Last updated: April 14, 2022

1. CONTACT INFORMATION

Email: lussier.alex@gmail.com
Languages: English (native)
French (native)

2. EDUCATION

2012 – 2017 **Ph.D. in Medical Genetics**
University of British Columbia, Vancouver, BC
Dissertation: *Epigenetic signatures of prenatal alcohol exposure*
Advisors: Michael S. Kobor, Professor, Medical Genetics
Joanne Weinberg, Professor Emerita, Cell. & Physiological Sciences

2009 – 2012 **B.Sc. Honours in Biochemistry**
McGill University, Montréal, QC
Independent research thesis: *Mapping the interactions of the mTORC1*
Honors Thesis: *How do CUX1 and REV1 interact?*
Advisors: Nahum Sonenberg, James McGill Professor, Biochemistry
Alain Nepveu, Professor, Biochemistry

3. RESEARCH EXPERIENCE

2019 – **Postdoctoral Research Fellow**
Center for Genomic Medicine, Massachusetts General Hospital, Boston, MA
Department of Psychiatry, Harvard Medical School, Boston, MA
Stanley Center for Psychiatric Research, Broad Institute, Cambridge, MA
Advisor: Erin C. Dunn, Associate Professor, Psychiatry
Secondary mentor: Kerry J. Ressler, Professor, Psychiatry

2018 – 2019 **Postdoctoral Research Associate**
Department of Computational Biology, Cornell University, Ithaca, NY
Advisors: Alon Keinan, Associate Professor, Computational Biology
Andrew G. Clark, Professor, Molecular Biology and Genetics (*interim)*

Note: This training was cut short due to unforeseen medical issues experienced by Dr. Keinan, leading to a brief publication gap while I found a new postdoctoral position. Dr. Clark acted as my interim supervisor during this transition.

2017 – 2018 **Postdoctoral Research Fellow**
Department of Medical Genetics, University of British Columbia, Vancouver, BC
Advisor: Michael S. Kobor, Professor, Medical Genetics

2012 – 2017 **Doctoral Student**
Department of Medical Genetics, University of British Columbia, Vancouver, BC
Healthy Starts, BC Children's Hospital Research Institute, Vancouver, BC
Advisors: Michael S. Kobor, Professor, Medical Genetics
Joanne Weinberg, Professor Emerita, Cell. & Physiological Sciences

2012 **Undergraduate Research Assistant (Independent research)**
Department of Biochemistry, McGill University, Montreal, QC
Advisor: Nahum Sonenberg, James McGill Professor, Biochemistry

2011 **Undergraduate Research Assistant (Honours thesis)**
Department of Biochemistry, McGill University, Montreal, QC
Advisor: Alain Nepveu, Professor, Biochemistry

4. AWARDS & HONOURS

2022	**Outstanding Research Fellow Mentor Award**, Center for Faculty Development, Massachusetts General Hospital
2022	**Scholarship Award**, 2022 APPA Virtual Meeting
2021	**Outstanding Citizen Award**, Honorable Mention, Massachusetts General Postdoctoral Association, Massachusetts General Hospital
2021	**Poster of Distinction Award**, MGH Scientific Advisory Committee
2020	**Oral Presentation Winner**, Early Career Investigator Program, International Society of Psychiatric Genetics
2020	**Leadership Development Program for Researchers**, Massachusetts General Hospital
2018	**Postdoctoral Leadership Development Program**, Cornell University
2017	**Timothy A. Cudd Award**, Fetal Alcohol Spectrum Disorders Study Group
2016	**Star Trainee Profile**, NeuroDevNet
2016	**Poster Award**, Healthy Starts Research Day
2016	**Conference Scholarship**, International Brain Development Conference
2016	**Student Merit Award**, Research Society on Alcoholism
2016	**Featured Trainee**, Child and Family Research Institute
2016	**Conference Bursary**, International Society for Developmental Neuroscience
2016	**Conference Scholarship**, 3rd Biennial ART-NeuroDevNet Winter Institute
2015	**Young Researcher Award**, International Brain Development Conference
2015	**Poster Award**, International Brain Development Conference
2015	**Conference Scholarship**, International Brain Development Conference
2015	**Student Merit Award**, Research Society on Alcoholism
2015	**Poster Award**, Child and Family Research Institute
2014	**Travel Award**, International Society for Developmental Neuroscience
2012	**Honours Distinction**, McGill University

5. RESEARCH FUNDING

PENDING

Sensitive periods for prenatal alcohol exposure: a longitudinal study of DNA methylation and subsequent mental health

Role:	Principal Investigator (Multi-PI)
Dates	September 1, 2022 – August 31, 2024 (1R21 AA030640-01)
Funder:	National Institute of Alcoholism and Alcohol Abuse (275,000 USD)
Description:	This study will examine relationships among the timing of prenatal alcohol exposure, DNA methylation at birth, and depressive symptom trajectories from age 4-16.5 in two longitudinal birth cohorts to identify the time-varying effects of alcohol on biological pathways and mental health outcomes and generate preliminary data for future grant applications.

