

Annie Vogel Ciernia, Ph.D.

Assistant Professor

Department of Biochemistry and Molecular Biology

Djavad Mowafaghian Centre for Brain Health

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Professional Overview

My overall research interest is in understanding epigenetic mechanisms of transcriptional regulation involved in brain plasticity and neurodevelopmental disorders. I have a broad background in neurobiology and behavioral neuroscience as well as epigenetics and neurodevelopmental disorders. My graduate work in Dr. Marcelo Wood's laboratory at UC Irvine focused on examining the role of a neuron-specific nucleosome remodeling complex in regulating transcription subserving long-term memory formation. My postdoctoral work under Dr. Janine LaSalle at UC Davis focused on understanding how DNA methylation and chromatin accessibility impact gene expression in autism spectrum disorders (ASD). I have extensive experience in animal behavior, molecular neuroscience, bioinformatics and systems biology approaches for interpreting epigenomes. I was co-mentored in the Autism Training Program at the UC Davis MIND Institute by Dr. Jacqueline Crawley, an expert in animal models and behaviors related to neurodevelopment and ASD, and Dr. Paul Ashwood, an expert in ASD neuro-immunology. My current research at the University of British Columbia focuses on understanding how early-life perturbations to the epigenome alter cell type specific functions in the developing brain and lead to changes in behaviour. We specifically examine gene regulatory mechanisms in microglia and neurons during development using a combination of next generation sequencing, advanced bioinformatics and *in vivo* and *in vitro* mouse models. Together, our work aims to understand the fundamental regulatory mechanisms governing gene expression in the brain and how disruption of gene regulation contributes to neurodevelopmental and neuropsychiatric disorders.

Education

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| 2019-Present | Assistant Professor
<i>Understanding Gene Regulation in the Brain</i> Tier 2 Canada Research Chair
Department of Biochemistry and Molecular Biology
Djavad Mowafaghian Centre for Brain Health
University of British Columbia, Vancouver, Canada |
| 2014-2019 | Postdoctoral Research Fellow
Autism Research Training Program
University of California, Davis
Mentors: Dr. Janine LaSalle, Dr. Jacqueline Crawley, Dr. Paul Ashwood |
| 2008-2014 | Ph.D., Neurobiology & Behavior
University of California, Irvine, 4.0/4.0 GPA
Dissertation: The role of a novel epigenetic regulatory mechanism in long-term memory formation synaptic plasticity, and gene expression
Mentor: Dr. Marcelo Wood |
| 2004-2008 | Bachelor of Science, Majors Biotechnology and Psychology, Minor Chemistry
North Dakota State University, 4.0/4.0 GPA
Honors Thesis Psychology: Orienting to Predictive Arrow, Gaze, and Symbol Cues
Mentor: Dr. Chris Friesen
Honors Thesis Biotechnology: The Role of Attachment Protein TRAP in <i>Cryptosporidium</i> Infection
Mentor: Dr. John McEvoy |

Research Experience

- 2014-2019 **Postdoctoral Researcher.** Department of Medical Microbiology and Immunology, University of California, Davis- Davis, CA. Primary Advisor: Janine LaSalle
- 2011-2014 **Graduate Student Researcher.** Department of Neurobiology and Behavior/ Center for Neurobiology of Learning and Memory, University of California, Irvine- Irvine, CA. Thesis advisor: Marcelo Wood
- 2009-2011 **Graduate Student.** Department of Neurobiology and Behavior/ Center for Neurobiology of Learning and Memory, University of California, Irvine- Irvine, CA. Thesis advisor: John Guzowski
- 2007 **Undergraduate Researcher.** Summer Undergraduate Research Fellowship. Mayo Clinic- Rochester, MN. PI: David Linden
- 2006-2008 **Undergraduate Researcher.** Pathogenic Microbiology, North Dakota State University- Fargo, ND. PI: John McEvoy
- 2004-2008 **Undergraduate Researcher.** Center for Visual Neuroscience, Psychology Department, North Dakota State University- Fargo, ND. PI: Chris Friesen

Publications (direct trainees underlined)

1. Rowland, M.E., Jajarmi, J.M., Osborne, T.S.M., & **Ciernia, A.V.** (2022). Insights into the emerging role of Baf53b in Autism Spectrum Disorder. *Frontiers in Molecular Neuroscience*. In press.
2. Jao, J. and **Ciernia, A.V.** (2021). MGENrichment: a web application for microglia gene list enrichment analysis. *Plos Computational Biology*. 17(11): e1009160.
3. Hughes, H.K., Rowland, M.E., Eng, S., Onore, C.E. **Ciernia, A.V.** and Ashwood, P. (2021). Dysregulated gene expression associated with inflammatory and translation pathways in activated monocytes from children with autism spectrum disorders. Accepted *Molecular Psychiatry*.
4. Kim, J. & **Ciernia, A.V.** (2020). Chromatin dynamics and genetic variation combine to regulate innate immune memory. *Journal of Clinical & Cellular Immunology*. 11(4):1-5.
5. **Ciernia, A.V.**, Link, V.M., Careaga, M., LaSalle, J.M., & Ashwood, P. (2020). Genetic variants drive epigenetic regulation of endotoxin tolerance in BTBR macrophages. *Brain, Behavior and Immunity*. S0889-1591(20)30260-9
6. Kim, H.K., Gschwind, T., Nguyen, T.M., Bui, A.D., Felong, S., Ampig, K., Suh, D., **Ciernia, A.V.**, Wood, M.A., & Soltesz, I. (2020). Optogenetic intervention of seizures improves spatial memory in a mouse model of chronic temporal lobe epilepsy, *Epilepsia*. 61: 561– 571.
7. **Vogel Ciernia, A.**, Laufer, B.I., Hwang, H., Dunaway, K.W., Mordaunt, C.E., Coulson, R.L., A., Yasui, D.H., & LaSalle, J.M. (2019). Epigenomic convergence of neural-immune risk factors in neurodevelopmental disorder cortex, *Cerebral Cortex*. 30(2):640-655.
1. Laufer, B.I., Hwang, H., **Vogel Ciernia, A.**, Mordaunt, C.E., & LaSalle, J.M. (2019). Whole genome bisulfite sequencing of Down syndrome brain reveals regional DNA hypermethylation and novel disorder insights, *Human Molecular Genetics*, 14(7), 672-684.
2. **Vogel Ciernia, A.**, Yasui, D.H., Pride, M.C., Durbin-Johnson, B., Noronha, A., Chang, A., Knotts, T.A., Rutkowsky, J., Ramsey, J.J., Crawley, J.N., & LaSalle, J.M. (2018). MeCP2 isoform e1 mutant mice recapitulate motor and metabolic phenotypes of Rett syndrome, *Human Molecular Genetics*, 27(3), 4077-4093.
3. Kwapis, J.L., Alaghband Y., Kramár, E.A., **Vogel Ciernia, A.**, López, A.J., White, A.O., Shu, G., Rhee D, Michael CM, Montellier E., Liu Y, Magnan CN, Sassone-Corsi P, Baldi P, Matheos DP, Wood, M.A. (2018). Epigenetic regulation of the circadian gene *Per1* in the hippocampus mediates age-related changes in memory and synaptic plasticity. *Nature Communications*, 9(1), 3323.
4. **Vogel Ciernia, A.**, Laufer, B.I., Mordaunt, C.E., Dunaway, K.W., Mordaunt, C.E., Coulson, R.L., Total, T.S., Stolzenberg, D.S., Frahm, J., Singh-Taylor, A., Baram, T.Z., LaSalle, J.M., & Yasui, D.H. (2018). Experience-dependent neuroplasticity of the developing hypothalamus: integrative epigenomic approaches. *Epigenetics*, 3, 1-37.

