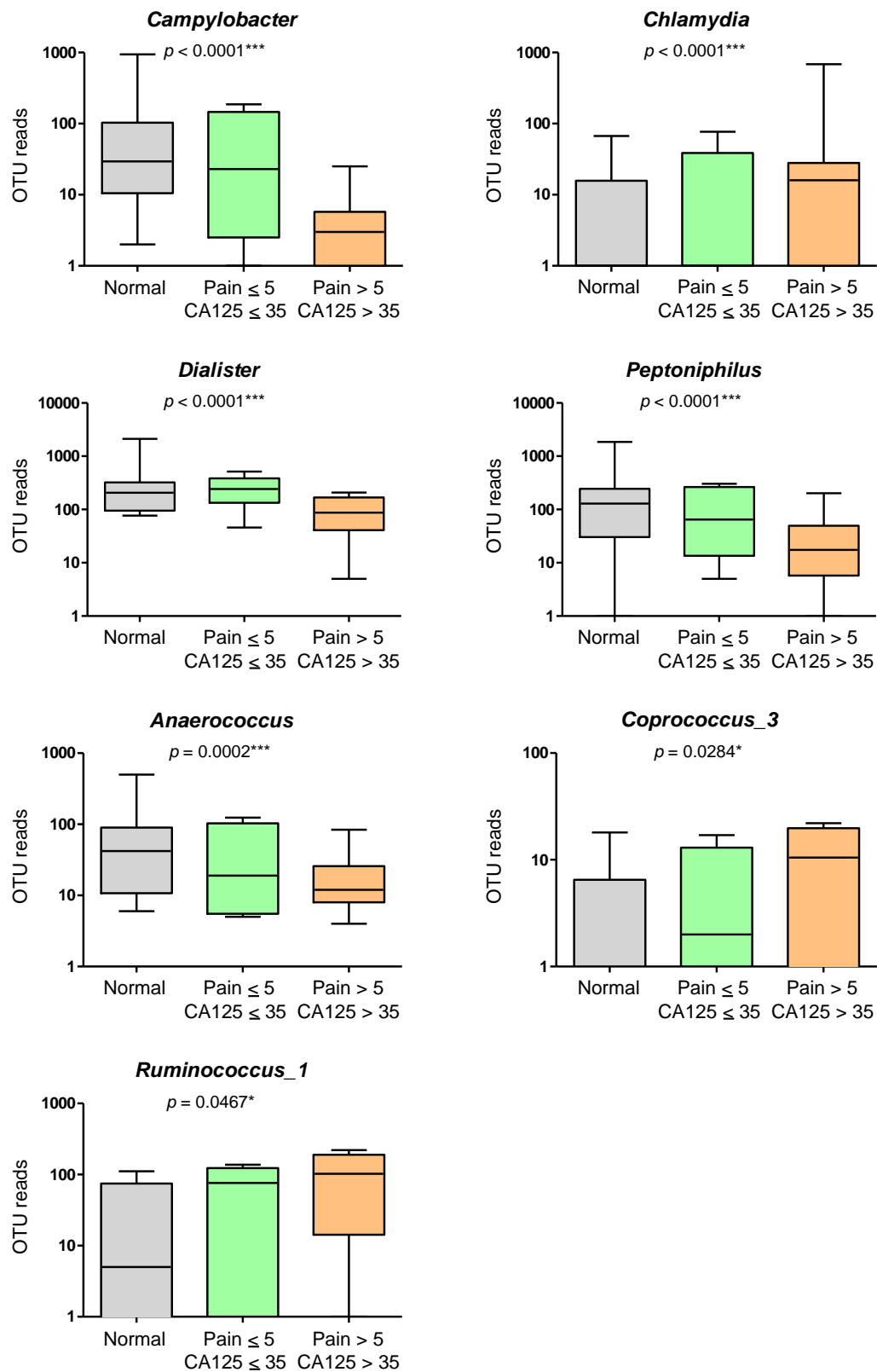
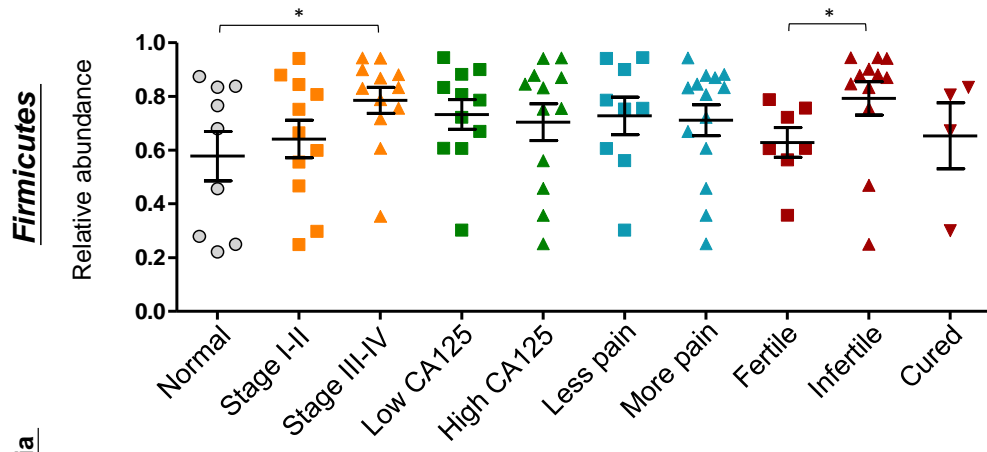
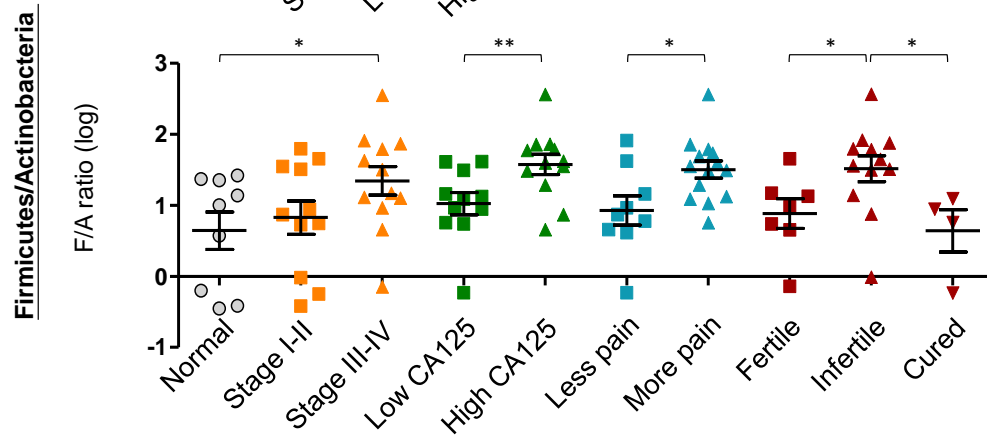