Genetic and socio-environmental factors of resilience and enduring mental health

Role:	Principal Applicant
Dates:	April 1, 2022 – March 31, 2024 (CIHR Fellowship)
Funder:	Canadian Institutes of Health Research (100,000 CAD)
Description:	This research fellowship will leverage data from a large-scale longitudinal cohort to examine the genetic and environmental factors that promote enduring mental health from childhood to young adulthood (i.e., the absence of any mental health problem between ages 0-30).

COMPLETED

DNA methylation signatures in a rat model of fetal alcohol spectrum disorder

Role: Principal Applicant
Dates: November 1, 2015 – October 31, 2017
Funder: Brain Canada (70,000 CAD)
Program: Developmental Neurosciences Research Training Fellowship
Description: This research aimed to identify epigenetic signatures of prenatal alcohol exposure in the rat brain and white blood cells across early development.

How do CUX1 and REV1 interact?

Role: Principal Applicant
Dates: June 1, 2011 – August 31, 2011
Funder: McGill University (2,000 CAD)
Program: McGill Integrated Cancer Research Training Program
Description: This summer studentship supported research that examined the interaction between CUX1, a transcription factor involved in breast cancer, and REV1, a translesion polymerase thought to potentially increase mutation rates.

6. PUBLICATIONS

* denotes co-first author $^{\Psi}$ denotes corresponding author ^{Y} denotes mentored trainee

PEER-REVIEWED ARTICLES

Published

1. **Lussier AA** $^{\Psi}$, Zhu Y ^{Y}, Smith BJ ^{Y}, Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Ressler KJ, Dunn EC. Updates to data versions and analytic methods influence the reproducibility of results from epigenome-wide association studies. *Epigenetics*. 2022.
2. Cerutti J ^{Y}, **Lussier AA**, Zhu Y ^{Y}, Liu J ^{Y}, Dunn EC. Associations between indicators of socioeconomic position and DNA methylation: A scoping review. *Clinical Epigenetics*. 2021.
3. **Lussier AA***, Bodnar TS*, Weinberg J. Intersection of epigenetic and immune alterations: Implications for Fetal Alcohol Spectrum Disorder and mental health. *Frontiers in Neuroscience*. 2021.
4. **Lussier AA** $^{\Psi}$, Bodnar TS, Moksa M, Hirst M, Kobor MS, Weinberg J. Prenatal adversity alters the epigenetic profile of the prefrontal cortex: Sexually dimorphic effects of prenatal alcohol exposure and food-related stress. *Genes*. 2021.
5. Gatev E, Inkster AM, Konwar C, Negri GL, **Lussier AA**, Skakkebaek A, Sokolowski MB, Gravholt CH, Dunn EC, Kobor MS, Aristizabal MJ. Autosomal sex-associated co-methylated regions predict biological sex from DNA methylation. *Nucleic Acids Research*. 2021.
6. Mountain RV*, Zhu Y* ^{Y}, Pickett OR, **Lussier AA**, Goldstein JM, Roffman JL, Bidlack FB, Dunn EC. Shed teeth record children's exposure to maternal psychosocial stress and social support during the prenatal and perinatal periods: Results from a prospective cohort study. JAMA Network Open. 2021.
   - ❖ Awarded the Celebration of Science Recognition Award from MGH's Executive Committee on Research in 2021 for outstanding research achievements.
7. Zhu Y ^{Y}, Wang MJ, Crawford KM, Ramírez-Tapia JC, **Lussier AA**, Davis KA, de Leeuw C, Takesian AE, Major Depressive Disorder Working Group of the Psychiatric Genomics

Consortium, Hensch TK, Smoller JW, Dunn EC. Sensitive period-regulating genetic pathways and exposure to adversity shape risk for depression. *Neuropsychophamacology*. 2021.

