms of autism" Dept. of Biological Sciences, USC, Columbia, SC, February 2014
27. "Cellular and Molecular Mechanisms in the study of Christianson Syndrome" Greenwood Genetics Center, Greenwood, SC, February 2014
28. "Cellular and Molecular mechanisms in Christianson Syndrome" Women and Infants Hospital, Perinatal Biology Division, Providence, RI, January 2014

PROFESSIONAL SOCIETIES & AFFILIATIONS

American Society for Cell Biology

Society for Neuroscience

International Society for Autism Research

International Society for Stem cell research

Member of the Smart State Center for Childhood Neurotherapeutics, USC, SC

Member of the Functional Genomics Group, USC SC

Founding Member of the South Carolina Autism and Neurodevelopmental Disorders Consortium

SERVICE

a. To University

Brown University

Department of Molecular Biology, Cell Biology & Biochemistry

- Served in three graduate student thesis committees 2023 – present

Center for translational Neuroscience

- Member of Advisory committee 2022 – present

University of South Carolina

Department of Biological Sciences

- Member of the department committee on undergraduate curriculum 2022
- Member of the department committee on diversity and inclusion 2020 - 2022
- Autism & neurodevelopmental disorders Faculty search committee 2020
- Neurobiology Faculty search Committee 2020

- Organizer of “Beyond Academia” series to facilitate trainee exposure to meet scientists from all career paths 2019 – 2022
- Member of the Development Committee contributed to the development of the first newsletter from to Biological Sciences Alumni 2018 – 2022
- Co-organizer for Dept. of Biological Sciences retiring faculty reception 2018
- Served in 1st year MCDB student examination committee 2017 – 2021
- Served in multiple graduate student thesis committees 2016 – 2022
- Wrote over 120 **reference letters** for undergraduate students 2016 – 2022
- Ph.D. Dissertation thesis committees for 5 students 2015 – 2022
- Hosted multiple seminar speakers 2015 – 2022

College of Arts & Sciences

- Member of Committee for Development and Inclusion 2021 – 2022
- Co-organizer University wide Neuroscience Retreat 2015 & 2019
- Contributed to Autism & Neurodevelopmental disorders Initiative 2018

University

- Judge for Graduate student Newton competition at School of Medicine 2020
- Faculty senator 2018 – 2021
- Honors dissertation committee for 6 students in the Honors College 2017 – 2022
- Ph.D. dissertation committee for 3 students in the School of Medicine 2017 – 2022
- Reviewer for Magellan and Aspire Award applications 2017 – 2021
- Judge Discovery Day Graduate competition 2017

b. To Profession

Outside member of thesis committee

Robert Wood Johnson Medical School at Rutgers University

- Ph.D. Thesis committee of graduate student in MC. Manzini group 2023 - present

Journal Review (ad hoc) from 2007

- *Cell Reports*
- *Nature*
- *Molecular Psychiatry*
- *Nature Communications*
- *Brain and Behavior*
- *e-Neuro*
- *Cerebral Cortex*
- *Stem Cell Research*
- *Clinical Genetics*
- *Molecular and Cellular Proteomics*
- *Frontiers in Pediatrics*
- *Journal of Neuroimmunology*
- *Scientific Reports*
- *Frontiers in Neuroscience*

Journal Guest Editor

- Topics editor for Frontiers in Pediatrics 2017 – 2019

Scientific Review Boards

Grant Foundation Peer Review

- Grant Reviewer for NIMH/NIH 2022

- Grant Reviewer for Allen Foundation 2021
- Grant Reviewer for Graduate Women in Science Foundation 2017
- Grant Reviewer for ASPIRE-III awards (USC) 2017
- Grant Reviewer for Action Medical Research Foundation (UK) 2017 - 2021
- Grant Reviewer for Duplication 15 Foundation 2017 – 2019
- Grant Reviewer for NSF graduate fellowships (USA) 2016
- Grant Reviewer for BSF foundation (USA-ISRAEL) 2016
- Grant Reviewer for Magellan Scholarships (USC) 2016

Medical Advisory Board

- *Care4ASH1L family organization* 2020 - present

c. To Community

- Keynote speaker for Regional Science Fair Award Ceremony 2018
- Judge SC State Science competition for high school student Judge 2017 – 2021
- Judge Discovery Day Graduate competition 2017

TEACHING AND MENTORING

The Johns Hopkins University (from 1998 – 2001)

a. Courses taught

Teaching Assistant, Molecular & Cell Biology, Dept. of Biology, Johns Hopkins Univ.
Deans Lecturer, Model systems in biomedical Sciences, Dept. of Biology, Johns Hopkins Univ.

Harvard Medical School (from 2006 – 2010)

a. Courses taught

Lecturer, Microscopy & Cell culture techniques, Dept. Systems Biology, Harvard Med. School

b. Undergraduate Research Supervision

Koffi Amana (now medical doctor) 2006
Currently Medical Doctor

c. Graduate Research Supervision

Luis J. Mejia 2007
Currently postdoctoral fellow at Cold Spring Harbor

Xuyu Cai 2008 – 2010
Currently Scientist at Illumina Corp.

Brown University (from 2010 – 2014 and starting 2023)

a. Undergraduate Research Supervision

Sophia Lin 2011
Currently Resident at Johns Hopkins Hospital

Jingyi Gong 2011 – 2014
Currently Clinical Fellow at Brigham & Women's Hospital

David Stein 2011 – 2014
Currently Resident at Massachusetts General Hospital

b. Graduate Research Supervision

Rotation students
Kathryn Koser 2011
Currently scientist at Pfizer Inc.

