Juvenalis
WELLNESS TESTING
BY EUROFINS BIOMNIS

Gut microbiota

Preventative health and wellness testing is a modern medical approach to identify possible alterations in biological and physiological mechanisms that the body may experience over time. Our bodies have a lot to put up with: stress, unhealthy eating, lack of regular exercise, etc., in addition to the physiological changes that come with age. These factors can all have a long-term impact on our gut microbiota, altering the symbiotic balance between these bacteria and our body.

Gut microbiota analysis is a new personalised approach to identifying gut bacteria for the purpose of preventing and correcting disturbances in our gut flora, thereby limiting the negative health consequences these imbalances can cause.

What is microbiota?

Microbiota, or "microbial flora" is a community of microorganisms (bacteria, viruses, fungi and yeasts) living in a specific environment. The human body hosts different microbiota in a number of locations: the skin, the mouth, the airways, the birth canal and the gut. For this reason, humans have more bacteria in their bodies than human cells.

What are the characteristics of gut microbiota?

Gut microbiota is the most abundant microbiota in the human body, with more than 100 trillion bacteria (weighing 1 to 2 kg). Today it is considered an organ in itself, as it performs a variety of vital physiological functions.

Gut microbiota in figures:

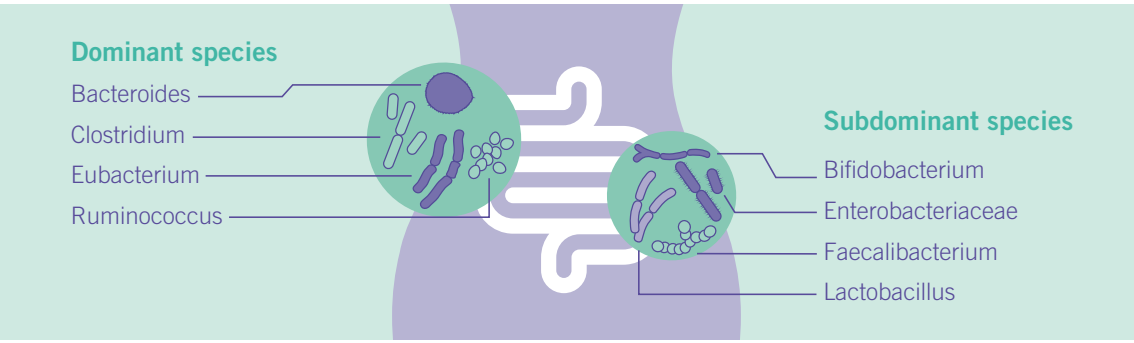
- **100 trillion bacteria,** 10 times the number of human cells,
- around **1000 different bacterial species,**
- **3.3 million genes,** 150 times more than humans,
- **10^{11} bacteria** per gram of stool,
- only **1/3 of species common** to all humans.

What is the composition of gut microbiota?

This ecosystem contains around one billion different species of bacteria, divided into the following three subcategories:

- **dominant flora,** 90% of which is made up of Firmicutes and Bacteroidetes,
- **subdominant flora,** which may contain pathogenic bacteria that are kept in check by the dominant flora,
- **transitional flora,** which comes from food.

Every person has their own microbiota, which remains relatively stable over time. To this day, no "universally healthy" profile has been defined. Microbiota is greatly affected by ageing, antibiotics and diet. The scientific community agrees that diversity is crucial for a healthy gut microbiota, and that the proliferation of certain bacteria can be harmful.



Where do gut microbes come from?

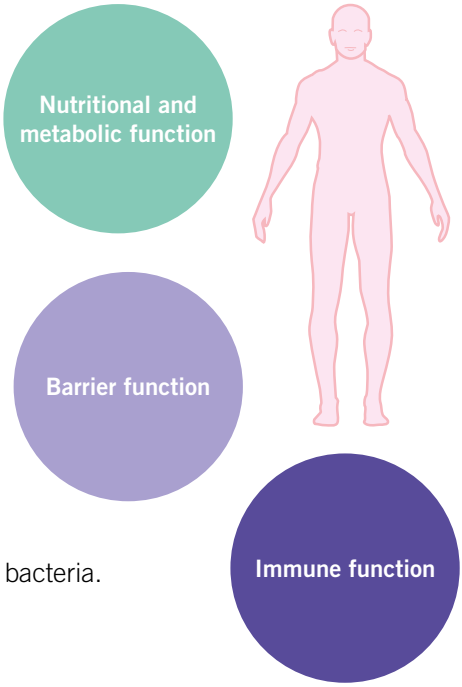
The uterus is thought to be sterile, but when a baby is born it is rapidly colonised by a simple flora derived from the mother's vaginal and faecal microbiota and from the outside environment. Different factors such as delivery method, feeding practice and prolonged antibiotic use may influence the formation of the baby's gut microbiota.

The probiotic and prebiotic properties of breast milk favour the implantation of certain bacteria such as Bifidobacterium and Lactobacillus, which are beneficial for the metabolism of the newborn. Gut microbiota matures gradually, reaching an adult-like state at around 3 years of age.

Gut microbiota plays a central role in human physiology and serves several functions, including:

Nutritional and metabolic function:

- Breaks down dietary fibres that have not been digested in the small intestine
- Participates in the production of vitamin K, B12, B8, etc.
- Influences fat storage and the feeling of fullness



Barrier function:

- Establishes and maintains the intestinal barrier
- Limits the proliferation of pathogenic bacteria.

Immune function:

- Participates in immune system formation and maturation
- Produces anti-inflammatory molecules

Why must gut microbiota be kept in balance?

To adequately fulfil all of its functions, gut microbiota requires a balanced distribution of bacterial species. The term **eubiosis** describes the balanced coexistence of a healthy microbiota and host.

This balance is fragile and can be disturbed by any number of extrinsic factors (antibiotics, chemotherapy, diet, etc.) and intrinsic factors (infections, stress, etc.), resulting in a state of **dysbiosis**. This can lead to certain disorders and diseases such as: abdominal pain as a symptom of irritable bowel syndrome, bowel movement disorders, chronic intestinal inflammation, obesity, diabetes, heart disease, etc.

Who is the gut microbiota analysis for?

The gut microbiota analysis is for anyone who:

- is healthy and concerned about maintaining a balanced gut,
- wishes to assess the impact of a new diet, treatment, or the use of prebiotics or probiotics,
- suffers from bowel movement disorders, inflammation or bowel pain.

This test provides a mapping of the microbiota, and helps to determine whether it is in a state of eubiosis or dysbiosis and identify potential dysfunctions.

This test is aimed at men and women of all ages.

It is not recommended for children under 3 years of age, as their microbiota is unlikely to have reached a stable, adult-like state.

Cutting-edge technology at your fingertips

The test is based on the sequencing of a ubiquitous gene (16S) to simultaneously identify all the bacteria present in the gut from a stool sample. The results of the sequencing are then analysed by microbiota experts to define the state of your microbiota.

For more information and articles on gut microbiota, visit our website at www.juvenalis.com

Practical details

- **Specimen:** stool sample (special collection kit required)
- **Technique:** Next generation sequencing
- **Turnaround time:** 4 to 6 weeks

Contact

JUVENALIS c/o EUROFINS BIOMNIS
17/19, avenue Tony Garnier - BP 7322 - 69357 Lyon cedex 07 - Tel: (+33) 04 72 80 23 85
international@eurofins-biomnis.com

To find out more, visit **www.juvenalis.com**