ENDOMETRIOME™

Endometrial Microbiome Analysis

Assessment of the endometrial microbiome to
improve the reproductive outcome of infertile patients

eurofins | Genoma

The importance of assessing the endometrial microbiome

The balance of bacteria in the endometrium is a key factor for successful embryo implantation. In normal conditions, in the endometrium are mainly present different bacterial species of the Lactobacillus genus. The presence of dysbiotic or pathogenic bacteria may alter the endometrial microbiome and can disrupt the uterine environment, causing **implantation failure and pregnancy loss**[1].

Pathogenic bacteria

Staphylococcus, Streptococcus, Enterococcus, Mycoplasma, Ureaplasma, Enterobacteria (Escherichia, Klebsiella), Chlamydia and Neisseria.

These bacteria cause infection, which is linked to implantation failure and recurrent miscarriage

Dysbiotic bacteria

Bifidobacterium, Prevotella, Sneathia, Atopobium, Veillonella...

Microbial imbalance is linked to embryo implantation failure

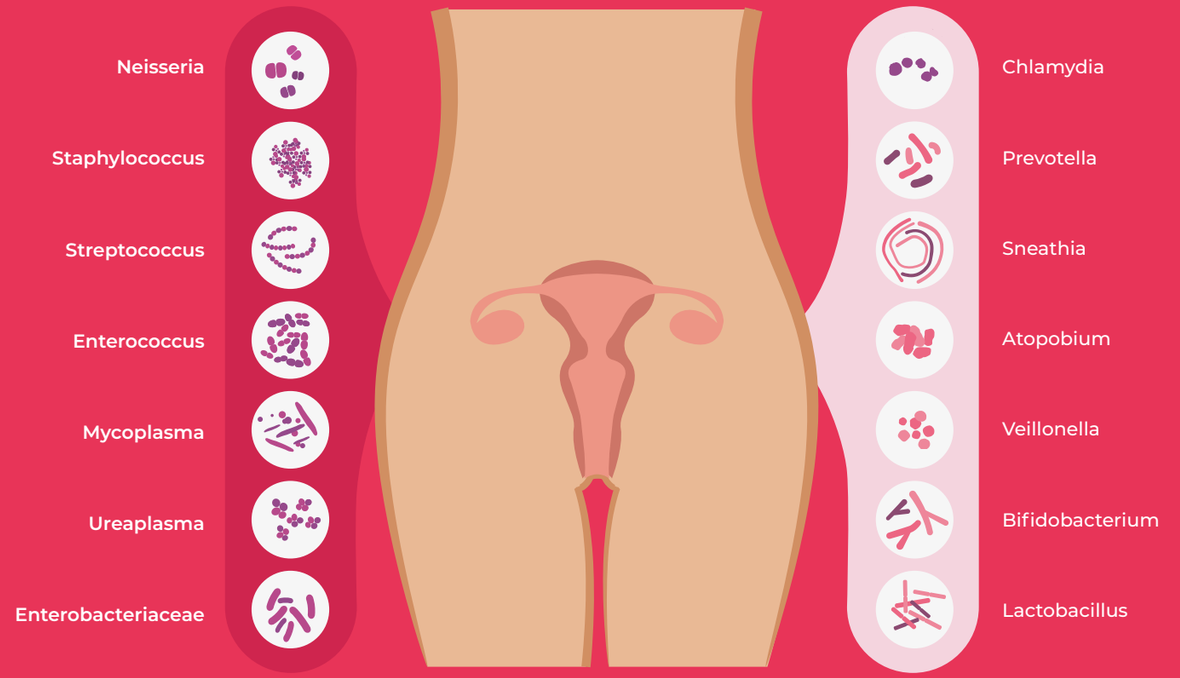
Optimal microbiome

Lactobacillus

A balanced microbiome improves the reproductive prognosis, resulting in increased chance of pregnancy and live births

1) Moreno et al. Am J Obstet Gynecol 2016; 215:684-703.

The most prominent example of a pathology caused by an altered endometrial microbiota is **chronic endometritis (CE)**. CE is characterized by the persistent inflammation of the endometrial mucosa, caused by the presence of bacterial pathogens in the uterine cavity. Because CE is usually asymptomatic and undetectable through vaginal ultrasound, it is often overlooked. The prevalence of CE in infertile patients has been estimated to be approximately 39%; it has been reported as high as 60% and 66% in patients with recurrent pregnancy loss (RPL) and repeated implantation failure (RIF), respectively[2-3].



2) Cicinelli et al. Reprod Sci 2014; 21(5):640-7.
3) Cicinelli et al. Hum Reprod, 2015; 30(2):323-30.

ENDOMETRIOME™
Endometrial Microbiome Analysis

A new dimension of endometrial assessment that may improve your patient's reproductive outcome

Endometriome™ is a screening test that evaluates the endometrial microbiome, to improve clinical management of infertile patients.

Endometriome™ test provides a complete view of the endometrial bacterial composition, reporting the most represented bacteria in the endometrium, as well as identifying the 8 most common pathogens causing chronic endometritis (CE).

Endometriome™ test can determine whether the uterine microbial environment is optimal for embryo implantation. Depending on the results, the physician may recommend embryo transfer to restore an optimal microbiome.