5. Coulson, R.L., Yasui, D.H., Dunaway, K.W., Laufer, B.I., **Vogel Ciernia, A.**, Mordaunt, C.E., Total, T.S., LaSalle, J.M. (2018). Snord116-dependent diurnal rhythm of DNA methylation in mouse cortex. *Nature Communications*, 9(1):1616.
6. **Vogel Ciernia, A.**, Careaga, M., LaSalle, J.M., & Ashwood, P. (2018). Microglia from offspring of dams with allergic asthma exhibit epigenomic alterations to genes dysregulated in autism. *Glia*, 66(3):501-521.
7. Lopez, S.J., Dunaway, K., Islam, M.S., Mordaunt, C., **Vogel Ciernia, A.**, Meguro-Horike, M., Horike, S., Segal, D.J., & LaSalle, J.M. (2017). UBE3A-mediated regulation of imprinted genes and epigenome-wide marks in human neurons. *Epigenetics*, 2(11):982-990.
8. **Vogel Ciernia, A.**, Pride, M., Durbin-Johnson, B., Noronha, A., Chang, A., Yasui, D.H., Crawley, J.N., & LaSalle, J.M. (2017). Early motor phenotype detection in a female mouse model of Rett syndrome is improved by cross-fostering. *Human Molecular Genetics*, 26(10):1839-1854.
9. **Vogel Ciernia, A.** Kramár, E., Matheos, D.P., Havekes, R., Hemstedt, T.J., Magnost, C.N., Sakata, K., Tran, A., Azzawi, S., Lopez, A., Dang, R., Wang, W., Trieu, B., Tong, J., Barrett, R.M., Post, R.J., Baldi, P., Abel, T., Lynch, G. & Wood, M.A. (2017). Mutation of neuron-specific chromatin remodeling subunit BAF53b: Rescue of plasticity and memory by manipulating actin remodeling. *Learning & Memory*, 24(5):199-209.
10. Ren, Z., Noronha, A., **Vogel Ciernia, A.**, & Lee, Y.J. (2017). Who Moved My Cheese? Automatic Annotation of Rodent Behaviors with Convolutional Neural Networks. *WACV*.
11. K.W., Islam M.S., Coulson R.L., Lopez S.J., **Vogel Ciernia A.**, Chu R.G., Yasui D.H., Pessah I.N., Lott P., Mordaunt C., Meguro-Horike M., Horike S., Korf I., LaSalle J.M. (2016). Cumulative impact of large chromosomal duplications and polychlorinated biphenyl exposure on methylation, chromatin, and expression of autism genes. *Cell Reports*, 17(11): 3025-3048.
12. **Vogel Ciernia, A.** & LaSalle, J. (2016). The landscape of DNA methylation amidst a perfect storm of autism etiologies. *Nature Reviews Neuroscience*, 17(7): 411-423.
13. Lopez, A. Kramar, E., Matheos, D., White, A., Kwapis, J., **Vogel-Ciernia, A.**, Sakata, K., Espinoza, M., & Wood, M.A. (2016). Promoter specific effects of DREADD modulation on hippocampal synaptic plasticity and memory formation. *Journal of Neuroscience*, 36(12): 3588-3599.
14. **Vogel-Ciernia, A.** & Wood, M.A. (2014). Examining Memory for Object Location and Object Recognition in Mice. *Current Protocols in Neuroscience*, 69(8.31): 8.31.1–8.31.17.
15. Bharadwaj, R., Peter, C.J., Jiang, Y., Roussos, P., **Vogel-Ciernia, A.**, Shen, E., Mitchell, A., Mao, W., Whittle, C., Dincer, A., Jakovcevski, M., Pothula, V., Rasmussen, T.P., Giakoumaki, S.G., Bitsios, P., Gardner, P.D., Ernst, P., Ghose, S., Sklar, P., Haroutunian, V., Tamminga, C., Myers, R.H., Futai, K., Wood, M.A., & Akbarian, S. (2014). Conserved higher-order chromatin regulates NMDA receptor gene expression and cognition. *Neuron*, 84(5): 997-1008.
16. **Vogel-Ciernia, A.** & Wood, M.A. (2014). Neuron-specific chromatin remodeling: A missing link in epigenetic mechanisms underlying synaptic plasticity, memory, and intellectual disability disorders. *Neuropharmacology*, 80:18-27.
17. **Vogel-Ciernia, A.** Matheos, D.P., Barrett, R.M., Kramár, E., Azzawi, S., Chen, Y., Magnost, C.N., Zeller, M., Sylvain, A., Haettig, J., Jia, Y., Tran, A., Dang, R., Post, R.J., Chabrier, M., Babayan, A., Wu, J.I., Crabtree, G.R., Baldi, P., Baram, T.Z., Lynch, G. & Wood, M.A. (2013). The neuron-specific chromatin regulatory subunit BAF53b is necessary for synaptic plasticity and memory. *Nature Neuroscience*, 16(5): 552-561.
18. Vashishtha, M. Ng, C.W., Yildirim, F., Gipson T., Kratter, I.H., Bodai, L., Song, W., Lau, A., Labadorf, A., **Vogel-Ciernia, A.**, Troncoso, J., Ross, C.A., Bates, G.P., Krainc, D., Sadri-Vakili, G., Finkbeiner, S., Marsh, J.L., Housman, D.E., Fraenkel, E., Thompson, L.M. (2013) Targeting H3K4 Trimethylation in Huntington Disease. *PNAS*, 110(32): E3027-E3036.
19. McNulty, S., Barrett, R.M., **Vogel-Ciernia, A.**, Malvaez, M., Hernandez, N., Davatolhagh, M.F., Matheos, D.P., Schiffman, A. & Wood, M.A. (2012). Differential roles for *Nr4a1* and *Nr4a2* in object location versus object recognition long-term memory. *Learning & Memory*, 19:588-592.
20. **Vogel-Ciernia, A.** & Wood, M.A. (2012). Molecular Brake Pad Hypothesis: Pulling Off the Brakes for Emotional Memory. *Reviews in the Neurosciences*, 23(5-6): 607-626.
21. Gayzur, N.D, Langley, L.K., Friesen, C.K., Wyman, S.V., Saville, A.L., **Ciernia, A.T.**, Padmanabhan, G. (2014). Reflexive orienting in response to short- and long-duration gaze cues in young, young-old, and old-old adults. *Attention, Perception, & Psychophysics*, 76(2): 407-419.