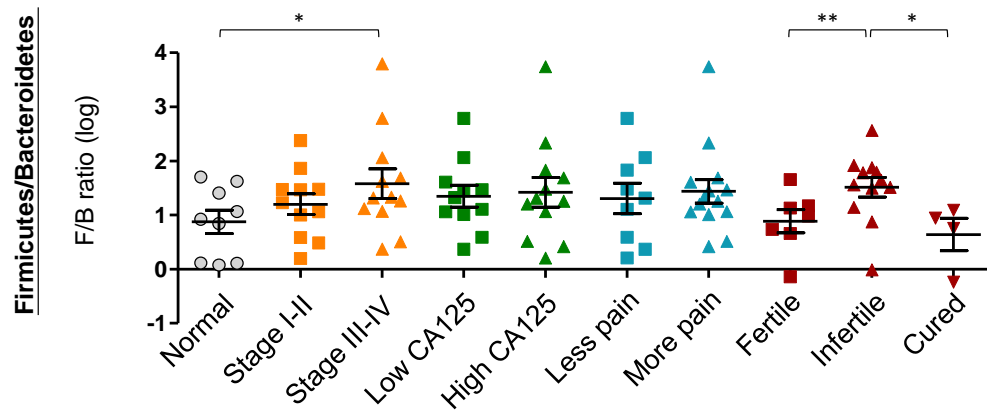
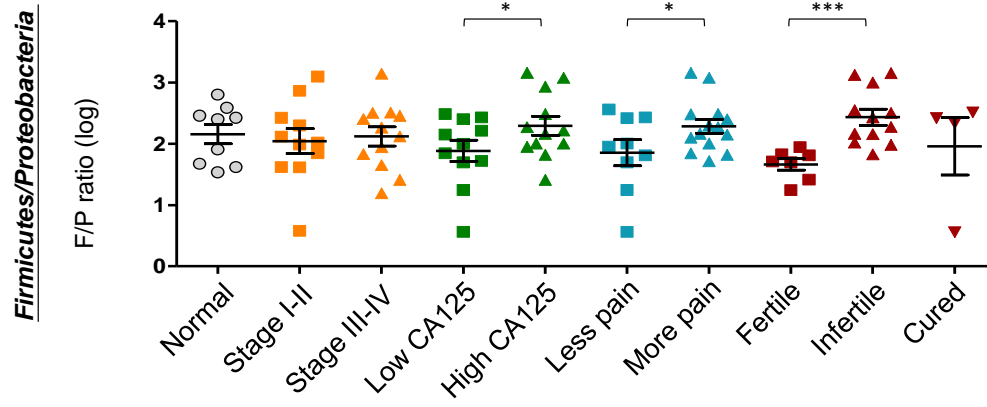


