**Supplemental Figure 1: Experimental and analytic workflow**

**Recruitment and screening**

**Clinical phenotyping**
1. Daily symptom tracking over 3 cycles
2. Structured Clinical Interview
3. Hormone manipulation (leuprolide + add-back)

**Patient-derived lymphoblastoid cell lines (LCLs)**

**Asymptomatic Controls (n=9)**

**PMDD (n=10)**

**Cell culture & hormone treatments**

Untreated (n=9)

E2-treated (n=5)

P4-treated (n=7)

Untreated (n=10)

E2-treated (n=8)

P4-treated (n=7)

**RNA sequencing**

**RNAseq samples (n = 46)**

*Module-level analysis*

*Gene-level analysis*

**Transcriptomic Analysis**

*WGCNA*

*EdgeR*

Differentially Regulated Modules

Differentially Regulated Genes (E2-DRGs, P4-DRGs)

*GSEA*

*qRT-PCR*

*GeneMANIA*

Enriched gene sets

Validated DRGs

Gene interaction network

*LEA*

LEA subset

*Enrichr*

*Literature Review*

**Functional Assay**

**Physiologic pathway of interest**