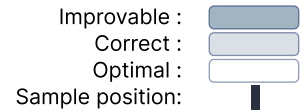


Microbiological test report for :

Full gut microbiome profiling

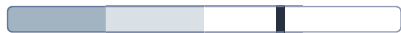

Shotgun metagenomic sequencing - 20M reads - PE150

Sample ID : XX-XXXXXXX



This report presents your results, comparing them with those obtained from the Nahibu cohort.

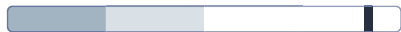





MAIN CHARACTERISTICS

Indicator	Result	Comparison to the Nahibu cohort
Enterotype	Firmicute	
Microbial richness	166	
Balance	Slightly unbalanced	




BACTERIA OF INTEREST

Description of these bacteria is provided in the appendix.

POSITIVE IMPACT BACTERIA

Indicator	Result	Comparison to the Nahibu cohort
<i>Faecalibacterium prausnitzii</i>	Optimal	
<i>Eubacterium hallii</i>	Improvable (not detected)	
<i>Bifidobacterium longum</i>	Optimal	
<i>Roseburia intestinalis</i>	Improvable (not detected)	
<i>Akkermansia muciniphila</i>	Correct	
<i>Veillonella atypica</i>	Optimal	

NEGATIVE IMPACT BACTERIA

Indicator	Result	Comparison to the Nahibu cohort
<i>Bilophila wadsworthia</i>	Correct	
<i>Clostridioides difficile</i>	Optimal (not detected)	
<i>Ruminococcus gnavus</i>	Improvable	



FUNCTIONAL POTENTIAL

Description of each compound is provided in the appendix.

DIGESTION AND INTESTINAL COMFORT








Indicator	Result	Comparison to the Nahibu cohort
BLOATING AND GAS		
Hydrogen sulfide	Optimal	
ACIDS AND REFLUX		
Lactate	Improvable	
SATIETY		
Acetate, lactate, propionate	Improvable	
FATTY ACID METABOLISM REGULATION		
Spermidine	Optimal	
VITAMIN PRODUCTION		
Adenosylcobalamin	Correct	
Menaquinone	Correct	

PHYSICAL ABILITIES






Indicator	Result	Comparison to the Nahibu cohort
Acetate	Improvable	
Histidine	Optimal	
Pantothenate	Optimal	



IMMUNITY

Indicator	Result	Comparison to the Nahibu cohort
DEVELOPMENT AND MAINTENANCE OF GUT TISSUES		
Butyrate	Correct	
Hydrogen sulfide	Optimal	
Putrescine, spermidine	Improvable	
INFLAMMATION		
Butyrate	Correct	
Acetate	Improvable	
Lactate	Improvable	
Histidine	Optimal	

NEUROPSYCHOLOGICAL ABILITIES

Indicator	Result	Comparison to the Nahibu cohort
GENERAL BRAIN FUNCTION		
Histidine	Optimal	
COGNITIVE ABILITIES AND MEMORY		
Tetrahydrofolate	Improvable	
SLEEP		
Butyrate	Correct	
DEPRESSION AND MOOD DISORDERS		
GABA	Improvable	
STRESS AND ANXIETY		
Pantothenate	Optimal	



NUTRITIONAL ADVICE

Generic advice

Fiber plays a key role in ensuring proper intestinal transit, by facilitating digestive movements and supplying nutrients to the microbiota. They are essential to the overall balance of the intestinal microbiota, contributing to its health benefits.

Some people may be sensitive to FODMAPs (e.g. FOS and GOS), sometimes causing bloating and digestive discomfort. It is then recommended to introduce these foods gradually to help restore the balance of the microbiota.

For a balanced microbiota, it's advisable to eat a varied diet and limit processed foods rich in fat or salt. Adequate hydration, a high-fiber diet and regular physical activity remain the basic tips for maintaining a healthy intestinal balance.

Recommendations adapted to your microbiotic data

Category	Recommended foods or supplements

Category	Foods or Supplements to Limit



APPENDICES

BACTERIA OF INTEREST

- ***Faecalibacterium prausnitzii***

F. prausnitzii is one of the most abundant species in the intestinal microbiota. As a butyrate producer, it contributes to good intestinal health by nourishing colon cells and reinforcing the intestinal barrier.

