Supplemental Data Legends

**Supplemental Tables:** 

#### Supplemental Table 1. CpG sites differentially methylated between cycle phases.

This table includes the full list of differentially methylated CpG sites between cycle phases. This is supplementary to Table 2.

# Supplemental Table 2. CpG sites with strong and moderate correlation in gene expression and DNA methylation.

This table provides a longer list of CpG sites that show DNA methylation and gene expression association. This is supplementary to Table 4.

#### (NEW DATA):

Supplemental Table 3. A selection of loci differentially methylated in eSF treated in vitro with  $E_2+P_4$  vs.  $E_2$ .

This table provides a selected list of genes exhibiting differential DNA methylation when human eSF were treated with  $E_2+P_4$  (representing secretory phase) vs. E2 (representing proliferative phase) that also confirm results from the tissue samples.

# **Supplemental Figures:**

## Supplemental Figure 1.

Density plot of all CpG sites' β-values for each sample. One MSE sample shown in red, had an overall different plot and was eliminated from analysis.

### **Supplemental Figure 2.**

Global DNA methylation pattern of endometrium based on both DNA methylation levels and CpG site location within or outside CpG islands.



