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 1620 Linden Av N  
 Shoreline WA, 98133  
 -- US BIOTEK

LAB ID : 4001555  
 Collection Date : 27-Mar-2025  
 Request Date: 30-Mar-2025

Accession #: 30000222222  
 Practitioner:  
 SAMPLE REPORT, ND

## Vaginal Microbiome Profile

Vaginal pH. **4.8 \*H** 3.5 - 4.5



Methodology: Testing performed by PCR, qPCR and MALDI-TOF

Opportunistic Bacteria	Result	Range	Units	
Enterococcus faecalis:	<b>10.00 *H</b>	< 1.0	x10 <sup>5</sup> CFU/ml	
Escherichia coli:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Klebsiella pneumoniae:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Proteus mirabilis:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Pseudomonas aeruginosa:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Streptococcus agalactiae:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Staphylococcus aureus:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Gardnerella vaginalis:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Atopobium vaginae:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Prevotella species:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Megasphaera species:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Ureaplasma species	<DL	< 1.00	x10 <sup>6</sup> CFU/ml	
Mycoplasma species	<DL	< 1.00	x10 <sup>6</sup> CFU/ml	

### Sexually Transmitted Infections

Trichomonas vaginalis:	Not Detected
Chlamydia trachomatis:	Not Detected
Neisseria gonorrhoeae:	Not Detected
Herpes Simplex Virus-1:	Not Detected
Herpes Simplex Virus-2:	Not Detected

#### COMMENT:

Not Detected results indicate the absence of detectable DNA in this sample. A negative result does not completely exclude infection.

### Opportunistic Fungal pathogens

Candida albicans:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Candida glabrata:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Candida krusei:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Candida parapsilosis:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	
Candida tropicalis:	<DL	< 1.00	x10 <sup>5</sup> CFU/ml	

### Beneficial Bacteria:

Total Lactobacillus:	<b>0.40 *L</b>	> 1.00	x10 <sup>6</sup> CFU/ml	
Lactobacillus crispatus:	<b>0.30 *L</b>	> 1.00	x10 <sup>6</sup> CFU/ml	
Lactobacillus gasseri:	<DL *L	> 1.00	x10 <sup>6</sup> CFU/ml	
Lactobacillus iners:	<DL *L	> 1.00	x10 <sup>6</sup> CFU/ml	
Lactobacillus jensenii:	<b>0.10 *L</b>	> 1.00	x10 <sup>6</sup> CFU/ml	
Lactobacillus rhamnosus:	<DL *L	> 1.00	x10 <sup>6</sup> CFU/ml	
Lactobacillus salivarius:	<DL *L	> 1.00	x10 <sup>6</sup> CFU/ml	
Lactobacillus vaginalis:	<DL *L	> 1.00	x10 <sup>6</sup> CFU/ml	

### Bacterial Vaginosis:

Bacterial vaginosis **Negative**

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## Vaginal Microbiome Comments

### VAGINAL pH ELEVATED:

Vaginal pH can be elevated by the presence of pathogenic infection, blood, semen, vaginal medications, using certain soaps and douches. In the absence of the latter, an elevated pH may be the result of decreased serum oestradiol and is suggestive of menopause or hormone imbalance and may require further pathology investigation.

The typical vaginal pH is 3.5-4.5. Prepubertal and postmenopausal pH levels are normally  $>5$  pH. With the increase of the oestrogen levels around puberty, the genital mucosa thickens and becomes colonized with *Lactobacillus* species which produce lactic acid and hydrogen peroxide to lower the pH below 4.5.

#### References:

Caillouette et. al., 1997, American Journal of Obstetrics and Gynaecology, 176(6)1270-1277.

Panda et. al., 2014, Journal of Mid-Life Health, 5(1):34-37.

Kaambo et. al., 2018, Front Public Health, 6:78.

### AEROBIC VAGINITIS (AV):

Patients suffering AV may experience vaginal complaints such as abnormal discharge (yellowish), inflammation (redness and swelling), and/or small erosions or ulcerations. If untreated, it can transition into more serious complications (PID, dyspareunia [pain during intercourse], severe UTIs, and/or pregnancy complications). Causes of AV include immune dysregulation, low oestrogen or Vitamin D deficiency.

