

Supplementary Figure 1

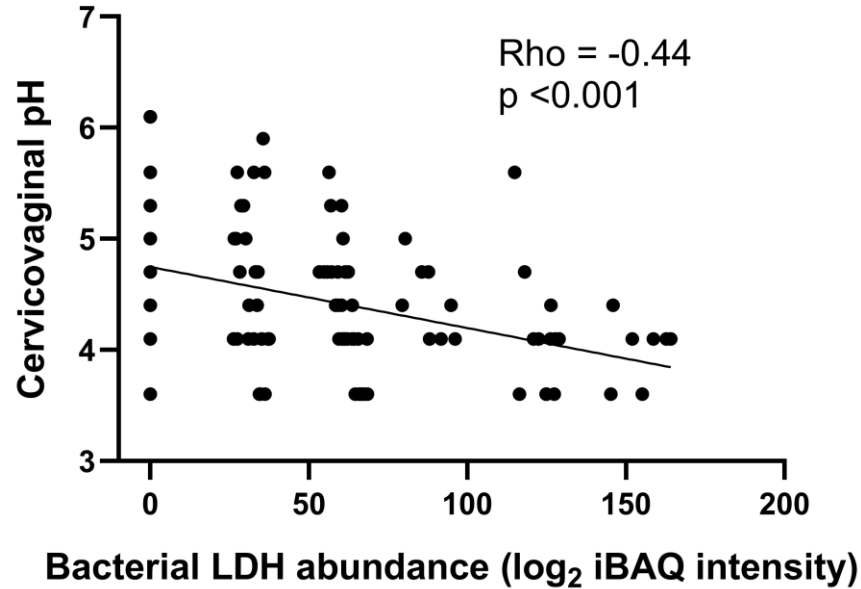


Figure S1. Association between cervicovaginal pH and relative abundance of bacterial L- and D-lactate dehydrogenase [LDH; Log₂ intensity based absolute quantification (iBAQ) values]. pH was measured in neat cervicovaginal secretions collected by menstrual cup using pH strips (range: 3.6-8.2). Bacterial LDH relative abundance in lateral vaginal wall swab samples was assessed using liquid chromatography-tandem mass spectrometry. A total of 103 HIV-uninfected non-pregnant women who had both pH and metaproteomics data available were included. Significance assessed by Spearman's rho and $p < 0.05$ was considered statistically significant.