22. Langley, L.K., Friesen, C.K., Saville, A.L., & Ciernia, A.T. (2011). Timing of Reflexive Visuospatial Orienting in Young, Young-Old, and Old-Old Adults. *Attention, Perception, & Psychophysics*, 73(5):1546-

Grants and Funding

Current Research Support

- Canadian Institutes of Health Research 2019-2024
Tier 2 Canada Research Chair in Understanding Gene Expression in the Brain
 Role: PI
 Total: \$500,000 CAD salary award
- SickKids Foundation in partnership with the Canadian Institutes of Health Research 2019-2022
New Investigator Research Grant: The Role of Baf53b in Regulating Neuronal Gene Expression, Synaptic Function and Autism Behaviours Across Development
 This grant investigates chromatin remodelers in neuronal development and neurodevelopmental disorders.
 Role: PI
 Total: \$299,699 CAD operating.
- Canadian Foundation for Innovation 2019-2024
John R. Evans Leaders Fund
 This award provides funding for gene expression analysis infrastructure
 Role: PI
 Total: \$400,000 CAD infrastructure
- University of British Columbia 2019-2024
Startup funding
 This start-up funding from the University of British Columbia: Department of Biochemistry and Molecular Biology (\$275,000) and the Djavad Mowafaghian Centre for Brain Health (\$275,000).
 Role: PI
 \$550,000 CAD operating.
- Natural Sciences and Engineering Council of Canada 2019-2024
Discovery Grant: Epigenomic Regulation In Microglia
 This grant investigates epigenomic regulation of gene expression in microglia across brain development.
 Role: PI
 Total: \$120,000 CAD operating.
- Natural Sciences and Engineering Council of Canada 2021-2022
Research Tools and Instruments
 This grant is for a specific slide scanner microscope for Expansion Microscopy.
 Role: PI
 Total: \$150,000 CAD infrastructure.
- Dawn Shaw Alzheimer Disease Research Award 2021-2023
 The grant examines sex-specific impacts of estrogen on Alzheimer's disease and neuroinflammation.
 Role: Co-PI. PI Dr. Liisa Galea (UBC)
 Total: \$150,000 CAD operating (\$5,000 CAD to AVC)
- Cure Alzheimer's Fund 2021-2023
 Sex Matters: Understanding the influence of sex and APOE genotype on hippocampal plasticity and cognition
 Role: Co-PI. PI Dr. Liisa Galea (UBC)
 Total: \$342,700 USD operating (\$5,000 USD to AVC)
- BCCHRI Healthy Starts Theme Catalyst Grant Award 2021-2022
 The role of neuroinflammation in early life pain/sucrose-induced neurodevelopment impairments

Role: Co-PI. PI Dr. Manon Ranger (UBC)
Total: \$40,000 CAD operating (\$2,000 CAD to AVC)

Michael Smith Foundation for Health Research Foundation 2021-2026
Michael Smith Foundation for Health Research Scholars award
Role: PI
Total: \$75,000 CAD salary award

Scottish Rite Charitable Foundation of Canada Research Award 2021-2023
Early Life Priming of Neuro-Immune Interactions
Role: PI
Total: \$120,000 CAD

Completed

DMCBH Kickstart Award 2020-2021
Pilot award for examining endotoxin tolerance using in vivo imaging.
Role: PI
Total: \$30,000 CAD operating

Natural Sciences and Engineering Council of Canada 2019-2020
Discovery Launch Supplement
This supplement provides one-time supplemental funding for early-career investigators that receive funding from the Natural Sciences and Engineering Council of Canada.
Role: PI
Total: \$13,500 CAD operating.

Brain and Behavior Research Foundation 2018-2020
NARSAD Young Investigator Award: The Role of MeCP2 Isoform 1 in Rett Syndrome Disease Progression
This grant investigates the role of the e1 isoform of MeCP2 in brain development and Rett Syndrome.
Role: PI
Total: \$70,000 USD operating.

National Institutes of Mental Health 2018-2019
Research Scientist Development Award: Mapping Multi-Omics Networks in Microglia Across Autism Models.
Role: PI
Total: \$315,000 USA operating.

