

Dr. Ian Weaver graduated with his BSc from Aberdeen University (Scotland) and earned his MSc at Bristol University (England) and PhD at McGill University (Montreal, Canada). Dr. Weaver completed his post-doctoral training at The Hospital for Sick Children and the Centre for Addiction and Mental Health (Toronto, Canada). In 2012, he began a position as an Assistant Professor in Developmental Molecular (Epi)genetics and Genomics in the Departments of Psychology and Neuroscience (and cross-appointed to Psychiatry and Pathology) at Dalhousie University (Halifax, Canada). He has over 17 years of experience investigating the neurobiological processes underlying stress and anxiety-related phenotypes, with a particular interest in chromatin, metabolism and immune function, and their roles in metabolic disease and developmental disorders, such as Autism Spectrum disorder and Schizophrenia (a).

Dr. Weaver was the first to describe epigenetic programming by parental care as a model for experience-dependent chromatin plasticity (i.e., behavioral epigenetics) (b). His research demonstrated that hippocampal Glucocorticoid Receptor expression is elevated through collaboration of the nuclear protein NGFI-A and DNA methylation machinery, providing a mechanistic link between social experience, epigenetic marks and gene expression programs in neural circuits that support stress responses (c). His lab's recent efforts are focused on amino acid metabolism and epigenetic marks that develop in a brain-region-specific manner that can contribute to neurodegeneration (d) and the persistent effects of preconception parental experience on developmental programming, with a focus on social-emotional behavior (e).

His research program uses a variety of approaches (e.g., electroporation, epi-fluorescent microscopy, pyrosequencing, real-time qPCR, video tacking), which is essential for the molecular, cellular, physiological and behavioural evaluation of the stable *Atrx* transgenic mouse colony and primary culture systems Dr. Weaver's group uses to model autistic-like phenotypes.

Dr. Weaver co-authored a free online 'Introduction to Psychology' college level textbook <http://www.nobaproject.com/modules/epigenetics-in-psychology> and is the Genetics Certificate Coordinator at Dalhousie University and the Atlantic Canada Chapter Lead for The Canadian Developmental Origins of Health and Disease Society (www.dohad.ca). His research group is well positioned for training students in high-throughput (epi)genetic profiling and integrative analysis of human post-mortem tissue, animal models and cell culture systems.

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- b. Weaver, I.C.G., Cervoni N., Champagne F.A., D'Alessio A.C., Sharma S., Seckl J.R., Dymov S., Szyf M., & Meaney M.J. 2004 Epigenetic programming by maternal behavior. *Nature Neuroscience*. Aug; 7(8): 847-54.
- c. Weaver, I.C.G., Champagne F.A., Brown S.E., Dymov S., Sharma S., Meaney M.J., & Szyf M. 2005 Reversal of maternal programming of stress responses in adult offspring through methyl supplementation: altering epigenetic marking later in life. *J. Neuroscience*. Nov; 25(47): 11045-54.
- d. Kennedy, B.E., Hundert, A.S., Goguen, D., Weaver, I.C.G., & Karten, B. 2016. Pre-symptomatic alterations in amino acid metabolism and DNA methylation in the cerebellum of a murine model of Niemann-Pick Type C disease. *American Journal of Pathology*. 186(4): 964–877.
- e. Korgan, A.C., O'Leary, E., King, J., Weaver, I.C.G., and Perrot, T.S. 2018. Effects of paternal high-fat diet and rearing environment on maternal investment and development of defensive responses in the offspring. *Psychoneuroendocrinology*. May; 91: 20-30