Supplementary Figure 2

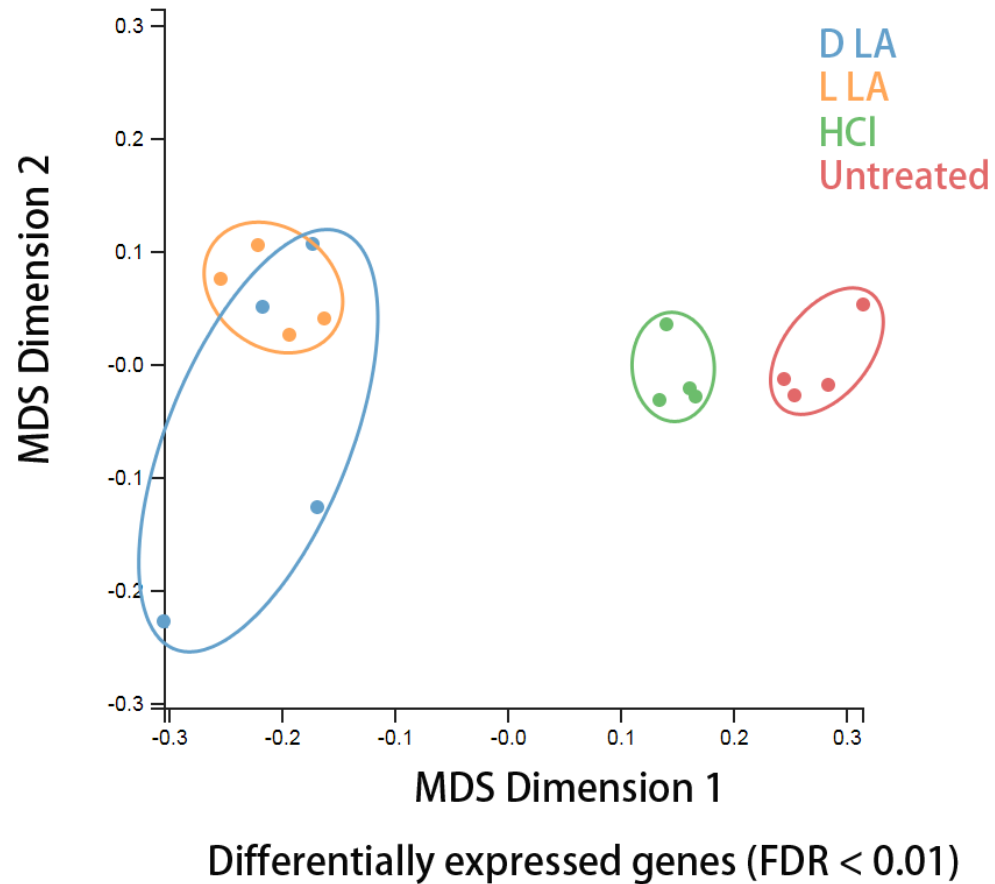


Figure S2. Multidimensional scaling (MDS) plot of genes differentially expressed by ectocervical epithelial cells treated with 0.3% L-lactic acid (L-LA) pH 3.9 or D-lactic acid (D-LA) pH 3.9 (yellow and blue respectively), HCl pH 3.9 (green) or untreated cells (red). Graph shows results from 4 independent experiments. False discovery rate ≤ 0.01 .

Supplementary Figure 3

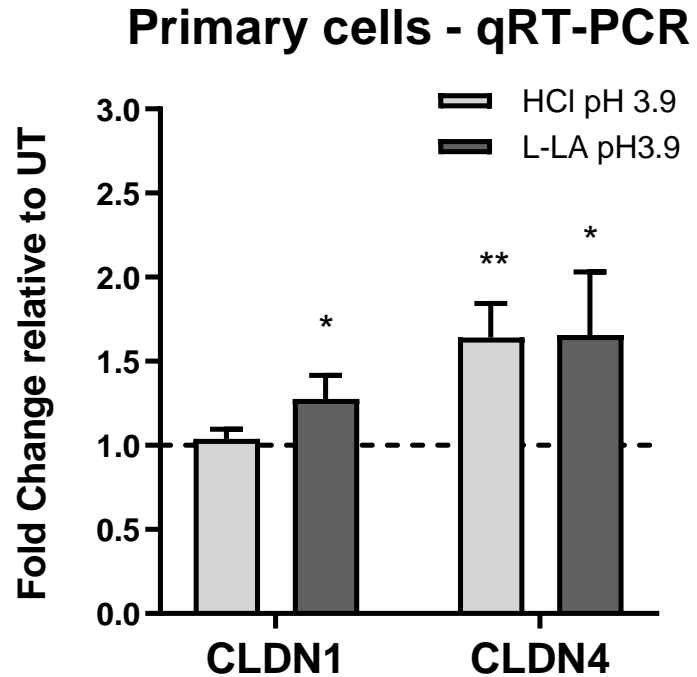


Figure S3. Primary cervicovaginal epithelial cells were apically treated with 0.3% L-lactic acid pH (L-LA, pH 3.9), or low pH media alone (HCl, pH 3.9) for 1 h and gene expression of tight junction factors claudin-1 (CLDN1) and claudin-4 (CLDN4) were assessed 4 h post-treatment by qRT-PCR. Graphs indicate relative gene expression (fold change) as compared to untreated cells; mean +/- SEM from n=4 independent experiments. * and ** represent $p < 0.05$ and < 0.01 respectively as compared to untreated cells as determined by Mann-Whitney U test.