National Institutes of Mental Health 2014-2016
Autism Research Training Fellowship Program, University of California, Davis MIND Institute T32
Role: Postdoctoral Trainee, Rogers, Sally & Amaral, David (PIs)

National Institutes of Mental Health 2013-2014
NRSA F31 The Role of BAF53b Mediated Nucleosome Remodeling in Long-Term Memory Formation
Role: PI
main focus of this work was to examine the role of a novel, neuron specific nucleosome

Awards, Honors & Fellowships

2019	Cold Spring Harbor Laboratory Leadership in Biosciences course fellowship
2018	University of California Davis Postdoctoral Excellence in Research Award
2018	Postdoctoral Research Conference Oral Presentation Second Place Award
2017	Allen Brain Institute Summer Workshop on the Dynamic Brain Faculty Choice Award
2017	Allen Brain Institute Summer Workshop on the Dynamic Brain Fellowship
2017	UC Davis Postdoctoral Scholars Association Travel Award

- 2017 NARSAD Young Investigator Award: The Role of MeCP2 Isoform 1 in Rett Syndrome Disease Progression: Unraveling the Causal Contributions of Microglia and Neurons
- 2017 UC Davis Psychology Conference Oral Presentation Winner
- 2017 Postdoctoral Research Conference Oral Presentation Winner
- 2016 Helmsley Scholarship to attend Cold Spring Harbor Laboratory Statistical Methods for Functional Genomics workshop
- 2014 Autism Research Training Fellowship Program, University of California, Davis MIND Institute
- 2013 UCI Center for Cognitive Neuroscience and Engineering Graduate Merit Fellowship
- 2013 James L. McGaugh Award for Excellence in Graduate Research in Neurobiology and Behavior
- 2013 American College of Neuropsychopharmacology (ACNP) Travel Award
- 2013 Renee Harwick Advanced CNLM Graduate Student Award
- 2013 Top Graduate Oral Presentation at the 24th Science Conference of the Graduate Women in Science
- 2013 ReMIND Outstanding Presentation at the Emerging Scientist Symposium
- 2013 NRSA: The Role of BAF53b Mediated Nucleosome Remodeling in Long-Term Memory Formation. Impact/Priority Score: 17, Percentile: 3 (F31-MH098565)
- 2012 Second Prize Data Blitz at the CNLM Conference on the Neurobiology of Learning and Memory
- 2012 Second Prize Data Blitz at the CNLM Conference on the Neurobiology of Learning and Memory
- 2012-1214 Achievement Rewards for College Scientists (ARCS) Fellowship (\$20,000 award)
- 2012 Graduate Student Chapter Travel Award, Society for Neuroscience
- 2012-2013 Aging Training Grant (T32-AG00096-29)
- 2012 Roger Russell's Scholar Award in The Neurobiology of Learning and Memory
- 2011 Graduate Fellow Award, HHMI-UCI Teaching Fellows Program
- 2011 Edward Steinhaus Teaching Award
- 2009-2010 Cellular and Molecular Neuroscience Training Grant (T32-NS007444)
- 2008-2009 Phi Kappa Phi Honor Society Graduate School Fellowship
- 2006 Junior Academic Achievement Award, North Dakota State University
- 2006 Junior Research Achievement Award, North Dakota State University
- 2004-2008 Recipient of the Donald Moum Scholarship, Biotechnology Scholarship, Steinhaus-Rhinehart Scholarship, Vernon E. Wendlandt Scholarship, Ellen E. Carr Scholarship, North Dakota Normandy Memorial Scholarship, and Lillian Goettler ND Space Grant Award, StraightForward Media Science Scholarship, E.V. Estensen Outstanding Psychology Major Award

Teaching Experience

- 2021 Course Chair: Advanced Topics in Biochemistry and Molecular Biology (BIOC551). University of British Columbia.
- 2021 Lectures (2): Advanced Topics in Biochemistry and Molecular Biology (BIOC551). University of British Columbia.
- 2020-present Module 3 course lead. Neuroscience 500 (NRSC500). University of British Columbia.
- 2020-present Lectures (2): Neuronal Gene Regulation. Epigenetic Variation in Human Health and Disease. Neuroscience 500 (NRSC500). University of British Columbia.
- 2020-present Course co-instructor. Biochemistry 410 Nucleic Acid Structure and Function (BIOC410). University of British Columbia.
- 2019 Lecture: Epigenetic Variation in Human Health and Disease. Neuroscience 500 (NRSC500). University of British Columbia.
- 2018 Lecture: Epigenetics in Autism Spectrum Disorders. Fundamentals of Neuroscience (BIOL410). California Northstate University.
- 2018 Lecture: Microglia in Brain Development and Human Health. Immunology (Bio 340). California Northstate University.

2011	Lecture: Introduction to Biology (Bio 93) Teaching Assistant. Department of Neurobiology & Behavior, University of California, Irvine- Irvine, CA.
2011	Lecture: The Basics of Animal Behavior: Non-associative and Associative Conditioning. BioSci N38: Mind, Memory, and the Brain, University of California, Irvine.
2011	HHMI-UCI Teaching Fellows Program
2010, 2011	Neurobiology Lab (BioSci N113L) Teaching Assistant. Department of Neurobiology & Behavior, University of California, Irvine- Irvine, CA.
2010	Lecture: Memory: Linking Molecules to Behavior. BioSci N158: Neurobiology of Learning and Memory, University of California, Irvine.

Mentoring and Trainee Awards (direct supervisor 2019-Present only)

