

Table S1. Primers for QPCR.

GeneID	Function		Sequence (5'-3')
HMPREF0421_20131	subunit A of gyrase		F: TGACACTTTGGTTCGTATGGC R: TCCGTATAACGCATTGCTGC
HMPREF0421_20660	sensor	histidine	F: GTGGTACTGGCTTAGGTATGTCT R: ATCACTGCTGGTCCTAGATGC
HMPREF0421_20990	kinase		
HMPREF0421_20990	sensor	histidine	F: CGAAATGGCTGAAGAACTAGAGC R: TAGCTTGTAATGCACTAACAGGTG
HMPREF0421_20990	kinase		
HMPREF0421_20118	thioredoxin-disulfide reductase		F: GCAAGAATACTCTGGACGAGGT R: CAAAAGCTGAATCGCCTCCG
HMPREF0421_21330	glutaredoxin		F: GCGTCAATTCACCTAAGCTAGGC R: GAGTAATCACCACTGGCGCT
HMPREF0421_21015	3-oxoacyl-ACP reductase		F: ACGCAACAAACCATGCTTTAT R: GCGTATGCTGCTGTTCCCTAG
HMPREF0421_21022	sensor	histidine	F: GCCTTATTGTTGCAGCAATAGC R: CCTTTGGATCCCATTGCTGC
HMPREF0421_21022	kinase		
HMPREF0421_21221	sulfonate	ABC	F: TATTCGTCATTCGCATGCCG R: GTGAACCTGTGCGTCCGAAT
HMPREF0421_21221	transporter	permease	
HMPREF0421_20219	major	facilitator	F: ACCAGCAAGCACAAAATAGC R: ACTCCTAAGACTATTAACCATGGTGT
HMPREF0421_20219	superfamily	(MFS)	
HMPREF0421_20219	transporter		
HMPREF0421_20303	actinobacterial surface-anchored domain protein		F: CGAAAGAACTAAAACCACTAATACTG R: TCCGCGTTCTTTAACAACAGAC
HMPREF0421_20991	transferring	glycosyl	F: TATTCGTGCTCAACTTATGTAGG R: CCAAATATGAAAAAGGCTTATCG
HMPREF0421_20991	groups		
HMPREF0421_20208	hydroxyethylthiazole		F: GCAGAAGAAGCTGAAGTCTTTGC R: CGAATCGCAGCATCCATAGATTC
HMPREF0421_20208	kinase		
HMPREF0421_21089	type IV	prepilin	F: TGTGCCTAGACTTTGGGTGT R: TACTGCAAAAAGCCAGCCAC
HMPREF0421_21089	peptidase		

Table S2. Unique genes in the Venn analysis.

Unique genes	GeneID	Function
Control	HMPREF0421_20665	integral component of membrane
	HMPREF0421_20284	hypothetical protein
	HMPREF0421_20681	hypothetical protein
	HMPREF0421_20017	hypothetical protein
	HMPREF0421_20419	hypothetical protein
	HMPREF0421_21040	inclusion membrane protein F
	HMPREF0421_21316	hypothetical protein
Lac	HMPREF0421_20047	hypothetical protein
	HMPREF0421_21359	type I restriction enzyme, R subunit
	HMPREF0421_20088	hypothetical protein
LacHyd	HMPREF0421_20371	CDP-diacylglycerol-glycerol-3-phosphate 3-phosphatidyltransferase

Table S3. List of the genes with fold changes above two among the differentially expressed genes in *G. vaginalis* cultured under lactate. All *P* values were less than 0.02.

GeneID	Log2Fold Change	<i>P</i> value	<i>P</i> adj	Function
Upregulated				
HMPREF0421_21022	3.65	$5.42 \times 10^{-166}$	$1.51 \times 10^{-164}$	Sensor histidine kinase
HMPREF0421_21024	3.24	$1.31 \times 10^{-18}$	$4.20 \times 10^{-18}$	ABC transporter
HMPREF0421_20927	3.15	0	0	ABC transporter substrate-binding protein
HMPREF0421_20219	2.97	$4.12 \times 10^{-71}$	$4.02 \times 10^{-70}$	major facilitator superfamily (MFS) transporter
HMPREF0421_21023	2.96	$1.88 \times 10^{-14}$	$5.23 \times 10^{-14}$	Hypothetical protein
HMPREF0421_21015	2.90	$1.27 \times 10^{-91}$	$1.64 \times 10^{-90}$	3-oxoacyl-ACP reductase
HMPREF0421_21026	2.73	$5.07 \times 10^{-21}$	$1.72 \times 10^{-20}$	ABC transporter ATP-binding protein
HMPREF0421_21025	2.70	$6.04 \times 10^{-33}$	$2.94 \times 10^{-32}$	ABC transporter ATP-binding protein
HMPREF0421_20844	2.59	0	0	Cobalt ABC transporter
HMPREF0421_20843	2.36	$5.32 \times 10^{-206}$	$2.16 \times 10^{-204}$	Membrane protein
HMPREF0421_20839	2.20	0	0	NADH dehydrogenase
HMPREF0421_20940	2.17	0	0	oligoribonuclease
HMPREF0421_21014	2.05	$1.04 \times 10^{-120}$	$2.04 \times 10^{-119}$	2-keto-3-deoxygluconate permease
Downregulated				
HMPREF0421_20991	-3.24	$7.95 \times 10^{-28}$	$3.39 \times 10^{-27}$	Transferring glycosyl groups
HMPREF0421_21002	-2.86	$9.73 \times 10^{-82}$	$1.06 \times 10^{-80}$	Cell division protein FtsK
HMPREF0421_20208	-2.75	0	0	Hydroxyethylthiazole kinase
HMPREF0421_21089	-2.51	$4.12 \times 10^{-12}$	$1.06 \times 10^{-11}$	Type IV prepilin peptidase
Novel C3	-2.46	$9.40 \times 10^{-20}$	$3.08 \times 10^{-19}$	Transcription regulator
HMPREF0421_20331	-2.24	$5.36 \times 10^{-58}$	$4.22 \times 10^{-57}$	Serine/threonine protein kinase
HMPREF0421_20303	-2.21	$8.22 \times 10^{-223}$	$4.08 \times 10^{-221}$	Actinobacterial surface-anchored domain protein
HMPREF0421_20304	-2.04	$1.31 \times 10^{-77}$	$1.38 \times 10^{-76}$	Hypothetical protein

Table S4. List of the differentially expressed genes in the Lac group compared to the LacHyd group. All *P* values were less than 0.02.

Gene ID	Fold change	<i>P</i> value	<i>P</i> adj	Function
HMPREF0421_20956	1.42	$7.96 \times 10^{-156}$	$3.55 \times 10^{-153}$	Trimeric autotransporter adhesin
HMPREF0421_20499	-1.37	$8.86 \times 10^{-11}$	$7.95 \times 10^{-10}$	LPXTG-motif cell wall anchor domain protein
HMPREF0421_20990	-1.17	$1.35 \times 10^{-33}$	$5.84 \times 10^{-32}$	Sensor histidine kinase
HMPREF0421_20489	-1.26	$7.72 \times 10^{-200}$	$1.03 \times 10^{-196}$	ABC transporter ATP-binding protein
HMPREF0421_20488	-1.09	$1.28 \times 10^{-177}$	$8.58 \times 10^{-175}$	ABC transporter substrate-binding protein

Figure S1. The expressional level of response markers after adding lactate and H<sub>2</sub>O<sub>2</sub>. Bars represent the mean and the error bars the standard error of the mean (mean  $\pm$  SEM).

