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Inmed Conference Room

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Epigenetic consequences of child abuse: a lifelong vulnerability to depression

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Child abuse has devastating and long-lasting consequences, considerably increasing the lifetime risk of negative mental health outcomes such as depression and suicide. Yet the neurobiological processes underlying this heightened vulnerability remain poorly understood. The work conducted by our group in Montréal, the McGill Group for Suicide Studies, investigates the potential role of epigenetic mechanisms in mediating the long-term effects of early-life adversity. During this seminar, I will present and discuss results from two of our recent studies. First, we recently provided a set of converging evidence suggesting that a history of child abuse associates in the anterior cingulate cortex with epigenetic, transcriptional, and morphological impairments in myelination, a fundamental feature of cerebral connectivity. Ultimately, we propose that persistent myelin alterations induced in this structure by child abuse may contribute to behavioral dysregulation and the emergence of interpersonal difficulties, thereby potentiating the risk of depression and suicide in affected individuals. The second study focused on the brain amygdala, and investigated multiple epigenetic layers, including DNA methylation and histone modifications. In particular, we explored the hypothesis that child abuse might potentially impact on a newly identified, brain-enriched form of DNA methylation called non-CG methylation. While the role of non-CG methylation in physiological brain functioning is only starting to be uncovered, our results suggests that it may also represent an abundant and previously uncharacterized source of epigenetic plasticity that contributes to psychopathology.