Group #29

Advancing Noninvasive Diagnostics for Endometriosis

Team Members: Janet Rodriguez
Mentor: Dr. Pranav Sharma, Xosomix

Abstract

Endometriosis is a chronic inflammatory disease that affects approximately 10% of reproductive-age individuals and is often associated with delayed diagnosis due to reliance on invasive surgical procedures and inconsistent symptom evaluation. This project focuses on developing a reproducible menstrual effluent (ME) purification pipeline for exosome isolation to support future noninvasive diagnostic approaches for endometriosis. Multiple purification methods involving ultracentrifugation, plasma separation, and storage conditions were compared to evaluate differences in exosome purity, yield, and downstream compatibility with protein analysis techniques such as western blotting. Biomarker-associated proteins, including Alix and Flotilin, were analyzed to assess exosome presence and overall sample quality. Results demonstrated that the proposed pipeline can support reproducible exosome isolation while highlighting future needs for improved sterility, reduced variability, and expanded participant accessibility.