Jana Jajarmi	2021-present	Directed Studies Thesis Undergraduate	
Vince Bacarac	2021-present	Directed Studies Thesis Undergraduate	Poster Prize Tri-Cluster Research Day (2021)
Brandon Wong	2021 fall	Science Co-Op	BioTalent Training Award (\$7,500)
Griff Won	2022 spring	Science Co-Op	BioTalent Training Award (\$7,500)
Christina Lim	2021 summer	Undergraduate RA	
Dr. Megan Rowland	2020-Present	Postdoctoral fellow	DMCBH Postdoctoral Fellow Award (\$10,000)
Laura Meleady	2020-Present; 2019-2020	MSc student BMB; Directed Studies Thesis Undergraduate	FoM 2021 graduate student award (\$5,000); Alexander Graham Bell Canada Graduate Scholarships-Master's (CGS-M) (\$17,500) 2020; 2020 Astell Award for EDI (\$500); BMB Poster Presentation Award 2020; NSERC URSA 2020
Baria Choudry	2020-2021	Undergraduate RA	
Jessie Chai	2020-2021	Undergraduate RA	NSERC URSA 2021; Vancouver Korean-Canadian Scholarship Foundation; Currently medical student UBC
Olivia Sullivan	2021-Present 2020-2021	MSc Student Neuroscience Directed Studies Thesis Undergraduate	FoM 2021 graduate student award (\$4,500) FoM Summer Student Research Program Award 2021 Oral Presentation 2 nd Prize Tri-Cluster Research Day (2021)
Sana Arora	2020-Present	Undergraduate RA	
Sarah Wissmann	2020-2021	Undergraduate RA	Currently undergraduate RA child development lab UBC
Kateryna Voznyuk	2020-Present	Undergraduate RA	
John Shin	2020-2021	Science Co-op	BioTalent Training Award (\$7,500); currently finishing CS degree at UBC
Michelle Lu	2020-2021	Directed Studies Thesis Undergraduate	FoM SURE Award 2021; currently volunteering at UBC-O
Tess Osborne	2020-2021	Directed Studies Thesis Undergraduate	FoM SURE Award 2021; currently BMB graduate student at UBC
Daniel Wong	2020-2021	Directed Studies Honours Thesis	Currently RA Hong Kong University

		Undergraduate	
Kayla Judson	2020-2021; 2019-2020	Research Associate; Directed Studies Thesis Undergraduate	Currently RA Greenblatt lab UBC
Brianna Bristow	2019-2020	Directed Studies Thesis Undergraduate	FoM SURE Award 2020; Currently RA Cembrowski lab UBC
Justin Jao	2019-Present	Undergraduate RA	
Jennifer Kim	2019-Present	PhD student Neuroscience	2019 Canadian Epigenetics, Environment and Health Research Consortium (CEEHRC) Network Student Travel Award (\$500) 2019; DMCBH Graduate Student Award (\$5,000) 2019, CONP Trainee Award (\$25,000) 2020; UBC Four Year Fellowship (\$18,500/year x 4 years + tuition) 2020
Kit Lee	2019-Present	lab manager/technician	
Joshua Yoon	2019-2020	Undergraduate RA	Currently medical student UBC

Professional Memberships

2021	Canadian Association for Neuroscience (CAN) Parliament Hill Week Advocacy
2020-Present	Canadian Brain Research Strategy Early Career Researchers Task Force
2020-Present	Association of Canadian Early Career Health Researchers National Steering Committee
2020-Present	Rare Diseases: Models & Mechanisms Network (model organism researcher)
2020-Present	UBC Molecular Epigenetics Group member
2020-Present	UBC Neuroscience Group member
2019-Present	Epigenetics Society (member)

Service (2019-Present only)

Women in Stem Laboratory Tour	2022	Hosted virtual lab tours for UBC undergraduate Women in STEM club
Faculty Panelist	2021	Biochemistry Knowledge Undergraduate Student Workshop
Grant Reviewer	2021	India Alliance DBT Wellcome Trust
NSERC RTI Panel	2021	Panelist for NSERC RTI SPARC event
Grant Reviewer	2021	MSFHR Research Trainee BIOM2 Review Panel
Biochemistry and Molecular Biology Astell Award Committee	2020- Present	We developed the award criteria, advertisement information and adjudication process for this award. As part of the annual selection process, we meet approximately 5 times including the final interview session of the candidates for award selection. I gave the awards as part of the BMB seminar series in the fall of 2020 and 2021.
Biochemistry and Molecular Biology Graduate Program Advisory Committee	2020- Present	This committee advises the BMB graduate program to address needs of the current and incoming BMB students. We meet monthly.

Biochemistry and Molecular Biology EDI Committee Chair	2020-Present	This committee consists of myself, three faculty members, one PDF, two graduate students, two staff members and three undergraduate students. I am the Chair of this committee and its purpose is to address departmental issues related to Equity, Diversity and Inclusion (EDI). This committee was formed in late 2020 and currently is preparing a departmental survey to assess EDI needs in the department and then will form a departmental EDI Action Plan. As Chair, I coordinate our bi-weekly meetings, oversee the preparation of the survey, coordinate with the UBC EDI office and oversee the development and implementation of our Action Plan. https://biochem.ubc.ca/equity-diversity-inclusion/
DMCBH Neuroinformatics working group member	2020-Present	This committee consists of 6 faculty from the DMCBH that oversees data science related resources, training and development at the DMCBH. This committee works to address computational needs across research groups within the DMCBH and facilitate training of graduate students in computational methods. We meet quarterly.
Biochemistry and Molecular Biology Seminar Committee	2020-2021	This committee coordinates the schedule for the weekly BMB seminar. We met quarterly.
Biochemistry and Molecular Biology Mentorship Committee	2020	This committee created the departmental mentoring policy for new faculty.
Dynamic Brain Circuits Steering Committee	2020	This committee advised on the renewal of the UBC Dynamic Brain Circuits Cluster of Excellence which was successfully renewed in 2021.
Faculty Panelist	2020	How to Survive Biochemistry Undergraduate Student Workshop
CIHR Grant Reviewer	2020	Behavioural Sciences 2 Ad-hoc reviewer (1 grant)
Centre for Brain Health Seminar Committee	2019-2021	This committee consists of 12 members of the DMCBH faculty that each nominate 2-3 speakers they would like to host for the weekly DMCBH seminar series.
NeuroPsyched Faculty Advisor	2019-Present	I am the faculty advisor for this graduate student run Neuroscience outreach program. https://www.neuropsyched.ca/

Presentations (2019-Present as PI)

1. Ciernia, A. (March 8, 2022). *Histone Acetylation Regulation of Microglial Innate Immune Memory*. Neuroepigenomics seminar invited talk, United Kingdom Dementia Research Institute, Imperial College London. virtual.
2. Ciernia, A. (March 2, 2022). *Histone Acetylation Regulation of Microglial Innate Immune Memory*. talk, UBC Neuroscience Days, Vancouver Coastal Health, Vancouver, BC.
3. Ciernia, A. (December 14th, 2021). *Epigenomics and Genomics Reanalyzed*. Workshop presentation, Central Asia Bioinformatics and Genomics Workshop. University of Uzbekistan, Tashkent, Uzbekistan. Virtual.
4. Ciernia, A. (December 9th, 2021). *Epigenetic Regulation of Microglial Innate Immune Memory*. talk, Asilomar Chromatin, Chromosomes and Epigenetics Conference. Monterey, California, USA. Virtual.

