

**Name:** Example, EBIOM  
**Date of birth:** 10.04.1988  
**Sex:** W  
**Sample ID:** 3524451181

**Date of sample collection:** 04.11.2025  
**Date of receipt:** 05.11.2025



## Microbiome analysis of the endometrium

The investigation of the endometrial mucosa for bacteria is based on the knowledge that (i) contrary to conventional opinion, bacteria are regularly detected there and (ii) the composition of these bacteria (called microbiota or simply microbiome) has an impact on the success of fertility treatment.

According to the literature [1-6], lactobacilli play a key role. An endometrial microbiome dominated by Lactobacillus microbiome is described as a healthy, normal state.

**Test:** EBIOM sequencing by NGS

**Sample material:** Endocervical - endometrial smear

*Table 1: Relative abundance of bacterial species*

| Bacteria (genus) | Result | Interpretation |
|------------------|--------|----------------|
| Lactobacillus    | 40%    | <div></div>    |
| Gardnerella      | 58%    | <div></div>    |

General notes: (1) The result corresponds to the percentage of reads (sequenced DNA fragments) per bacterial strain on genus level in relation to all reads that can be assigned to a bacterial genome. (2) The cut-off is 3%. (3) Analysis software: Illumina Basespace. (4) spp. = species. (5) When deciding on a possible therapy, please see "Interpretation of results" and "Further comments" on the back of the report.

**Test:** ebiomCE, Real-Time PCR for the detection of bacteria associated with Chronic Endometritis

**Sample material:** Endocervical - endometrial smear

*Table 2: Results of the Real-Time PCR*

| Pathogens of chronic endometritis | PCR Result      |
|-----------------------------------|-----------------|
| Chlamydia trachomatis             | <b>Positive</b> |
| Mycoplasma genitalium             | <i>negative</i> |
| Mycoplasma hominis                | <i>negative</i> |
| Neisseria gonorrhoeae             | <i>negative</i> |
| Ureaplasma parvum                 | <i>negative</i> |
| Ureaplasma urealyticum            | <i>negative</i> |

#### Shannon-Index: 1.10

The Shannon Index is a measure of diversity and abundance. In simple terms, a high abundance of *Lactobacillus* and a low diversity of other bacteria causes a lower Shannon Index ( $< 1.0$ )

#### Interpretation of results:

- **Evaluation of the lactobacilli**

A comparatively small amount of *Lactobacillus* spp. (green) was detected. For a *Lactobacillus* spp. dominated microbiome, this proportion is at least 80% according to current scientific literature. An intake of probiotics to promote a *Lactobacillus* spp. dominated microbiome should be considered. Prior to a control, treatment should be discontinued for at least one week.

- **Potentially pathogenic bacteria**

Detection of DNA with a potentially pathogenic bacterial origin (red). For the genera listed an association with poorer reproductive success has been shown in first studies.

- **Other bacteria**

No other bacteria (blue) were detected in the sample.

#### Further comments:

#### Literature:

- [1] Moreno I, Franasiak JM. Endometrial microbiota-new player in town. *Fertil Steril*. 2017 Jul; 108(1):32-39.
- [2] Moreno I, Codoñer FM, Vilella F, Valbuena D, Martinez-Blanch JF, Jimenez-Almazán J, Alonso R, Alamá P, Remohí J, Pellicer A, Ramon D, Simon C. Evidence that the endometrial microbiota has an effect on implantation success or failure. *Am J Obstet Gynecol*. 2016 Dec; 215(6):684-703.
- [3] Jervis-Bardy J, Leong LE, Marri S, Smith RJ, Choo JM, Smith-Vaughan HC, Nosworthy E, Morris PS, O'Leary S, Rogers GB, Marsh RL. Deriving accurate microbiota profiles from human samples with low bacterial content through post-sequencing processing of Illumina MiSeq data. *Microbiome*. 2015 May 5; 3: 19.
- [4] Moreno I, Garcia-Grau I, Perez-Villaroya D, Gonzalez-Monfort M, Bahçeci M, Barrionuevo MJ, Taguchi S, Puente E, Dimattina M, Lim MW, Meneghini G, Aubuchon M, Leondires M, Izquierdo A, Perez-Olgia M, Chavez A, Seetharam K, Bau D, Gomez C, Valbuena D, Vilella F, Simon C. Endometrial microbiota composition is associated with reproductive outcome in infertile patients. *Microbiome*. 2022 Jan 4;10(1):1. doi: 10.1186/s40168-021-01184-w. PMID: 34980280; PMCID: PMC8725275.
- [5] Chen Q, Zhang X, Hu Q, Zhang W, Xie Y, Wei W. The alteration of intrauterine microbiota in chronic endometritis patients based on 16S rRNA sequencing analysis. *Ann Clin Microbiol Antimicrob*. 2023 Jan 12;22(1):4. doi: 10.1186/s12941-023-00556-4. PMID: 36635729; PMCID: PMC9838023.
- [6] S2k-Leitlinie Bakterielle Vaginose AWMF-Registernummer 015-028, Version 5.0, Juni 2023