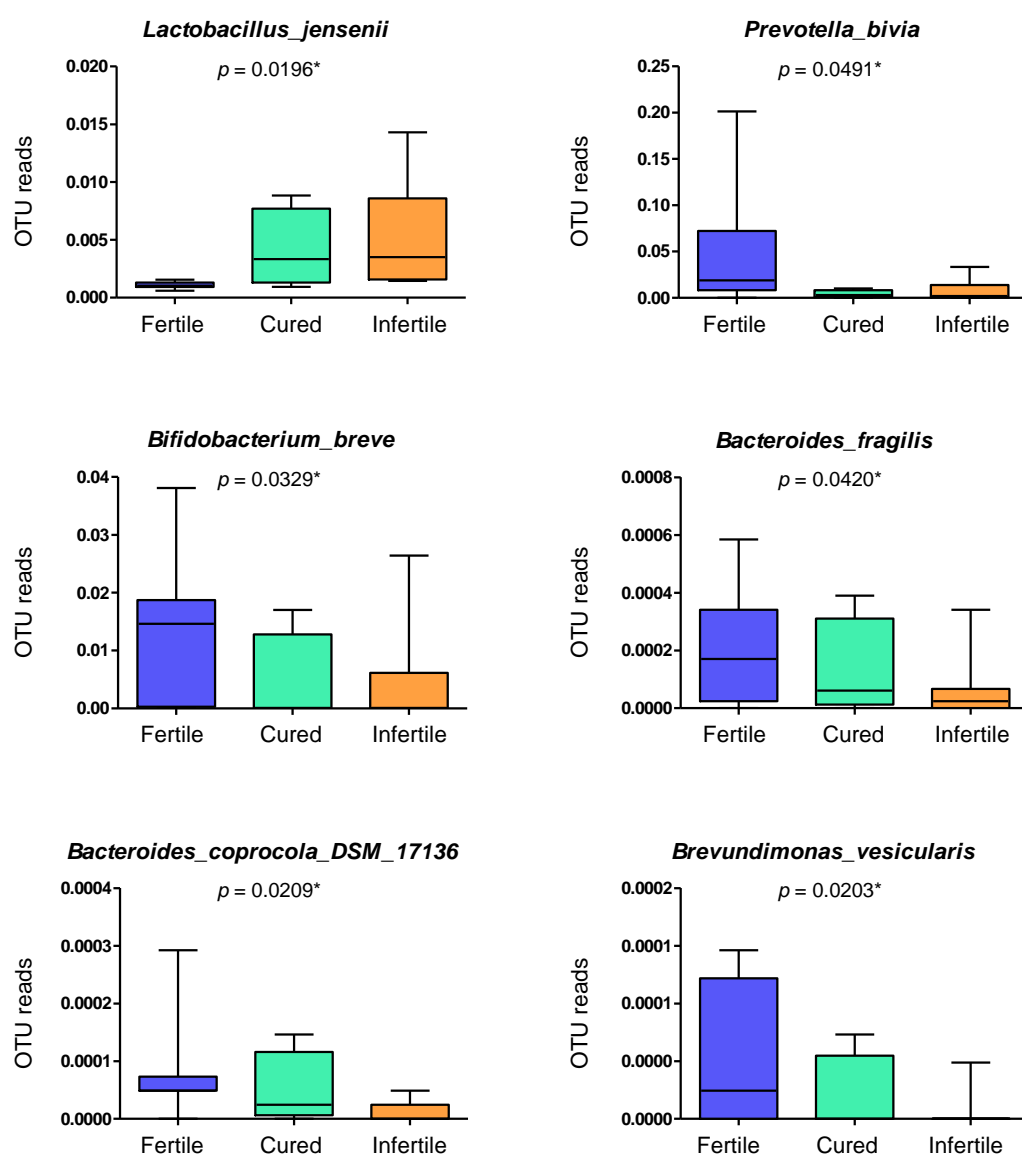
**Figure S1.** Relative abundance of the top-10 major phyla of cervical microbiomes in endometriosis patients with different CA125 levels and pain scores. (a) The abundance ratios of the top-10 major phyla between patients with high ( $> 35$  U/mL) and low CA125 ( $\leq 35$ ) levels (red) or high ( $> 5$ ) and low ( $\leq 5$ ) pain scores (orange). (b) Two-group comparison by t-test analysis defines the statistically significant changes of the top-10 major phyla between patient groups.