5. Ciernia, A. (December 8th, 2021). *Histone Acetylation Regulates Microglial Innate Immune Responses*. Keynote presentation, Central Asia Genomics Symposium. University of Uzbekistan, Tashkent, Uzbekistan. Virtual.
6. Ciernia, A. (October 28th, 2021). *Epigenetic Regulation of Microglial Innate Immune Memory*. Selected short talk, EMBO Microglia conference. Virtual.
7. Ciernia, A. (September 29, 2021). *Epigenetic Regulation of Microglial Innate Immune Memory*. Invited seminar, Multi-Omics Group, BC Children's Hospital, Vancouver, British Columbia. Virtual.
8. Ciernia, A. (June 4th, 2021). *Epigenetic Regulation of Microglial Innate Immune Memory*. Invited seminar, UBC Psychiatry Research Days, University of British Columbia. Virtual.
9. Ciernia, A. (May 14th, 2021). *Microglia Memory: Fine-Tuning Gene Expression in the Brain*. Invited seminar, Medical Microbiology & Immunology Seminar Series, UC Davis, California, USA. Virtual.
10. Ciernia, A. (May 6th, 2021). *Microglia Memory: Fine-Tuning Gene Expression in the Brain*. Invited seminar, Kasturba Medical College of Manipal, Kamataka, India. Virtual.
11. Ciernia, A. (May 5th, 2021). *Microglia Memory: Fine-Tuning Gene Expression in the Brain*. Invited seminar, Healthy Starts Seminar, British Columbia Children's Hospital. Vancouver, Canada. Virtual.
12. Ciernia, A. (March 23rd, 2021). *Microglia Memory: Fine-Tuning Gene Expression in the Brain*. Invited seminar, Penn State University, USA. Virtual.
13. Ciernia, A. (March 19th, 2021). *Epigenetic Conductions of Microglial Immune Memory in the Brain*. Invited talk, Canadian Epigenetics, Environment and Health Research Consortium. Virtual.
14. Ciernia, A. (September 14th, 2020). *Microglial Memory: Fine Tuning Gene Expression in the Brain*. Zoology Seminar Series, University of British Columbia. Virtual.
15. Ciernia, A. (April 23rd, 2020). *Microglial Gene Regulation in Autism and Neuroinflammation*. Invited talk, PITCH Childhood Disease Seminar, University of British Columbia. Virtual.
16. Ciernia, A. (April 17th, 2020). *Microglial Gene Regulation in Autism and Neuroinflammation*. Invited talk, Centre for Brain Health, University of British Columbia. Virtual.
17. Ciernia, A. (January 22nd, 2020). *Epigenomic Signatures of Altered Neuroimmune Function in Autism*. Invited talk, Neuropsychiatry Grand Rounds, University of British Columbia.
18. Ciernia, A. (December 4th, 2019). *Epigenomic Signatures of Microglia in Autism*. Invited talk, SWIFT Biosciences Seminar, University of British Columbia.
19. Ciernia, A. (November 7th, 2019). *Epigenomic Signatures of Microglia in Autism*. Invited talk, Cellular and Physiological Sciences Colloquium Series, University of British Columbia.
20. Ciernia, A. (October 3rd, 2018). *Epigenomic Signatures of Microglia in Autism*. Invited talk, Canadian Epigenetics, Environment and Health Research Consortium Network 5th Canadian Conference on Epigenetics, Esterel, Quebec, Canada.
21. Vogel Ciernia, A. (March 8th, 2018). *Epigenomic Signatures of Microglia in Autism*. Invited talk, Department of Biochemistry and Molecular Biology, University of British Columbia, Vancouver, Canada.
22. Vogel Ciernia, A. (February 15th, 2018). *Epigenomic Signatures of Microglia in Autism*. Invited talk, Allen Institute for Brain Science, Seattle, Washington.
23. Vogel Ciernia, A. (February 15th, 2018). Life-long consequences of early life experiences on epigenetic programming. Invited talk, Department of Biology, University of Nevada, Reno.
24. Vogel Ciernia, A. (February 9th, 2018). Life-long consequences of early life experiences on epigenetic programming. Medical Microbiology and Immunology MMI 291 Seminar Series Emerging Challenges in Microbiology and Immunology, University of California, Davis.
25. Vogel Ciernia, A. (May 5th, 2017). Early motor phenotype detection in a female mouse model of Rett syndrome. University of California Davis Psychology Conference, University of California, Davis.
26. Vogel Ciernia, A. (April 12th, 2017). Maternal allergic asthma alters gene expression and regulation in offspring microglia. Postdoctoral Research Conference, University of California, Davis.
27. Vogel Ciernia, A. (July 7th, 2016). The role of MeCP2 isoform 1 in Rett syndrome disease progression. Invited talk. Rutgers University, New Jersey, USA.
28. Vogel Ciernia, A. (February 4th, 2016). Mapping epigenomic pathways of resilience acquired in early life. Selected talk: Epigenomics 2016, Puerto Rico, USA.
29. Vogel-Ciernia, A. (June 18th, 2014). How understanding memory formation can span the gap from genes to intellectual disorders. Invited talk: Institute for Advanced Study (Wissenschaftskolleg), College of Life Sciences, Berlin, Germany.

