

## **Materno-Fetal Crosstalk. The First Lullaby**

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Materno-fetal communication is a crucial and complex process that occurs throughout pregnancy, facilitating the exchange of nutrients, oxygen, hormones, and other compounds between the mother and the developing fetus. This interaction involves various adaptive systems such as the secretion of molecules into the endometrial fluid, placenta, and umbilical cord, as well as the roles of maternal and fetal hormones. The mother provides essential resources for fetal growth, while the fetus also influences maternal physiology, demonstrating mutual adaptation and cooperation. Maternal genetic information can be transmitted to the embryo before pregnancy begins, potentially modifying gene expression and physiology. This communication occurs through small molecules and extracellular vesicles, which contain microRNAs, mitochondrial DNA and other molecules that can enter the embryo and alter its development. Materno-fetal communication impacts the risk of diseases such as diabetes, obesity, and cardiovascular diseases in adulthood, influenced by the uterine environment during pregnancy. Understanding this communication can lead to improved reproductive health strategies, optimized fertility and pregnancy success, and prevention of diseases by identifying factors affecting the uterine environment.