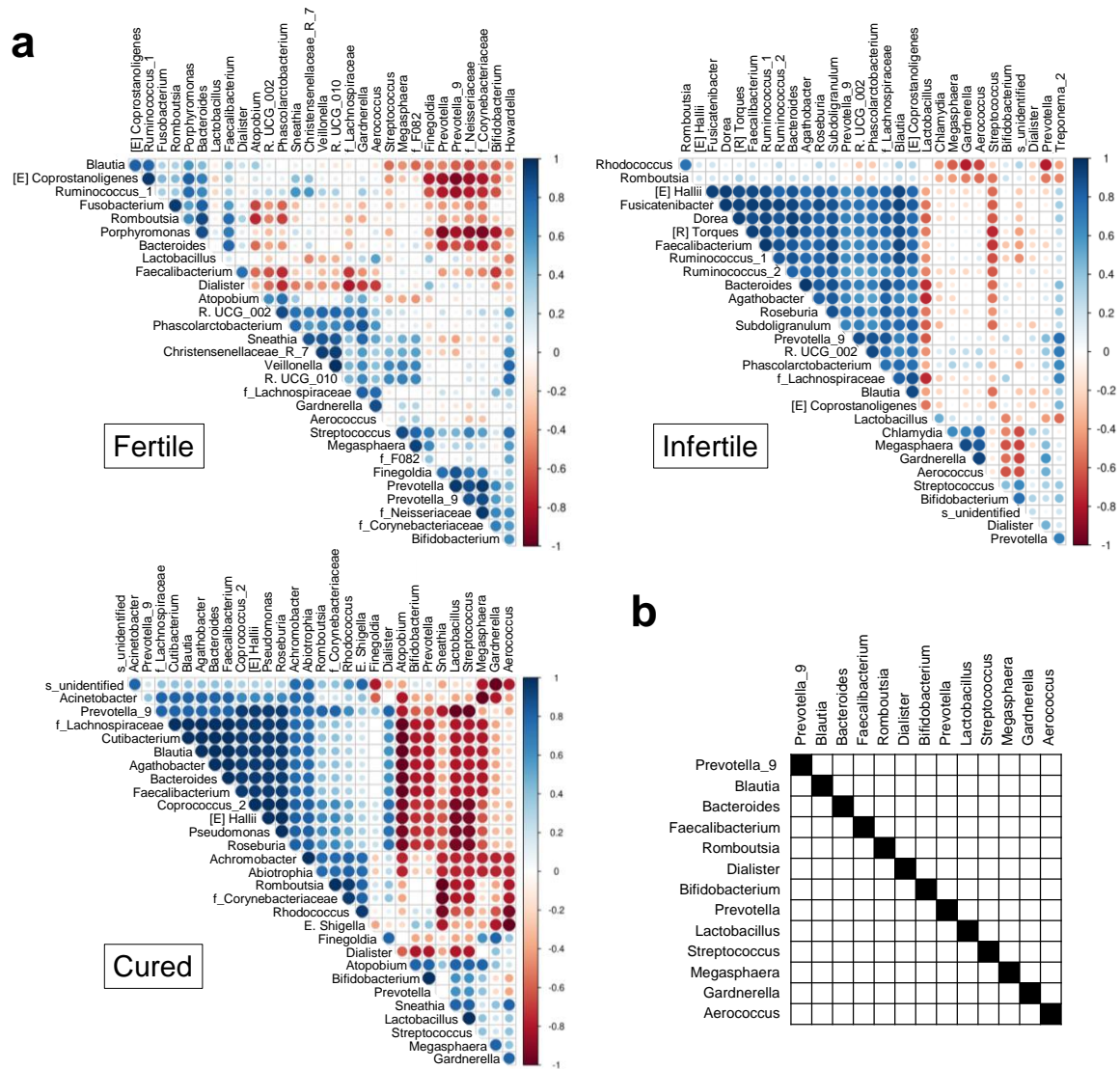
**Figure S2.** One-way ANOVA analysis defines key altered genera of cervical microbiome that show consistent up- or down-regulation among normal control, double-negative and double-positive patients with endometriosis.

**a****b****c****d**

**Figure S3.** Species abundance and their ratios in endometriosis patients with different clinical features. (a) The abundances of *Firmicutes* and the ratios of (b) *Firmicutes/Actinobacteria* (F/A), (c) *Firmicutes/Bacteroidetes* (F/B), (d) *Firmicutes/Proteobacteria* (F/P) were compared between patients with different clinical features. Two-group comparison was performed by t-test, and three-group comparison was done by one-way ANOVA.



**Figure S4.** One-way ANOVA analysis defines key altered species of cervical microbiome that show consistent up- or down-regulation among fertile, cured and infertile patients with endometriosis.



**Figure S5.** Ecological relationships among cervical microbes in patients with different reproductive ability. (a) Spearman correlation matrices reveal the significant inter-genus long-term drifts of cervical microbiomes from patients with different reproductive ability. The circle size indicates the absolute value of a correlation coefficient and the color indicates the positive (blue) or negative (red) correlation. (b) The common Spearman correlation matrix shared by different patient groups.

**Table S1.** Summary of clinicopathological features of 23 patients with endometriosis

[illegible]