Supplementary Table S1. Comparison of the demographic characteristics and laboratory traits of the study population.

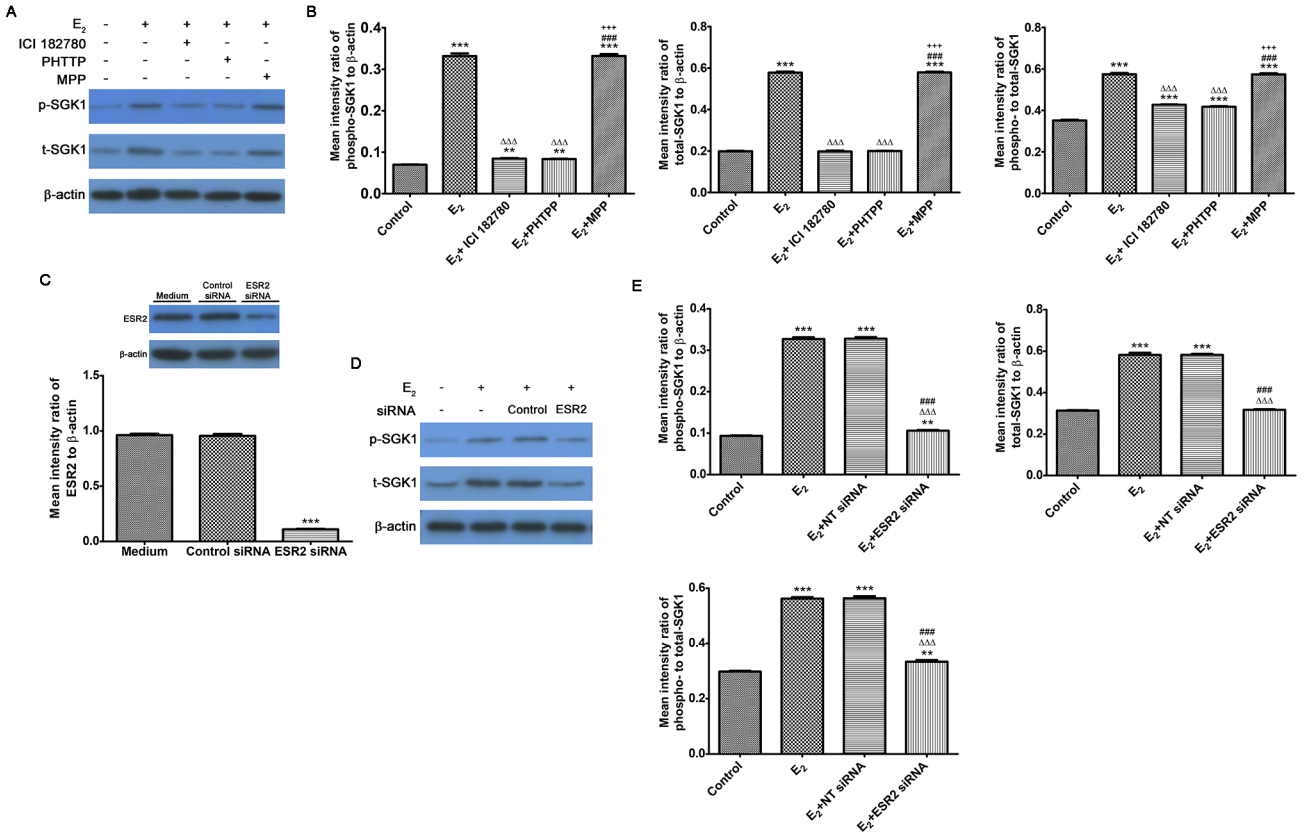
Variables	Miscarriage group (n=91)	Normal pregnancy control (n=71)	*P* value
Age, years	29.87 ± 0.50	28.42 ± 0.74	0.107
BMI, kg/m^2	21.07 ± 0.31	20.91 ± 0.29	0.697
Gestational age, weeks	8.02 ± 0.16	7.73 ± 0.14	0.166
gravidity	1.26 ± 0.14	1.39 ± 0.16	0.528
Parity (previous births)	0.16 ± 0.04	0.52 ± 0.07	< 0.001 ***
Previous miscarriages	0.58 ± 0.08	0.10 ± 0.05	< 0.001 ***

Notes: BMI, body mass index; E_2, estradiol; P_4, progesterone. Data are represented as mean ± SEM. Independent samples t-test was used, $P < 0.05$ was considered statistically significant (*$P <$ 0.05, **$P < 0.01$, ***$P < 0.001$).

