

Presentation Abstract Submission

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Research Title	Effect of Maternal Obesity on Embryonic brain development and Neurogenesis through epigenetic mechanisms

Abstract:

Neurodevelopmental disorders have a complex etiology that might be similar and start very early-on during embryonic development through the involvement of epigenetic mechanisms. Our research shows that saturated fatty acids alter developmental neurogenesis due to reduced progenitor proliferation and increased differentiation into neurons. Histone modification induced by the change in expression of enzymes SIRT1 (histone deacetylase), LSD1 (histone demethylase) and EZH2 (histone methyl transferase), regulate signaling pathways and affect the expression of several transcription factors responsible for de novo fatty acid and cholesterol biosynthesis, possibly leading to defective neurogenesis. This study uses the rat model of maternal obesity and pluripotent human embryonic stem cells' directed differentiation into cortical neurons for the identification and functional validation of novel molecular mechanism/s of saturated fatty acid mediated alterations on embryonic neurodevelopment at the transcriptional/epigenetic level. This could be critical in the development of preventative strategies and therapeutic interventions for Neurodevelopmental Disorders. Keywords— fatty acid metabolism, neurodevelopmental disorders, epigenetic mechanisms, embryonic stem cells, cortical neurons