

MICR●BIOTALK

by Biocodex Microbiota Institute

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First periods and discovering the intimate ecosystem balance



Host Emilie FARGIER

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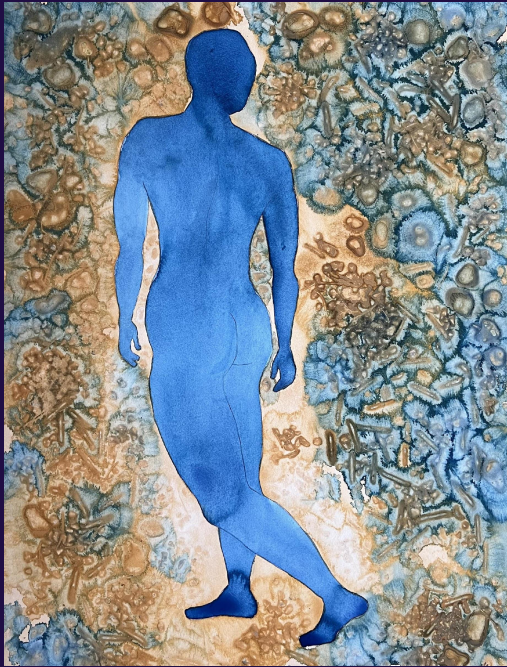
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**Karolinska
Institutet**

Beyond Oneness



Humans are holobionts

1.5 kg of microbes

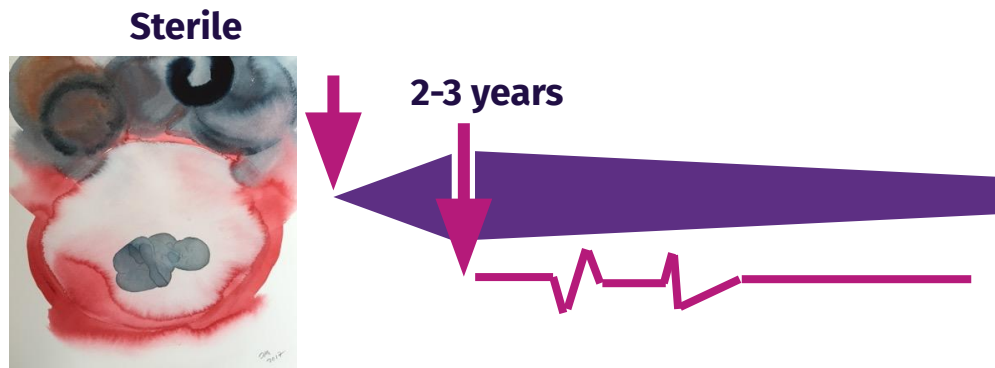
20 000 human genes, 2-20 million microbial genes

Modifiable microbiome

The gut microbiome

- Highly diverse
- 1/3 is share, 2/3 are individual
- High functional redundancy
- Effected by host genetics and environmental factors
- Central role in gut health as well as other organs

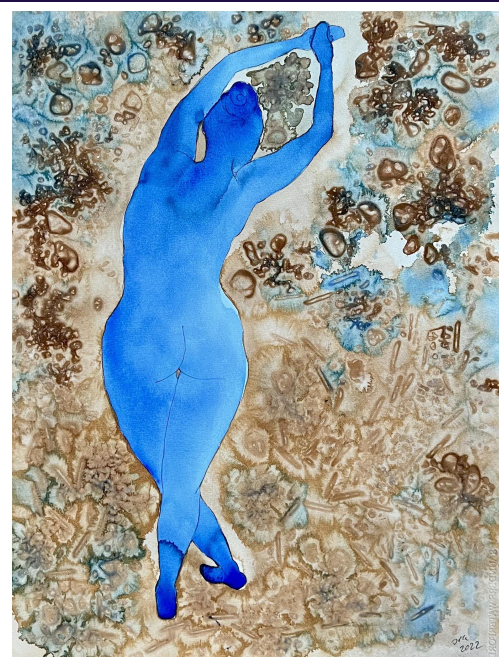
How do we acquire our microbiome?



