50) Exploration of the Shared Gene and Molecular Mechanisms Between **Endometriosis** and Recurrent Pregnancy Loss.

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**Abstract**

Endometriosis (EMs) is a common benign gynecological disease in women of childbearing age, which usually causes pelvic pain, secondary dysmenorrhea, and infertility. EMs has been linked to recurrent pregnancy loss (RPL) in epidemiological data. The relationship of both, however, remains unknown. The purpose of this study is to explore the underlying pathological mechanisms between EMs and RPL. We searched Gene Expression Omnibus (GEO) database to obtain omics data of EMs and RPL. Co-expression modules for EMs and RPL were investigated by using weighted gene co-expression network analysis (WGCNA). The intersections of gene modules with the strong correlation to EMs or RPL obtained by WGCNA analysis were

considered as shared genes. MicroRNAs (miRNAs) and their corresponding target genes linked to EMs and RPL were found though the Human MicroRNA Disease Database (HMDD) and the miRTarbase database. Finally, we constructed miRNAs-mRNAs regulatory networks associated with the two disorders by using the intersection of previously obtained target genes and shared genes. We discovered as significant modules for EMs and RPL, respectively, by WGCNA. The energy metabolism might be the common pathogenic mechanism of EMs and RPL, according to the findings of a Kyoto Encyclopedia of Genes and Genomes (KEGG) enrichment analysis. We discovered several target genes that might be linked to these two disorders, as well as the potential mechanisms. RAB8B, GNAQ, H2AFZ, SUGT1, and LEO1 could be therapeutic candidates for RPL and EMs. The PI3K-Akt signaling pathway and platelet activation were potentially involved in the mechanisms of EM-induced RPL. Our findings for the first time revealed the underlying pathological mechanisms of EM-induced RPL and identified several useful biomarkers and potential therapeutic targets.

**Keywords:** PI3K-Akt signaling pathway; WGCNA; endometriosis; miRNAs-mRNAs; platelet activation; recurrent pregnancy loss.