30. Vogel-Ciernia, A. (April 18, 2014). The role of a novel epigenetic mechanism in long-term memory formation. Conference presentation: Association for Graduate Students, University of California, Irvine.
31. Vogel-Ciernia, A. (November 12, 2013). The neuron-specific chromatin regulatory subunit BAF53b is necessary for epigenetic regulation of synaptic plasticity and memory. Conference presentation: Society for Neuroscience, San Diego, California.
32. Vogel-Ciernia, A. (November 18, 2013). The neuron-specific chromatin regulatory subunit BAF53b is necessary for epigenetic regulation of synaptic plasticity and memory. Conference presentation: Molecular and Cellular Cognition Society, San Diego, California.
33. Vogel-Ciernia, A. (April 13, 2013). The role of a novel epigenetic mechanism in long-term memory formation. Conference presentation: 24th Science Conference of the Graduate Women in Science, Chapman University, Orange, California.
34. Vogel-Ciernia, A. (February 20, 2013). The role of a novel epigenetic mechanism in long-term memory formation. Conference presentation: ReMIND Emerging Scientists Symposium on Neurological Disorders, University of California, Irvine

Poster Presentations (2019-Present as PI)

1. Sullivan, O., Lee, K., Ng, K., Kim, J., Tropini, C., & **Ciernia, A.** (November 26th 2021). How early life gut inflammation impacts brain microglia and neurodevelopment. Poster at the 3rd Annual Tri-Cluster Research Day. (Virtual). Presentation Award (2nd place).
2. Bacarac V., Kim J., Hrelja K., Winstanley C, **Ciernia, A.** (November 26th 2021). Assessing the "two-hit" hypothesis: How does a two-hit immune activation affect microglial gene expression in the rat brain? Poster at the 3rd Annual Tri-Cluster Research Day. (Virtual). People's Choice Award (Best Poster).
3. **Ciernia, A.** (June 7th, 2021). Epigenetic Regulation of Microglial Innate Immune Memory. Poster and SciTalk at NeuroImmune Interactions in Health and Disease Keystone Meeting (virtual).
4. Meleady L, **Ciernia, A.** (May 26th 2021). Investigating the role of epigenetic-modifier histone deacetylase 3 (Hdac3) in microglia gene expression and immune response. Poster at 23rd Biennial Meeting of the International Society of Developmental Neuroscience. (Virtual).
5. Meleady L., **Ciernia, A.** (March 26th 2021). Investigating the role of Hdac3-mediated gene in primary microglia immune response to lipopolysaccharides (LPS). Poster at University of British Columbia Biochemistry and Molecular Biology Symposium on Genetics, Transcription, and Translation, Vancouver, Canada. (Virtual). Top poster awarded by Graduate Student Association judging panel
6. Rowland, M.E. & **Ciernia, A.** (March 26th 2021). Investigating the Role of Baf53b in Regulating Gene Expression and Morphology in Neurons. Poster at University of British Columbia Biochemistry and Molecular Biology Symposium on Genetics, Transcription, and Translation, Vancouver, Canada. (Virtual).
7. Meleady, L., **Ciernia, A.** (March 25th 2021). Investigating the role of Hdac3-mediated gene in primary microglia immune response to LPS. Poster at Conte Center Symposium on Neuro-Immune Interactions online from the Conte Centre for Neuroimmune Studies Boston, Massachusetts. (Virtual).
8. Rowland, M.E. & **Ciernia, A.** (December 10, 2020). Investigating the Role of Baf53b in Regulating Gene Expression and Neuronal Morphology in Excitatory and Inhibitory Neurons. Poster at Asilomar Chromatin, Chromosomes, and Epigenetics Conference. (Virtual).
9. Meleady, L., **Ciernia, A.** (November 4th, 2020). Using Hdac3 inhibitor (RGFP966) to investigate histone acetylation and gene expression changes in primary rat microglia. Poster at Future of Health Research Day at the Djavad Mowafaghian Centre for Brain Health, Vancouver, Canada. (Virtual).
10. Rowland, M.E. & **Ciernia, A.** (October 28, 2020). Investigating neuronal morphology and function in mouse primary neurons with Baf53b mutations associated with Autism Spectrum Disorder. Poster at Embo Workshop, Neuroepigenetics: From Cells to Behaviour and Disease. (Virtual).
11. Hughes, H., Dada, S., **Ciernia, A.**, & Ashwood, P.A. (June 3rd, 2020). Dysregulated immune gene expression in monocytes from Autism Spectrum Disorders. Poster at International Society for Autism Research. (Virtual).
12. Kim, J., Tamayo, J., Madany, A.M., Ashwood, P.A., & **Ciernia, A.** (November 18th, 2019). Investigating brain region-specific regulation of LPS-induced innate immune memory. Poster at Canadian Epigenetics, Environment and Health Research Consortium Network 6th Canadian Conference on Epigenetics, Banff, Canada. Travel award winner.