8. Glickman EA [Y], Choi KW, **Lussier AA**, Smith BJ [Y], Dunn EC. Childhood emotional neglect and adolescent depression: Assessing the protective role of peer social support in a longitudinal birth cohort. *Frontiers in Psychiatry.* 2021.
9. **Lussier AA** [Ψ], Hawrilenko M, Wang MJ, Choi K, Cerutti J [Y], Zhu Y [Y], Major Depressive Disorder Working Group of the Psychiatric Genomics Consortium, Dunn EC. Genetic susceptibility for major depressive disorder associates with trajectories of depressive symptoms in childhood and adolescence. *Journal of Child Psychology and Psychiatry.* 2020.
10. Zhu Y [Y], Simpkin AJ, Suderman MJ, **Lussier AA**, Walton E, Dunn EC, Smith ADAC. A structured approach to evaluating life course hypotheses: Moving beyond analyses of exposed versus unexposed in the omics context. *American Journal of Epidemiology.* 2020.
11. Schaffner SL [Y], **Lussier AA**, Baker JA, Goldowitz D, Hamre KM, Kobor MS. Epigenetic, transcriptional, and apoptotic responses to neonatal alcohol exposure in mice are influenced by sex and brain region. *Frontiers in Genetics.* 2020.
12. Peter Brown, RELISH Consortium, Yaoqi Zhou, Large expert-curated database for benchmarking document similarity detection in biomedical literature search. *Database.* 2019.
13. **Lussier AA** [Ψ], Bodnar TS, Mingay M, Morin AM, Hirst M, Weinberg J, Kobor MS. Prenatal alcohol exposure: profiling developmental DNA methylation patterns in central and peripheral tissues. *Frontiers in Genetics.* 2018.
14. Islam SA, **Lussier AA**, Kobor MS. Epigenetic analysis of human postmortem brain. *The Handbook of Clinical Neurology*. 2018.
15. **Lussier AA**, MacIsaac JL, Morin AM, Salmon J, Weinberg J, Reynolds J, Pavlidis P, Chudley AE, Kobor MS. DNA methylation as a predictor of fetal alcohol spectrum disorder. *Clinical Epigenetics.* 2018.
16. **Lussier AA**, Islam SA, Kobor MS. Genetics and epigenetics of development. In Gibbs R. & Kolb B. (Eds.). *The Neurobiology of Brain and Behavioral Development*. Elsevier Inc. 2018.
17. **Lussier AA**, Weinberg J, Kobor MS. Epigenetics studies of fetal alcohol spectrum disorder: where are we now? *Epigenomics*. 2017.
18. Portales-Casamar E*, **Lussier AA***, Jones MS, MacIsaac JL, Edgar R, Mah SM, Barhdadi A, Provost S, Lemieux-Perreault LP, Chudley AE, Dubé MP, Reynolds J, Pavlidis P, Kobor MS. DNA methylation signature of human fetal alcohol spectrum disorder. *Epigenetics and Chromatin.* 2016.
19. **Lussier AA**, Stepien KS, Weinberg J, Kobor MS. Prenatal alcohol exposure alters gene expression in the rat brain: experimental design and bioinformatic analysis of microarray data. *Data in Brief*. 2015.
20. Fonseca BD, Zakaria C, Jia JJ, Svitkin Y, Tahmasebi S, Healy D, Hoang HD, Jensen JM, Diao IT, **Lussier A**, Dajadian C, Wang W, Matta-Camacho E, Hearnden J, Smith EM, Tsukumo Y, Yanagiya A, Morita M, Petroulakis E, González JL, Hernández G, Alain T, Damgaard CK. Lupus autoantigen related protein 1 (LARP1) is a key repressor of terminal

oligopyrimidine (TOP) mRNA translation downstream of mTOR complex 1 (mTORC1). *Journal of Biological Chemistry.* 2015.

21. **Lussier AA***, Stepien KS*, Neumann SM, Pavlidis P, Kobor MS, Weinberg J. Prenatal alcohol exposure alters steady-state and activated gene expression in the adult rat brain. *Alcoholism: Clinical and Experimental Research.* 2015.

22. Goldowitz D*, **Lussier AA***, Boyle J*, Wong K, Lattimer S, Lu L, Kobor MS, Hamre KH. Molecular mechanisms underlying ethanol-induced neurodegeneration. *Frontiers in Genetics*. 2014.

In revisions

23. **Lussier AA** [Ψ], Zhu Y [Y], Smith BJ [Y], Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Relton C, Ressler KJ, Dunn EC. Sensitive periods for the effect of childhood adversity on DNA methylation: Updated results from a prospective, longitudinal study. *Biological Psychiatry: Global Open Science*. In revisions. Posted to GitHub.

24. Zhu Y [Y], **Lussier AA**, Smith ADAC, Simpkin AJ, Suderman M, Walton E, Relton C, Dunn EC. Examining the epigenetic mechanism of childhood adversity and sensitive periods: a gene set-based approach. *Psychoneuroendocrinology*. In revisions. Posted to medRxiv.

Preprints

25. **Lussier AA** [Ψ], Zhu Y [Y], Smith BJ [Y], Cerutti J [Y], Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Relton CL, Ressler KJ, Dunn EC. A Prospective Study of Time-Dependent Exposures to Adversity and DNA Methylation in Childhood and Adolescence. *Submitted.* Posted to medRxiv.

26. Smith BJ [Y]*, **Lussier AA***, Cerutti J [Y], Simpkin AJ, Smith ADAC, Suderman M, Walton E, Schaid DJ, Ressler KJ, Dunn EC. DNA methylation partially mediates the relationship between childhood adversity and depressive symptoms in adolescence. *Submitted.* Posted to medRxiv.

27. Liu J [Y]*, Cerutti J [Y]*, **Lussier AA**, Zhu Y [Y], Simpkin AJ, Smith ADAC, Dunn EC. Socioeconomic changes predict genome-wide DNA methylation in childhood. *Submitted*. Posted to medRxiv.