- ***Eubacterium halii***

E. halii is a butyrate- and propionate-producing species.

- ***Bifidobacterium longum***

B. longum is a commercially available probiotic species with anti-inflammatory effects.

- ***Roseburia intestinalis***

R. intestinalis is one of the dominant species in the gut microbiota. As a butyrate producer, it contributes to the proper functioning of the intestinal barrier and has anti-inflammatory properties.

- ***Veillonella atypica***

V. atypica promotes the growth of other beneficial bacteria and helps eliminate potentially harmful compounds. Mainly found in the microbiota of athletes, it appears to enhance physical performance by transforming lactic acid produced during exercise.

- ***Akkermansia muciniphila***

A. muciniphila helps strengthen the intestinal barrier, supports weight management, has anti-inflammatory properties, and is associated with overall good health.

- ***Bilophila wadsworthia***

B. wadsworthia has pro-inflammatory properties and appears to worsen metabolic disorders in individuals with a high-fat diet.

- ***Clostridioides difficile***

Pathogenic bacteria responsible for nosocomial infections. Its effects range from mild diarrhea to severe intestinal pathologies. A stable gut microbiota limits the growth of *C. difficile*, but disruptions such as antibiotic use can compromise this protection.

- ***Ruminococcus gnavus***

R. gnavus has a strong inflammatory potential.

COMPOUNDS OF INTEREST

- **Acetate**

This volatile fatty acid, produced by bacteria and transported to organs by the blood, is a prime source of energy for muscles. Also involved in immune cell expression, its concentration increases during infection to support the adaptive immune response.

- **Acetate, Lactate, Propionate**

These volatile fatty acids are involved in satiety regulation by inhibiting hormone secretion from colon mucosal cells and promoting the release of peptides and hormones that act on the central nervous system. High concentrations lead to reduced appetite.



- **Adenosylcobalamin**

The active form of vitamin B12 comes mainly from the diet, but can be produced by certain bacteria, reducing the risk of deficiency. It is involved in the synthesis of essential amino acids for both the microbiota and the host. Additionally, it plays a role in regulating fatty acid metabolism and cell development.

- **Butyrate**

Short-chain fatty acid produced by intestinal microbiota during fiber fermentation. As the main nutrient for intestinal mucosa cells, it stimulates mucus production, helping to maintain digestive tract tissue. Butyrate also has anti-inflammatory properties and promotes sleep onset and deep sleep phases..

- **GABA**

GABA (gamma-aminobutyric acid) inhibits neurons to prevent constant excitation. It must be balanced with glutamate to reduce the risk of epilepsy.

- **Histidine**

An essential compound in hemoglobin synthesis, it plays a crucial role in arterial health. It also contributes to neurological well-being by protecting nerve cells. Sufficient histidine levels help reduce mental fatigue, support memory, and promote quality sleep. However, an excess of histidine can lead to stress and anxiety.

- **Lactate**

The acidity from lactate inhibits the growth of potentially pathogenic bacteria, but maintaining balance is essential to prevent excessive acidification of the intestine. Its presence is directly linked to increased local acidity through a higher concentration of lactate-producing bacteria and a decrease in lactate-utilizing bacteria.

- **Menaquinone**

Menaquinone is the form of vitamin K produced by bacteria. It is involved in cardiovascular and bone metabolism, cell growth and immunity. Vitamin K also promotes the development of beneficial bacteria and limits the development of pathogens.

- **Panhotenate**

Vitamin B5 is involved in the regulatory mechanisms of adrenalin, insulin and porphyrin (hemoglobin precursor). It has anti-stress properties and helps reduce fatigue.

- **Putrescine, spermidine**

The gut microbiota produces some of the polyamines found in the intestine. These compounds regulate cell growth and support intestinal maturation. Some polyamines are used by bacteria to form biofilms, which play a protective role in the intestinal lining. However, excessive concentrations may be linked to an increased risk of cancer and chronic inflammation.

- **Spermidine**

A polyamine produced by the gut microbiota, it helps reduce adiposity and fat accumulation in the liver. Spermidine thus plays a role in preventing diet-induced obesity.

- **Hydrogen sulfide**

At low concentrations, hydrogen sulfide reduces inflammation in the digestive tract. It stabilizes mucus and bacterial populations, promoting a strong intestinal barrier effect. However, excessive bacterial production of hydrogen sulfide can lead to intestinal irritation and inflammation. When absorbed by the body, this gas may be linked to hypertension issues.

- **Tetrahydrofolate**

The active form of vitamin B9 can be synthesized by intestinal bacteria. It is involved in the development of the nervous system and the maintenance of cognitive functions.



