Exosomes from risk factor-exposed uterine cells cause a fetal cell inflammatory response

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Video Byte

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Abstract

Fetal cell-derived exosomes are known to induce inflammatory changes in maternal decidual and myometrial cells to signal parturition. However, maternal cell-derived exosomes and their effects on fetal cells are not well understood. To learn more, researchers recently characterized exosomes from decidual and myometrial cells grown under normal or oxidative stress/inflammatory conditions and assessed these exosomes' impacts on fetal amnion epithelial cells (AECs) and chorion trophoblast cells (CTCs). The exosomes from both maternal cell types were round and expressed exosome markers. Neither exosome size nor quantity differed between the control group and the groups treated with cigarette smoke extract (CSE) or TNF- α . Numerous proteins were common to all kinds of exosomes, while others were associated with exosomes from a specific cell type or treatment group. Compared with control exosomes, exosomes from exposed maternal cells increased the release of pro-inflammatory cytokines from fetal cells, as well as the release of the anti-inflammatory factor IL-10 from CTCs. Although functional validation is needed, the findings suggest that maternal pathologies can cause cell type-dependent inflammatory responses in fetal cells and lay a foundation for further research on microparticle-mediated communication between maternal and fetal cells.