Vertical transmission

Factors influencing the microbiome

- Antibiotics and other drugs
- Age and lifestyle (delivery, breast feeding, diet, hygiene, exercise...)
- Environment (siblings, contact with nature and animals, chemicals ...)
- Genetic inheritance and diseases



A healthy vaginal microbiome is dominated by *Lactobacillus* ssp.



Lactobacilli counteract overgrowth of other organisms by:

- Reduction of vaginal pH by production of organic acids, mainly lactic acid
- Production of antimicrobials such as H_2O_2 and bacteriocins
- Competition for nutrients
- Tissue adherence
- Modulation of the local immune system

Humans are distinct!

Changes in the Vaginal Microbiome Across the Life Course

Newborn

Childhood

Puberty to menopause

Pregnancy

Postmenopause

→ Estrogen levels influence
the vaginal microbiome

Other factors affecting the vaginal microbiome



- Age and hormonal variation
- The gut microbiome
- Diet
- Menstruation
- Pregnancy
- Sex
- Lifestyle and hygiene
- Diseases and drugs

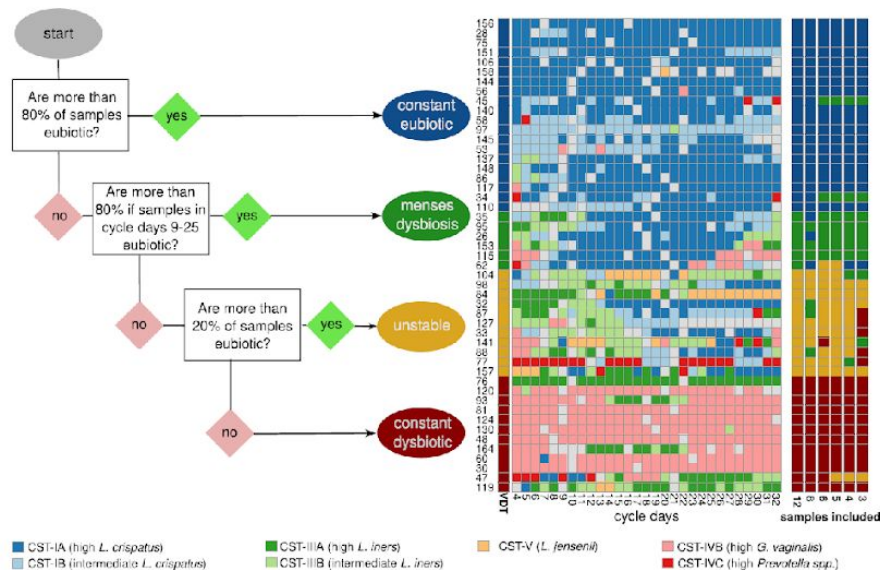
The vaginal microbiome and urogenital health



→ Women deficient in vaginal *Lactobacillus* spp. are at higher risk for reproductive diseases and adverse obstetric outcomes

- STIs, HPV and HIV infections
- Infertility
- Pregnancy complications, such as miscarriage and pre-term delivery
- Pelvic inflammatory disease, malignancies
- UTIs

How do we acquire our microbiome?



Hugerth *et.al. Microbiome* 2024

→ Vaginal Community Dynamics

Individual and dynamic patterns during the menstrual cycle that may affect reproductive outcomes.

Take home message



2/4 2021

- We are ecosystems: the microbiome is a key driver of health and longevity
- Gut and vaginal microbiomes regulate immunity, metabolism, and barrier function
- Microbial imbalance fuels inflammation, disease risk, and accelerated aging
- Lifestyle, hormones, and environment shape our microbial health every day
- A varied diet rich in vegetables, dietary fiber, and fermented foods supports a healthy microbiota
- The vagina cleans and protects itself through natural discharge and a balanced vaginal microbiota—take good care of it

Q&A SESSION WITH THE EXPERT



Expert

Ina SCHUPPE KOISTINEN



Host

Emilie FARGIER

THANK YOU!

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