BOOK CHAPTERS & EDITORIALS

28. **Lussier AA**, Petrelli B, Hicks GG, Weinberg J. Genetic, Epigenetic, and Environmental Influences on Fetal Alcohol Spectrum Disorder: Implications for Diagnosis, Research, and Clinical Practice. In: Eisenstat, Goldowitz, Oberlander, Yager (eds) *Neurodevelopmental Pediatrics: Genetic and Environmental Influences*. Springer. In press.

29. Raj SM, **Lussier AA**. Molecular and Epigenetic Clocks of Aging. In: Gu D., Dupre M. (eds) *Encyclopedia of Gerontology and Population Aging*. Springer, Cham. 2019.

30. **Lussier AA**, Keinan A. Crowdsourced genealogies and genomes. *Science*. 2018.

7. PRESENTATIONS

ORAL PRESENTATIONS

1. **Lussier AA**, Zhu Y, Smith BJ, Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Dunn EC. A Prospective Study of Time-Dependent Exposures to Adversity and DNA Methylation in Childhood and Adolescence. *World Congress of Psychiatric Genetics*. Virtual Conference. Oral Presentation Awardee. October 2020.

2. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Chudley AE, Weinberg J, Kobor MS. Epigenetic signatures of prenatal alcohol exposure. *Fetal alcohol spectrum disorder study group meeting*, Denver, CO, USA. Timothy A. Cudd Award Presentation. June 2017.
3. Baglot S, Lam V, Lan N, **Lussier AA***. Rooted in Development: Neural Mechanisms Underlying Adverse Outcomes of Prenatal Alcohol Exposure Across the Lifespan. *7th International Conference on Fetal Alcohol Spectrum Disorder*, Vancouver, BC, Canada. Symposium. March 2017.
4. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Weinberg J, Kobor MS. Prenatal alcohol exposure alters epigenetic patterns in the rat hypothalamus and white blood cells. *3rd Biennial ART-NeuroDevNet Banff Winter Institute*, Banff, AB, Canada. March 2016.
5. **Lussier AA**, Bodnar T, Comeau W, Mingay M, Hirst M, Kobor MS, Weinberg J. Prenatal alcohol exposure alters the DNA methylation profile of the rat hypothalamus and white blood cells. *International Brain Development Conference*, Ottawa, ON, Canada. Young Researcher Award Presentation. September 2015.
6. Bodnar T, Holman P, Lan N, **Lussier AA***, Raineki C. Early Origins of Health and Disease: Effects of the Prenatal Environment on Fetal and Infant Responses. *6th International Conference on Fetal Alcohol Spectrum Disorder*, Vancouver, BC, Canada. Symposium. April 2015.
7. Comeau W, Holman P, Lam V, Lan N, **Lussier AA***. Windows of Vulnerability Across Development: Insight from an Animal Model of FASD. *6th National Biennial Conference on Adolescents and Adults with Fetal Alcohol Spectrum Disorder: Changing the Conversation*, Vancouver, BC, Canada. Symposium. April 2014.
8. **Lussier AA**, Hamre K, Goldowitz D, Kobor MS. Acute ethanol exposure alters the histone modification profile in the mouse brain. *Annual meeting of the Fetal Alcohol Spectrum Disorder Study Group*, Orlando, FL, USA. June 2013.

POSTER PRESENTATIONS

1. **Lussier AA**, Zhu Y, Smith BJ, Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Relton CL, Ressler KJ, Dunn EC. A prospective study of time-dependent exposures to adversity and DNA methylation in childhood and adolescence. *American Psychopathological Association*. Virtual meeting. Poster presentation. March 2022.
2. **Lussier AA**, Zhu Y, Smith BJ, Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Dunn EC. A Prospective Study of Time-Dependent Exposures to Adversity and DNA Methylation in Childhood and Adolescence. *Scientific Advisory Committee*, *Massachusetts General Hospital*. Virtual meeting. Poster of Distinction Winner. April 2021.
3. **Lussier AA**, Zhu Y, Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Dunn EC. A cautionary note: Updates to processing pipelines and analytic methods alter results from epigenome-wide association studies. *Epigenomics of Common Disease*. Virtual meeting. November 2020.
4. **Lussier AA**, Zhu Y, Smith BJ, Simpkin AJ, Smith ADAC, Suderman MJ, Walton E, Dunn EC. The timing of childhood adversity is associated with longitudinal patterns of DNA methylation during childhood and adolescence. *American Society of Human Genetics Annual Conference*. Virtual meeting. October 2020.
5. **Lussier AA**, Hawrilenko M, Wang MJ, Choi K, Cerutti J, Zhu Y, Dunn EC. Genetic contributions to depressive symptom trajectories across development. *Clinical Research Day, Massachusetts General Hospital*, Boston, MA, USA. October 2019.

6. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Chudley AE, Weinberg J, Kobor MS. Epigenetic signatures of prenatal alcohol exposure. *Brain-Child-Partners Conference*, Toronto, ON, Canada. November 2017.
7. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Kobor MS, Weinberg J. DNA methylation signatures of prenatal alcohol exposure. *40th Annual Scientific Meeting of the Research Society on Alcoholism*, Denver, CO, USA. June 2017.
8. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Kobor MS, Weinberg J. Prenatal alcohol exposure alters DNA methylation during early development. *Healthy Starts Research Day*, BC Children's Hospital Research Institute, Vancouver, BC, Canada. Poster Award Winner. November 2016.
9. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Kobor MS, Weinberg J. Prenatal alcohol exposure alters DNA methylation throughout early development. *International Brain Development Conference*, Calgary, AB, Canada. September 2016.
10. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Kobor MS, Weinberg J. Prenatal alcohol exposure alters DNA methylation patterns across early postnatal development. *39th Annual Scientific Meeting of the Research Society on Alcoholism*, New Orleans, LA, USA. June 2016.
11. **Lussier AA**, Bodnar T, Mingay M, Hirst M, Weinberg J, Kobor MS. Prenatal alcohol exposure alters the developmental DNA methylation profile of the rat hypothalamus. *21st Biennial Meeting of the International Society for Developmental Neuroscience*, Antibes, France. May 2016.
12. **Lussier AA**, Bodnar T, Comeau W, Mingay M, Hirst M, Kobor MS, Weinberg J. Prenatal alcohol exposure alters the DNA methylation profile of the rat hypothalamus and white blood cells. *International Brain Development Conference*, Ottawa, ON, Canada. Poster Award Winner. September 2015.
13. **Lussier AA**, Bodnar T, Comeau W, Mingay M, Hirst M, Weinberg J, Kobor MS. Prenatal alcohol exposure alters DNA methylation patterns in the rat hypothalamus. *Child & Family Research Institute 15th Trainee Research Forum*, Vancouver, BC, Canada. Poster Award Winner. June 2015.
14. **Lussier AA**, Bodnar T, Comeau W, Mingay M, Hirst M, Kobor MS, Weinberg J. Prenatal alcohol exposure alters the developmental methylation profile of the rat hypothalamus. *Development, Functions, and Disorders of the Nervous System*, Montreal, QC, Canada. July 2014.
15. **Lussier AA**, Bodnar T, Comeau W, Mingay M, Hirst M, Weinberg J, Kobor MS. Developmental Methylation Profile of Rats Prenatally Exposed to Alcohol. *Child & Family Research Institute 14th Trainee Research Forum*, Vancouver, BC, Canada. June 2014.
16. **Lussier A**, Goldowitz D, Hamre K, Kobor MS. Acute Ethanol Exposure Alters Histone Modifications and Apoptotic Gene Expression in the Mouse Brain. *International Brain Development Conference*, Vancouver, BC, Canada. September 2013.
17. **Lussier A**, Goldowitz D, Hamre K, Kobor MS. Acute Ethanol Exposure Alters the Histone Modifications in the Mouse Brain. *Child & Family Research Institute 13th Trainee Research Forum*, Vancouver, BC, Canada. June 2013.

SEMINARS & LECTURES

1. **Invited Talk**, "Social and biological determinants of mental health: in search of sensitive periods in development". Marion Mason Seminar, Simmons University, Boston, MA, USA.

April 2022.

2. **Invited Talk**, "Rigor and reproducibility in epigenome-wide association studies". Medical and Population Genetics Primer, Broad Institute, Cambridge, MA, USA. March 2022.
3. **Seminar**, "Stress exposure, DNA methylation, and risk for depression: in search of sensitive periods in development". Project Viva Co-Investigator Meeting, Harvard Medical School, Boston, MA, USA. April 2021.
4. **Seminar**, "Does the timing of early adversity impact DNA methylation in adolescents?". Trauma Genomics Group Meeting, Massachusetts General Hospital, Boston, MA, USA. April 2020.
5. **Invited Talk**, "Epigenetic signatures of prenatal alcohol exposure." Department of Psychiatry, University of Illinois Chicago, Chicago, IL, USA. October 2017.
6. **Invited Talk**, **"**Epigenetic signatures of prenatal alcohol exposure." Department of Biological Statistics and Computational Biology, Cornell University, Ithaca, NY, USA. October 2017.
7. **Seminar**, "Epigenetic signatures of prenatal alcohol exposure." Department of Medical Genetics, University of British Columbia, Vancouver, BC, Canada. March 2017.
8. **Seminar**, "Epigenetic Signatures in a Rat Model of Fetal Alcohol Spectrum Disorder." Child & Family Research Institute Seminar Series, Vancouver, BC, Canada. February 2015.
9. **Seminar**, "Prenatal Alcohol Exposure Alters Steady-State and Activated Gene Expression in the Adult Rat Brain". Department of Cellular and Physiological Sciences, University of British Columbia, Vancouver, BC, Canada. January 2015.