There is no accepted clinical strategy for treating AV. Treatment with either antiseptic or antibiotic therapy with emphasis on bacteria of faecal origin, whilst ensuring minimal interference with vaginal *Lactobacillus* species.

### ENTEROCOCCUS FAECALIS ELEVATED:

*Enterococcus faecalis* is a Gram-positive commensal bacterium native to the gastrointestinal tract and an opportunistic pathogen of increasing clinical concern. *E. faecalis* also colonizes the female reproductive tract, and reports suggest vaginal colonization increases following antibiotic treatment or in patients with AV. While vaginal *E. faecalis* colonization is normally asymptomatic, certain populations may be at risk for severe disease. AV is defined by disruption in *Lactobacillus* dominance (Total *Lactobacillus*  $<10^6$  CFU/ml), increased pH ( $>4.5$ ) and the presence of mainly aerobic enteric commensals or pathogens, including *Enterococcus faecalis* ( $>10^5$  CFU/ml).

### LACTOBACILLUS:

*Lactobacillus* is the predominant genus in a healthy vaginal microbiota, and functions to inhibit the adhesion and proliferation of opportunistic and primary pathogens.

The presence of different *Lactobacillus* species is a major factor in the stability of the vaginal microbiome. Women with *L. iners*-dominant microbiomes are more likely to harbor *Candida* than women with *L. crispatus*-dominant microbiomes (due to higher production of lactic acid by *L. crispatus* compared to *L. iners*), leading to better anti-*Candida* activity (impeding *Candida* colonization) than *L. iners* through a greater production of lactic acid. Furthermore, *L. iners* dominance has been associated with other negative health outcomes such as increased risks of *Chlamydia trachomatis* infection, incident Bacterial Vaginosis and defects in vaginal mucus that compromise antiviral barrier function.

### TOTAL LACTOBACILLUS LEVELS LOW:

Total *Lactobacillus* quantification should be  $>1 \times 10^6$  CFU/ml in a healthy Vaginal Microbiome. Production of  $H_2O_2$  by *Lactobacillus* species is essential in inhibiting the overgrowth of pathogens. In cases where total *Lactobacillus* levels are low, presence of pathogenic bacteria should be reviewed and probiotic therapy should be considered.

Microorganisms not belonging to the *Lactobacillus* genus with the population equal to or greater than  $1 \times 10^5$  CFU/ml is considered to be disturbing the vaginal ecosystem equilibrium.

#### References:

Pacha-Herrera et. al., 2020, Frontiers in Cellular and Infection Microbiology, 10:303.

Oerlemans et. al., 2020, Europe PMC, 10(11).

Tomusiak et. al., 2013, Polish Society of Gynaecologists, 84:352-358.

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**DISCLAIMER:**

Any information provided by us is for information purposes only.

Commentary is provided to the practitioner for educational purposes and should not be interpreted as diagnostic or as treatment recommendations. Diagnosis and treatment decisions are the practitioner's responsibility.

Testing performed by: NutriPATH Pathology 16 Harker Street, Burwood 3125 AU. Lab Director: Jillian Harrington, PhD, HCLD (ABB). CLIA#99D2282774

**Sex. Transmitted Infection Comments**

TRICHOMONAS VAGINALIS – Not Detected:

This does not completely exclude the possibility of infection as is dependent on an adequate specimen collection. If you have symptoms, please consult with your healthcare practitioner.

CHLAMYDIA TRACHOMATIS – Not Detected:

This does not completely exclude the possibility of infection as is dependent on an adequate specimen collection. If you have symptoms, please consult with your healthcare practitioner.

NEISSERIA GONORRHOEAE – Not Detected:

This does not completely exclude the possibility of infection as is dependent on an adequate specimen collection. If you have symptoms, please consult with your healthcare practitioner.

HERPES SIMPLEX VIRUS Type 1 – Not Detected:

This does not completely exclude the possibility of infection as is dependent on an adequate specimen collection. If you have symptoms, please consult with your healthcare practitioner.

HERPES SIMPLEX VIRUS Type 2 – Not Detected:

This does not completely exclude the possibility of infection as is dependent on an adequate specimen collection. If you have symptoms, please consult with your healthcare practitioner.