



## New developments in microbiome-based diagnostic and treatment of vulvovaginal candidiasis and bacterial vaginosis

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### Abstract

There have been several recent discoveries linking the microbiome with different types of recurrent vaginitis and other complex infections. The general pattern that is emerging, is that a series of chronic vaginal conditions, such as vulvovaginal candidiasis (VVC) and bacterial vaginosis (BV) are caused by an imbalanced microbiome. There is also mounting evidence, that they can be cured by restoring the “correct” microbiome balance.

To better understand the relationship between vaginosis and the microbiome, a clinical study has been set-up. A total of 90 woman, distributed across: control, VVC, BV groups have been sampled. 5 samples were taken from each woman at different locations in the vagina. All samples were analyzed with a novel microbiome profiling technology, provided by REM Analytics, a swiss start-up. This technology demonstrated a much higher precision in profiling the microbiome that other commercially available options.

The results help identifying key microbiome patterns that relate with both VVC and BV. Furthermore, they present lay the foundation for the development of probiotic treatment for both diseases. The next study which includes intervention is currently being planned.

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### Biography

Paulo Refinetti obtained a PhD in Applied statistics. His recent work has been on the development of novel analytical techniques for the human microbiome, with a special focus on vaginal microbiome. Throughout his career, he has focused on the development of new measurement tools, applied to medical purposes. His earlier work was on the lineage tracing of cancer cells. Which lead a method capable of identifying tumor lineages in humans, and following them from primary tumor to metastasis. A development that laid the foundation for the current microbiome development. He is also entrepreneurially active, and is currently co-founder of 2 biotech start-ups.

### Publications

1. Quantifying mitochondrial DNA copy number using robust regression to interpret real time PCR results. Refinetti P, Warren D, Morgenthaler S, Ekstrøm PO. BMC Res Notes. 2017 Nov 13;10(1):593. doi: 10.1186/s13104-017-2913-1.
2. Is detection of intraperitoneal exfoliated tumor cells after surgical resection of rectal cancer a prognostic factor of survival? Arstad C, Refinetti P, Kristensen AT, Giercksky KE, Ekstrøm PO. BMC Cancer. 2017 Jun 7;17(1):406. doi: 10.1186/s12885-017-3365-7.
3. Extraction of cell-free DNA from urine, using polylysine-coated silica particles. Takano S, Hu Q, Amamoto T, Refinetti P, Mimori K, Funatsu T, Kato M. Anal Bioanal Chem. 2017 Jun;409(16):4021-4025. doi: 10.1007/s00216-017-0345-3. Epub 2017 Apr 19
4. Mapping mitochondrial heteroplasmy in a Leydig tumor by laser capture micro-dissection and cycling temperature capillary electrophoresis. Refinetti P, Arstad C, Thilly WG, Morgenthaler S, Ekstrøm PO. BMC ClinPathol. 2017 Apr 8;17:6. doi: 10.1186/s12907-017-0042-3. eCollection 2017
5. Scanning the mitochondrial genome for mutations by cycling temperature capillary electrophoresis. Arstad C, Refinetti P, Warren D, Giercksky KE, Ekstrøm PO. Mitochondrial DNA A DNA Mapp Seq Anal. 2018 Jan;29(1):19-30. doi: 10.1080/24701394.2016.1233532. Epub 2016 Oct 11

Global Meeting on Gynecology and Obstetrics Congress,  
Webinar, June 17-18, 2020

**Citation:** Paulo Refinetti, *New developments in microbiome-based diagnostic and treatment of vulvovaginal candidiasis and bacterial vaginosis*, Gynecology 2020, Global Meeting on Gynecology and Obstetrics Congress, Webinar, June 17-18, 2020, pp. 16-18