8. TEACHING TRAINING

2018 – 2019 **GET SET Workshops,** Center for Teaching Innovation
Cornell University, Ithaca, NY

- Participated in over 20 hours of small group teaching workshops, which focused on developing a diverse set of skills to effectively teach students at the undergraduate and graduate level and emphasized active learning approaches. Specific certificates and workshops are outlined below.
- *Certificate*: Assessing Teaching and Learning
  - *Modules:* Grading effectively; Designing student assessment to evaluate yourself as a teacher; Using classroom assessment techniques to evaluate student learning.
- *Certificate:* Course Design
  - *Modules:* Universal design for learning; Designing learning outcomes; Designing online course modules.
- *Certificate:* Creating an engaging classroom
  - *Module:* Building a collaborative learning environment.
- *Certificate:* Developing a Professional Identity in Teaching
  - *Module:* Enhancing your communication skills for teaching.
- *Certificate:* Enhancing Teaching with Technology
  - *Modules:* Integrating technology into your classes; Creating Effective Questions for iClickers and Online Quizzes; Digital Storytelling.
- *Certificate:* Innovative Approaches in Pedagogy

- *Modules:* Strategies to incorporate high-impact teaching practices; Developing service-learning in the disciplines.

- *Certificate:* Teaching Research Skills
  - *Modules:* Teaching scholarly research skills; Teaching your students how to critically read primary literature; Using your research experience to improve your teaching.
- *Certificate:* Understanding Undergraduate Learners
  - *Modules:* Holding effective office hours; Teaching and mentoring across differences.

2017 **Instructional Skills Workshop,** Centre for Teaching, Learning and Technology
University of British Columbia, Vancouver, BC

- Three-day, 24-hour professional development course that develops and enhances instructional skills for teaching large groups of students.
- Specifically designed around mini-lessons and participatory learning, providing participants with the opportunity to practice their lessons and receive feedback from their peers and instructors.
- Focused on critical feedback, participatory learning approaches, lesson planning techniques, and class design.

9. TEACHING EXPERIENCE

Feb 2022 **Lecturer**, Emerging Biosciences – Straight from the Lab
Beacon Hill Seminars, Boston, MA

- This lecture was designed for people seeking to forward their intellectual growth. The group ranged from college students to senior citizens.
- Prepared a 1-hour lecture on sensitive periods, including their role in the development of neurobiological systems, health, and disease, as well as the genetic and epigenetic mechanisms that regulate their functions.
- The teaching session included a didactic portion, interactive learning activities to promote engagement and knowledge retention (e.g., classroom surveys; minute paper), and a Q&A period.

July 2017 **Lecturer**, Global Genetics
Future Global Leaders Program, University of British Columbia, Vancouver, BC

- This summer program was aimed at advanced program high-school students, providing them with the opportunity to explore their academic interests and prepare for their university programs.
- Prepared and taught a three-hour class on the genetic mechanisms and neurobiological pathways that influence brain development and processing.
- Used the BOPPPS model for lesson planning, preparing and implementing active learning methods (think-pair-share; case study).

July 2016, 2017 **Instructor**, Introduction to Genetics
Science 101 Program, University of British Columbia, Vancouver, BC

- This program is geared towards adults who have historically been unable to access university, providing introductory science education on a variety of topics.
- Prepared and taught a two-hour lesson on genetics and evolution.
- Prepared and taught a two-hour lesson on epigenetics and health.
- Implemented a hands-on learning activity to complement the lesson plans

(extraction of DNA from saliva using everyday materials).

2005 – 2009 **Competitive Swimming Coach**, Regional, Provincial, and Masters levels
Équipe de Natation de Cowansville, Cowansville, QC

- Qualified as a Fundamentals Coach (level 1) from the National Coaching Certification Program (Canada).
- Prepared and taught basic swimming lessons for children ages 3-10.
- Prepared workouts and coached regional- and provincial-level competitive swimmers aged 10-17, as well as Masters-level swimmers aged 25-70.
- Provided feedback and instruction on swimming technique to improve stroke proficiency and maximize performance.
- Set individual learning and improvement standards for swimmers.
- Organized swimming competitions, including race registrations and travel.
- Attended regional and provincial swimming competitions, providing support and feedback to swimmers before, during, and after races.

10. MENTORSHIP EXPERIENCE

Sonenberg lab, McGill University

During my independent research studies and the summer following my undergraduate degree, I mentored two summer students. I was specifically responsible for teaching skills related to:

- Designing experiments for biochemical assays and maintaining a lab notebook.
- Performing biochemical and molecular biology techniques, including as western blots, southern blots, cell culture, cloning, transfection, and immunoprecipitation.
- Mentees:
  1. Christopher Dajadian, summer student, Sonenberg lab 2012
     - 1 secondary author paper published.
  2. Niranjan Padmanabhan, summer student, Sonenberg lab 2012
     - 1 secondary author paper published.