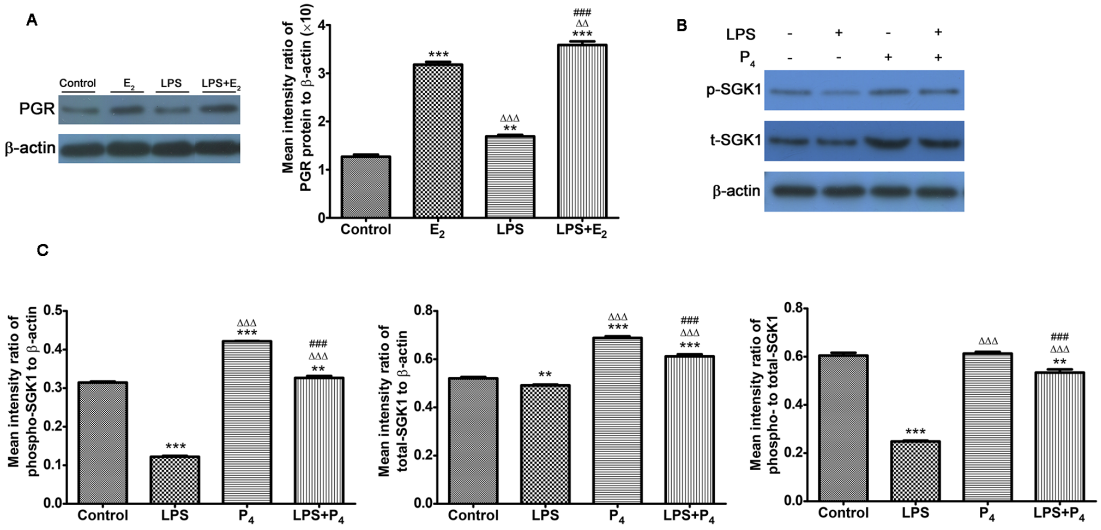
Supplementary Table S2. Primers for quantitative real-time PCR.

Genes	GenBank accession number	Primer sequence (5'-3')	Product size (bp)
Human SGK1	NM_001143676.1	TCATGCCAACATCCTGACCAA (Forward) TGAATAAAGTCGTTCAGACCCATCC (Reverse)	102
Human IRF4	U52682	CCAAGATTCCAGGTGACTC (Forward) GGATTGCTGATGTGTTCTG (Reverse)	176
Human PRL	GQ305133	CATCCATAACCTCTCCTCAG (Forward) TTGCTCCTCAATCTCTACAG (Reverse)	283
Human XIAP	U45880	ACTCTACTACACAGGTATTGG (Forward) TCAGAACTCACAGCATCAG (Reverse)	177
Human GAPDH	AY340484	GGCTGAGAACGGGAAGCTTGTCAT (Forward) CAGCCTTCTCCATGGTGGTGAAGA (Reverse)	272

Supplementary figure legends



Supplementary Figure S1 E_2 up-regulates SGK1 activity via estrogen receptor β (ERβ) in DSCs. (A) Western blot analysis of DSCs treated with E_2 (10 nM) alone, E_2 plus ER antagonist ICI182780, E_2 plus ERβ antagonist PHTPP (1μM), or E_2 plus ERα antagonist MPP (1μM) for 24h. Blots were probed for phosphorylated SGK1 (p-SGK1), total-SGK1 (t-SGK1), and total β-actin. (B) Densitometric quantifications of p- and t-SGK1 to β-actin (left), and mean (SEM) ratio of phosphorylated to total (p/t) SGK1 protein (right). Western blot analysis of DSC lysates pretreated with *ESR2* (gene encoding ERβ)-specific and non-targeting negative control siRNA. Blots were probed with antibodies to ESR2 protein (C), p-SGK1, and t-SGK1 (D). β-actin was used as the loading control. (E) Densitometric quantification of p-SGK1 and t-SGK1 to β-actin (top), and mean (SEM) ratio of p/t SGK1 protein (bottom). Data are represented as arithmetic means ± SEM for 3 independent samples. $^{**}P < 0.01$, $^{***}P < 0.001$, compared with control group or medium group; $\Delta\Delta\Delta P < 0.001$, compared with E_2 group; $\#\#\#P < 0.001$, compared with E_2+ICI 182780 group or E_2+control siRNA group; $+++P < 0.001$, compared with E_2+PHTPP group.



Supplementary Figure S2 E_2 up-regulates progesterone receptor (PGR) expression, and progesterone (P_4) influences SGK1 expression in DSCs. (A) Western blot analysis (left) and quantification (right) of the PGR level relative to β-actin in DSCs treated with LPS (10 ng/mL), E_2 (10 nM) or E_2 plus LPS. (B) Immunoblot analysis to detect phosphorylated SGK1 (p-SGK1), total SGK1 (t-SGK1), and total β-actin in DSCs treated with LPS (10 ng/mL), P_4 (10 nM) or P_4 plus LPS. (C) Densitometric quantification of p-SGK1 and t-SGK1 to β-actin, and mean (SEM) ratio of p/t SGK1 protein (right). Data are represented as arithmetic means ± SEM for 3 independent samples. $^{**}P < 0.01$, $^{***}P < 0.001$, compared with control group or medium group; $\Delta\Delta P < 0.01$, $\Delta\Delta\Delta P < 0.001$, compared with E_2 group or LPS group; $\#\#\#P < 0.001$, compared with LPS group or P_4 group.