Julia Duckhorn

2023

University of South Carolina (2015 – 2022)**a. Courses Taught****Fall 2015**

BIOL 599 Stem cells in development and disease, Lecturer
BIOL 641 Molecular mechanisms of disease, Guest Lecture
BIOL 399 Studies on neuronal developmental disorders, Independent research study

Summer 2016

BIOL 599 Stem cells in development and disease, Lecturer
BIOL 758 Studies in neuronal development, Independent graduate research study

Spring 2016

BIOL 599 Stem cells in development and disease, Lecturer
BIOL 399 Studies on neuronal development, Independent research study

Fall 2016

BIOL 599 Stem cells in development and disease, Lecturer
BIOL 399 Studies on Autism spectrum disorders, Independent research study

Spring 2017

BIOL 302 Cellular and Molecular Biology, Lecturer
PPN 740 Neurotechniques, Guest lecturer
PPN 741 Neuroscience, Team-taught class, Course Leader: David Mott
BIOL 399 Studies on ASH1L in human neurons, independent research study

Fall 2017

BIOL 614 Stem cells in development and disease, Lecturer
BIOL 399 Studies on neuronal development, Independent research study

Fall 2018

BIOL 614 Stem cells in development and disease, Lecturer
BIOL 302 Cellular and Molecular Biology, Lecturer
BIOL 499H Honors thesis: the role of chromatin regulators in neuronal development

Spring 2019

BIOL 614 Stem cells in development and disease, Lecturer
PPN 741 Neuroscience, Team taught class, Course Leader: David Mott

Fall 2019

BIOL 302 Cellular and Molecular Biology, Lecturer
BIOL 399 Studies on neuronal development, Independent research study

Spring 2020

BIOL 614 Stem cells in development and disease, Lecturer
BIOL 399 Studies on neuronal development, Independent research study

Fall 2020

BIOL 614 Stem cells in development and disease, Lecturer

Spring 2021

BIOL 302 Cell and Molecular Biology, Lecturer

Fall 2021

BIOL 614 Stem cells in development and disease, Lecturer

Spring 2022

BIOL 302 Cell and Molecular Biology, Lecturer

Fall 2022

BIOL 614 Stem cells in development and disease, Lecturer

b. Undergraduate Research Supervision

Hailey Xu Honors student Magellan Journey Awardee Biology major	2022
Justin Kennedy Honors student Biology major	2022
Brian Yoon Honors student Magellan Journey Awardee Biology major	2022
Bryan Wolf Honors student Biochemistry major	2022
Kaitlin Cox Psychology major <i>Currently Psychometrist at MUSC</i>	2020 – 2021
Esteban Carmona	2020 – 2021
Collin Cheatle <i>Currently interviewing for medical School</i>	2020 – 2021
Mikayla McCord Magellan Scholar, Irene & Eric Simon Neuroscience Research Fellowship Awardee <i>Currently Intermediate Surgical Neurophysiologist at UPMC and Masters student at Johns Hopkins</i>	2019 – 2020
Carly Tew <i>Currently Certified Nursing Assistant</i>	2018 – 2019
Mary-Kate Lawlor Honors student Hartford Hospital Medical Summer Research Awardee <i>Currently Medical student at Georgetown Univ.</i>	2017 – 2020
Anna Bagnell Honors student & Magellan Scholar NIH Pre-IRTA Summer Research Fellow <i>Currently Doctoral student at Johns Hopkins Univ.</i>	2017 – 2020
Duncan Nowling Honors student <i>Currently Doctoral student at MUSC</i>	2016 – 2019
Mara Cowen Magellan Scholar, BARSC-major & Honors Student Gold-Water Scholar, Irene & Eric Simon Neuroscience research fellowship Awardee NSF graduate fellowship recipient during her senior year	2015 – 2019

Currently Doctoral student at UPENN

Nicholas Marinelli
Magellan Scholar
Currently Ensign at US Navy 2015 – 2016

Valerie Kay
Currently Doctoral Student at Georgia Tech 2016

Kasi Griffin
Currently a Physician Assistant 2016

Guillermo Pineda
Currently International MBA Candidate at University of South Carolina 2016

Amber Douglas
Currently Molecular Laboratory Technician, Vikor Scientific 2015

Mori Shands
Currently Manager at ALDI USA 2015

c. Graduate Research Supervision

Doctoral students

Janay M. Vacharasin
Neuroscience Scholars Associate Fellow
Grace Jordan McFadden Professorial Awardee
Elsie Taber Awardee
SPARC Graduate Research Awardee 2019 – 2022

Allie M. Culver
Kathryn Hynnatt-Johnson Fellow
SPARC Graduate Research Awardee 2018 – 2022

Master students

Foster D. Ritchie
Elsie Taber Awardee 2020 – 2022

Rotation students

Mathew Strauss 2015
Haely Andersen 2016
Mathew Zadrinski 2017
Veronica Bello-Ogunu 2017
Gustavo Martinez (Post bac student) 2017
Alissa Marchione 2019
Trevor Moreland 2021

d. Post-Graduate Research Supervision

Pankaj Ghate, PhD
Currently Staff Scientist at St. Jude Research Hospital 2016 – 2018

Evelyn Chukwurah, PhD
Currently Postdoctoral Fellow at Case Western Medical School 2018 – 2019

Calvin Leung, PhD 2021- present

COURSES

NEURONAL DIFFERENTIATION Stem Cell Technologies, Inc. 2012
Differentiation of Human ES Cells & iPS Cells to Neural Progenitors Course