Kobor lab, University of British Columbia

During my graduate degree, I directly supervised a doctoral student and a high school student. I managed part of their research responsibilities, while also teaching them key skills, such as:

- Designing and performing epigenomic and transcriptomic analyses, including quantitative PCR, western blots, bisulfite pyrosequencing, next-generation sequencing, microarray analyses, primary tissue extractions from animal samples, and basic analyses using R.
- Writing, submitting, and revising research manuscripts and fellowships.
- Mentees:
  3. Samantha Schaffner, PhD candidate, Kobor lab 2015 – 2017
     - CIHR doctoral fellowship.
     - 1 primary article published.
     - 2 primary manuscripts in preparation.
  4. Sophie Brauer, summer student, Kobor lab 2014

Clark and Keinan labs, Cornell University

During my postdoctoral training, I supervised and mentored four doctoral students during their graduate program rotations, as well as one undergraduate honors student. I mentored these students in several domains, including:

- Analyzing genetic data in R, python, and using command-line interfaces.
- Writing an honors thesis and effectively presenting research findings on a poster.
- Applying for graduate programs and fellowships.

- Designing population and statistical genetics experiments.
- Testing hypotheses using high-dimensional computational approaches.
- Mentees:

5. Mitchell Lokey, PhD student, Clark lab 2019
6. Catherine Kagemann, PhD student, Clark lab 2019
7. Runxi Shen, PhD student, Keinan lab 2018
8. Weilin Xu, PhD student, Keinan lab 2018
9. Rosa Ma, Honors student, Keinan lab 2018
    - NSF fellowship honorable mention (2020).
    - Completing a PhD in Genetics at Stanford University (Gitler lab; 09/2018).

Dunn lab, Massachusetts General Hospital

In my current position as a postdoctoral fellow, I have supervised and mentored 12 scientists, including two doctoral students, four undergraduate students, one high school student, and six research staff. Beyond managing many of their day-to-day research activities, I have mentored them in several different areas, through both successes and failures. These include:

- Analyzing high-dimensional genetic, epigenetic, and epidemiological data using computational approaches in R, python, and command-line interfaces.
- Critically reading and assessing primary literature.
- Writing, submitting, and revising primary research manuscripts and reviews.
- Writing and submitting abstracts, research fellowships, and honors theses.
- Reviewing research manuscripts during the peer-review process.
- Preparing and presenting research presentations for oral and poster sessions.
- Applying to graduate programs and research positions.
- Mentees:

10. Yiwen Zhu, PhD student, Harvard T.H. Chan School of Public Health 2019 – present
    - Former mentored data analyst in the lab (2019 – 2020).
    - 4 poster presentations.
    - 3 first or co-first author papers published.
    - 1 first author paper in revisions.
    - 2 secondary author papers published.
    - 5 secondary author papers in revisions or submitted.
11. Jessie Liu, PhD student, Harvard T.H. Chan School of Public Health 2019 – present
    - 3 posters presentations.
    - 1 co-first author paper submitted.
    - 1 secondary author paper published.
12. Samantha Stoll, Clinical research coordinator 2021 – present
13. Nitasha Siddique, Clinical research coordinator 2021 – present
14. Malhaar Agrawal, Undergraduate research assistant 2021 – present
15. Natasha Wood, Fulbright Doctoral Scholar 2022 – present
16. Janine Cerutti, Clinical research coordinator 2019 – 2021
    - 3 poster presentations.
    - 1 first author paper published.
    - 1 co-first author paper submitted.
    - 2 secondary author papers published.
    - 2 secondary author papers submitted.
    - Began Clinical Psychiatry PhD program at University of Vermont (09/2021).
17. Brooke Smith, Data analyst 2020 – 2021

- ❖ 1 first author paper submitted.
- ❖ 3 secondary author papers in revisions or submitted.
- ❖ 1 first author chapter published.
- ❖ 1 international conference presentation.
- ❖ Began analyst position at Modern Health (09/2021).

18. Daniella Gomez-Ochoa, Honors student, Harvard University 2019 – 2021
    - ❖ Graduated *Magna Cum Laude* (top 20% of research theses).
    - ❖ Mary Gordon Roberts Fellowship (2020).
    - ❖ PRISE Fellowship (2020).
19. Jeanine Nasser, Co-op student, Northeastern University 2021
20. Emma Glickman, Research coordinator 2019 – 2021
    - ❖ 2 poster presentations.
    - ❖ 1 primary paper published.
    - ❖ Began Postbaccalaureate Premedical Program at Bryn Mawr College (04/2021).
21. Elizabeth Leblanc, Co-op student, Northeastern University 2020
22. Olivia Sterns, Co-op student, Northeastern University 2019
23. Krista Caasi, Summer student, Massachusetts General Hospital 2019

11. OTHER PROFESSIONAL TRAINING

2020 – 2021 **Leadership Development Program for Researchers**
Massachusetts General Hospital, Boston, MA
- ❖ Competitive course designed to prepare investigators for challenges inherent in establishing and maintaining a successful research program.
- ❖ Developed leadership skills to effectively manage conflict, increase research impact, give and receive better feedback, hire the best people, mentor and be mentored, manage research finance, advance research programs, and create a research vision.

2020, 2021 **Didactics Sessions, Translational Neuroscience Training for Clinicians**
Massachusetts General Hospital, Boston, MA
- ❖ Audited didactics sessions that spanned career development and global principles of clinical-translational research to specific technical and disease areas surrounding translational neuroscience.

