Serotonin Transporter Polymorphism and Stress Effects on Gut Microbiota at Various Time Points in Pregnancy

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ABSTRACT

Prenatal stress (stress experienced by the mother while pregnant) has been shown to greatly affect the health of a child. Still, not all offspring who experience prenatal stress will suffer poor outcomes. Maternal genetics and the timing of adverse events have been shown to interact to affect the likelihood that a child will be affected by prenatal stress. However, the mechanisms behind this interaction are not fully understood. One potential mechanism is the maternal gut microbiome (the community of bacteria residing in the mother’s gut). The current study used a mouse model of genetic stress susceptibility, combined with a daily restraint stress during pregnancy to examine alterations in the maternal gut microbiome due to an interaction between genes and stress. While pregnancy was found to alter the microbiome differently at various time-points in pregnancy, there was no significant interaction between genes and stress. However, as the sample size was quite small and there were trending results, we believe there is good evidence to continue exploration of the effects of stress and genetics on the maternal microbiome.