Endometriome™ test also detects chronic endometritis causing bacteria and helps clinicians to recommend appropriate antibiotic and probiotic treatments.

ENDOMETRIOME™
Endometrial Microbiome Analysis

Benefits

Endometriome™ can determine the percentage of lactobacillus present in the endometrium, to improve the patient's reproductive outcome.

Endometriome™ will determine whether the uterine microbial environment is optimal or not for embryo implantation.

Endometriome™ also detects the most common pathogenic bacteria causing endometritis.

Indications for testing

Endometriome™ test may be beneficial for:

Patients with Recurrent Implantation Failure **(RIF)**

Patients with Recurrent Pregnancy Loss **(RPL)**

Any patient wishing to conceive, by assessing the microbiological environment that the embryo will encounter at implantation.

Methodology

Endometriome™ test uses the latest **Next Generation Sequencing (NGS)** technology to determine the **complete endometrial microbiome profile** from endometrial tissue or endometrial fluid. It also provides information on the detection and percentage of specific bacteria causing CE.

The technology is based on DNA extraction followed by amplification and barcoded sequencing of **7 hypervariable regions** (V2, V3, V4, V6, V7, V8, and V9) of the **bacterial 16S ribosomal RNA** (rRNA) gene [4-5].

This bacterial gene, conserved in all bacteria, presents nine variable regions with species-specific DNA sequences. This enables the taxonomic assignment and relative quantification of each bacteria present in a sample.

4) Franasiak et al. J Assist Reprod Genet 2016;33:129–136.
5) Tao et al. Hum Microbiome J 2017;3:15–21.

How Endometriome™ works

Endometriome™ TEST REQUIRES ONLY A SMALL ENDOMETRIAL SAMPLE

1. Endometrial Sample (tissue biopsy or endometrial fluid)

2. DNA Extraction

3. Next Generation Sequencing (NGS) analysis

4. The report provides information on the endometrial microbiome

5. Embryo transfer into a favorable microbiome

Samples

Endometriome™ test can be performed from a small endometrial biopsy or endometrial fluid.

Endometriome™ test can be performed between days 15 and 25 of the natural cycle, or during the uterine secretory phase in a HRT cycle.

Report

The Endometriome™ test report will provide information about the overall microbial enviroment of the uterine cavity. It includes:

- **Percentage of Lactobacilli** in the endometrial sample.
- Percentages of the **most represented bacteria** detected in the endometrial sample.
- Whether the endometrial microbiome is **normal** or **abnormal**.
- Detection and percentages of specific **bacteria causing CE** *(Enterococcus spp., Enterobacteriaceae, Streptococcus spp., Staphylococcus spp., Mycoplasma spp, and Ureaplasma spp).*
- Detection and percentages of pathogens associated with **sexually transmitted infections** *(Chlamydia and Neisseria spp).*

Understanding Endometriome™ results

POSITIVE RESULTS

Identification of dysbiotic or pathogenic bacteria, with a **non–Lactobacillus dominated (<90%)** endometrial microbiota.
Detection of specific bacteria causing CE *(Enterococcus spp., Enterobacteriaceae, Streptococcus spp., Staphylococcus spp., Mycoplasma spp, and Ureaplasma spp)* or pathogens associated with **sexually transmitted infections** *(Chlamydia and Neisseria spp)*
This test results is significantly correlated with **adverse reproductive outcomes** (reduced implantation rate and increased miscarriage rate).

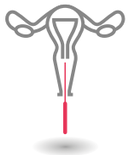
NEGATIVE RESULTS

The endometrial microbiome is **normal (Lactobacillus dominated endometrium**, with high percentage of Lactobacilli, **≥90%**),

5 EASY STEPS

Order the Endometriome™ **shipping kit**

Fill in all the required **TRF** information and enclose the **informed consent signed** from the patient



Collect the sample (endometrial biopsy or endometrial fluid)

Ship the sample to **Genoma Lab**

Receive results in as little as **10 days**

ENDOMETRIOME™

Endometrial Microbiome Analysis

advanced molecular diagnostics solutions in reproductive genetics using state-of-the art technologies

- **Test performed in Italy** (Rome or MIlan)
- Fast TAT: **10 days**
- **20 years experience** in molecular diagnostics
- **Personalized genetic counseling** with genetic counselors experts in discussing genetic test results and familial risks.
- Laboratories **ISO 17025** accredited with groundbreaking technologies
- Test available **worldwide**
- Over **200.000** genetic tests/year
- **Dedicated R&D team** Numerous peer-reviewed papers published in renowned international journals

design by evermind.it - Endometriome B Engl rev. 02

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www.laboratoriogenoma.eu

ROMA - Laboratories and Medical Offices
Via Castel Giubileo, 11 – 00138 Roma (RM)
Tel.: +39 06 8811270 (6 PBX lines) - Fax: +39 06 64492025
E-mail: info@laboratoriogenoma.eu

MILANO - Laboratories and Medical Offices
Via Enrico Cialdini, 16 (Affori Centre) – 20161 Milano (MI)
Tel.: +39 02 39297626 (12 PBX lines) - Fax: +39 02 392976261
E-mail: info@genomamilano.it

Numero Verde
800 501 651