2021 **Stress Resiliency Program for Postdocs**
Mass General Brigham
- ❖ Participated in the inaugural program for the development of skills related to stress management and resilience, geared towards clinical and research fellows at Mass General Brigham (MGB).

2019 – 2020 **Practical Introduction to Statistical Genetics**
Massachusetts General Hospital, Boston, MA
- ❖ Learned key analytical methods in statistical genetics, including genome-wide associations, statistical fine-mapping, heritability and genetic correlation, polygenic risk scores, mendelian randomization, and research using large-scale biobanks.

2018 – 2019 **Postdoctoral Leadership Development Program**
Cornell University, Ithaca, NY
- ❖ Highly competitive program for postdoctoral fellows at Cornell.
- ❖ Developed leadership skills to effectively manage research groups

comprised of individuals with different personal styles and lived experiences through periods of conflict and change, while gaining an understanding of the management structures of research institutions.

2018 **Summer Institute in Statistical Genetics**
University of Washington, Seattle, WA
- ❖ Advanced Population Genetics
- ❖ Integrative Genomics
- ❖ Statistical and Quantitative Genetics of Disease

12. AD HOC REVIEWER

Journals

BMC Genomics (1)
Clinical and Translational Medicine (1)
Epigenetics & Chromatin (1)
Nature Genetics (1)
Nutrients (1)
Psychological Medicine (5)
Scientific Reports (1)
Clinical Epigenetics (1)
Epigenetics (1)
Lancet Psychiatry (1)
Neuropsychopharmacology (2)
Physiological Genomics (1)
Reproductive Toxicology (1)
Yale Journal of Biology and Medicine (1)

Translation (English to French)
CEECD / SKC-ECD Top 10 bulletin on the best Canadian ECD research in 2013-2014

13. PROFESSIONAL ACTIVITIES

2021 – **Vice Chair**, Executive Board

2020 – 2021 **Chair**, Careers in Academia Subcommittee
Massachusetts General Hospital Postdoc Association, Boston, MA
- ❖ Organize events and panels to provide insight into various facets of academia for postdoctoral fellows.

2020 – **Postdoctoral representative,** Postdoctoral Division Committee
Massachusetts General Hospital, Boston, MA
- ❖ Represent postdoctoral fellows across the hospital and help promote research training programs that will benefit their career development.

2015 – 2017 **Chair**, Trainee Advisory Committee
Kid's Brain Health Network, Vancouver, BC
- ❖ Organized and lead bi-monthly meetings for committee members to assess the efficacy of training programs across all three research cores.
- ❖ Developed and coordinated trainee activities throughout the year and during the annual network conference.

2016 – 2017 **Trainee representative,** Research Training Committee
Kids Brain Health Network, Vancouver, BC
- ❖ Represented trainees and the advisory committee to upper levels of the network during bimonthly meetings with investigators from across Canada.

2013 – 2015 **Coordinator**, Graduate Student Committee
Department of Medical Genetics, University of British Columbia, Vancouver, BC
- ❖ Helped organize yearly departmental events (September Welcome Day; Research Day).

2015 **Student representative**, Five Year Review Committee
Department of Medical Genetics, University of British Columbia, Vancouver, BC
- Represented graduate students during the department's external review to ensure student representation in the program's 5-year plan.

2013 **Student representative,** Annual Advisory Committee
Department of Medical Genetics, University of British Columbia, Vancouver, BC
- Voiced student concerns and opinions regarding the department's direction for the next academic year and beyond.

14. SOCIAL SERVICE & OTHER PROFESSIONAL EXPERIENCE

2013 – 2017 **Adapted aquatics instructor**
George Pearson Center, Vancouver, BC
- Assisted adults with severe physical and mental handicaps with weekly aquatic exercises to enhance their body mechanics and quality of life.

2013 – 2017 **Tours and demonstrations**
BC Children's Hospital Research Institute, Vancouver, BC
- Demonstrated research techniques to promote STEM careers for students
- Showcased research to donors of the hospital and research institute.

2016 **Knowledge translation consultant**
NeuroDevNet, Vancouver, BC
- Translated scientific profiles into lay summaries for the network's website.

2013 – 2015 **Editor-in-chief**, Ideas, Number, and Knowledge Journal
University of British Columbia, Vancouver, BC
- Promoted knowledge translation and interdisciplinary dialogue.
- Managed a team of 10+ students to produce a bi-yearly issue.
- Coordinated double-blinded peer-reviews and edit articles.
- Performed administrative duties relating to marketing and budgeting.

15. PROFESSIONAL SOCIETIES

2020 – Member, American Society of Human Genetics
2020 – Member, International Society of Psychiatry Genetics
2018 – 2019 Associate Faculty Member, Faculty of 1000
2013 – 2017 Member, Research Society on Alcoholism
2012 – 2017 Member, Kids Brain Health Network (formerly NeuroDevNet)