

Extracellular vesicles as biomarkers in endometriosis and reproductive diseases

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Endometriosis is a chronic inflammatory condition associated with an increased risk of infertility. It is defined by the presence of tissue that resembles the endometrium, located outside the uterus, primarily affecting the pelvic organs and tissues. Extracellular vesicles (EVs) have been suggested as potential biomarkers for endometriosis due to their ability to carry multiple molecules that are associated with the condition. Small EVs from the peritoneal fluid of women with endometriosis, women without endometriosis undergoing surgery for benign, non-inflammatory conditions, and follicular fluid samples during treatment with assisted reproductive technology were isolated. Atomic force microscopy was used to measure the combined morphological and nanomechanical characteristics of individual particles. The ExoView R100 platform was used to explore the CD9/CD63/CD81/PD-L1 pattern. The extent of platelet activation was determined using nano-flow cytometry, which analyzed two unique platelet biomarkers. Raman spectroscopy was used to analyze the biochemical profiles of the small EVs. The results showed clear differences in the profiles of peritoneal fluid and follicular fluid, as well as variations between individuals with and without endometriosis.