13. Dada, S., Hughes, H., Onore, C., Ashwood, P.A., & **Ciernia, A.** (November 18th, 2019). Dysregulated immune gene expression in monocytes from Autism Spectrum Disorders. Poster at Canadian Epigenetics, Environment and Health Research Consortium Network 6th Canadian Conference on Epigenetics, Banff, Canada.
14. Kim, J., Tamayo, J., Madany, A.M., Ashwood, P.A., & **Ciernia, A.** (November 8th, 2019). Investigating brain region-specific regulation of LPS-induced innate immune memory. Poster and Lighting Talk (Top 10 abstracts) at Future of Health Research Day at the Djavad Mowafaghian Centre for Brain Health, Vancouver, Canada.
15. **Vogel Ciernia, A.**, Laufer, B.I., Dunaway, K.W, Mordaunt, C.E., Coulson, R.L., Yasui, D.H., and LaSalle, J.M. (November 18th, 2018). Epigenomic convergence of genetic and immune risk factors in autism brain. Poster at IDDRC Director's Meeting, Boston Children's Hospital and Developmental Disabilities Research Center, Boston, MA, USA.
16. **Vogel Ciernia, A.**, Laufer, B.I., Dunaway, K.W, Mordaunt, C.E., Coulson, R.L., Yasui, D.H., and LaSalle, J.M. (October 19th, 2018). Epigenomic convergence of genetic and immune risk factors in autism brain. Poster at American Society for Human Genetics, San Diego, CA, USA.
17. **Vogel Ciernia, A.**, Careaga, M., LaSalle, J., & Ashwood, P. (November 14th, 2017). Microglia isolated from offspring of dams with allergic asthma exhibit methylation and transcriptional alterations to autism risk genes. Poster at Society for Neuroscience, Washington DC, USA.
18. **Vogel Ciernia, A.**, Careaga, M., LaSalle, J., & Ashwood, P. (January 18th and 19th, 2017). Maternal allergic asthma alters microglial transcriptome and methylome of offspring. Poster at Gordon Research Conference Neuroimmune Communication in Health & Disease, Ventura, CA, USA.
19. **Vogel Ciernia, A.**, Pride, M., Durbin-Johnson, B., Noronha, A., Chang, A., Yasui, D.H., Crawley, J.N., & LaSalle, J.M. (November 14th, 2016). The impact of maternal care on a female mouse model of Rett syndrome. Poster presented at Society for Neuroscience, San Diego, California, USA.
20. **Vogel Ciernia, A.**, Yasui, D.H., Singh-Taylor, A., Cope, J., Baram, T.Z., Dunaway, K.W., & LaSalle, J.M. (February 2nd and 3rd, 2016). Mapping epigenomic pathways of resilience acquired in early life. Poster presented at Epigenomics 2016, Puerto Rico, USA.
21. **Vogel-Ciernia, A.**, Matheos, D.P., Kramár, E.A., Cox, C., Trieu, B., Magnan, C.N., Zeller, M. Lopez, A., Sakata, K., Tong, J., Tran, A., Azzawi, S., Dang, R., Barrett, R.M., Post, R.J., Havekes, R., Abel, T., Baldi, P., Lynch, G., & Wood, M.A. (November 15, 2014). The neuron-specific chromatin regulatory subunit BAF53b is necessary for epigenetic regulation of synaptic plasticity and memory. Poster presented at Society for Neuroscience, Washington D.C.
22. Lopez, A.J., Kramar, E., Kwapis, J., White, A.O., **Vogel-Ciernia, A.**, & Wood, M.A. (November 15, 2014). Bi-directional chemogenetic manipulation of the CA1 using DREADDs leads to modulation in object location memory, but not object recognition memory. Poster presented at Society for Neuroscience, Washington D.C.
23. **Vogel-Ciernia, A.** Matheos, R. Dang, A. Tran, Kramár, E.A., Trieu, B., Cox, C., Lynch, G. & Wood, M.A. (February 21, 2014). The neuron-specific chromatin regulatory subunit BAF53b is necessary for epigenetic regulation of synaptic plasticity and memory. Poster presented at Innovation and Promise in Epilepsy Research 3rd International UCI EpiCenter Symposium, Irvine, California.
24. **Vogel-Ciernia, A.** Matheos, R. Dang, A. Tran, Kramár, E.A., Trieu, B., Cox, C., Lynch, G. & Wood, M.A. (February 21, 2014). The neuron-specific chromatin regulatory subunit BAF53b is necessary for epigenetic regulation of synaptic plasticity and memory. Poster presented at Innovation and Promise in Epilepsy Research 3rd International UCI EpiCenter Symposium, Irvine, California.
25. **Vogel-Ciernia, A.** Matheos, D.P., Barrett, R.M., Kramár, E.A., Zeller, M., Magnan, C., Alex H. Babayan, Crabtree, G.R., Baldi, P., Lynch, G. & Wood, M.A. (December 10, 2013). The neuron-specific chromatin regulatory subunit BAF53b is necessary for epigenetic regulation of synaptic plasticity and memory. Poster presented at American College of Neuropsychopharmacology (ACNP), Hollywood, Florida.
26. **Vogel-Ciernia, A.** Matheos, D.P., Barrett, R.M., Kramár, E., Chen, E.Y., Zeller, M., Magnan, C., Azzawi, S. Haettig, J., Jia, Y., Tran, A., Post, R.J., Sylvain, A., Crabtree, G.R., Baram, T.Z., Baldi, P., Lynch, G. & Wood, M.A. (2012) The role of BAF53b in regulating long-term memory formation. Poster presented at Society for Neuroscience, New Orleans, Louisiana.

27. Jacobs, N.S., Allen, T.A, Turk, A.A., **Vogel-Ciernia, A.**, Fortin, N.J. (2011) Mapping the Extent of Functional Inactivation Following Local Infusion of Fluorescent Muscimol. Poster presented at Society for Neuroscience, Washington DC.
28. Smith, E.D, Carlos, A.J., Aguilar, B.L., **Vogel-Ciernia, A.**, Nielsen, S.E., Cornwell, L., Hanna, M., Passos, G., Prieto, G.A., Winchester, J., Pop, V., & Noldan, P. (2011). New Ways to Explore the Brain: Brain Awareness Week at Stacy-Clegg. Poster presented at Society for Neuroscience, Washington DC.

Other Contributions: Public Communications (last 5 years)

1. The Scientist. Sept 2021. Commentary included in article on microglia function in a novel ASD mouse model. <https://www.the-scientist.com/news-opinion/serious-infections-linked-to-autism-study-69193>
2. Spectrum News. Autism-related conditions converge on same loss of DNA tags. Feature article on Dr. Ciernia's postdoctoral work on DNA methylation changes in human postmortem brain from Autism patients. January 20th, 2021. <https://www.spectrumnews.org/news/autism-related-conditions-converge-on-same-loss-of-dna-tags/>
3. NeuroPsyched New P.I. Spotlight featuring Dr. Ciernia. July 10, 2020. <https://neuropsychedsquarespace.com/summer-2020/new-pi-spotlight-dr-annie-ciernia>
4. Science in Vancouver. Feature article on Genetic Variants Drive Altered Epigenetic Regulation of Endotoxin Response in BTBR Macrophages. June 4th, 2020. <https://scienceinvancouver.com/2020/06/04/genetic-variants-drive-altered-epigenetic-regulation-of-endotoxin-response-in-btbr-macrophages/>
5. Spectrum News. Feature article on the Ciernia Lab's work on Autism Spectrum Disorders. September 10th, 2019. <https://www.spectrumnews.org/opinion/q-and-a/beyond-the-bench-a-conversation-with-annie-ciernia/>
6. Spectrum News. Maternal Asthma Alters Immune Cells in Fetal Brain. Feature article on Dr. Ciernia's postdoctoral work on DNA methylation changes in microglia in a mouse model of Autism. November 14th, 2017. <https://www.spectrumnews.org/news/maternal-asthma-alters-immune-cells-fetal-brain/>