Gut Microbiome Test

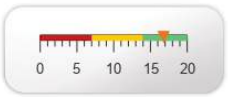
Report for: Member Example
Sample collection date: 7 August 2020

Sequencing type: 16s rRNA sequencing of v4 region

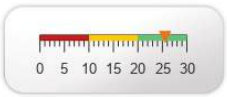
Gut Wellness Score

The gut wellness score combines the following indicators into a single metric.

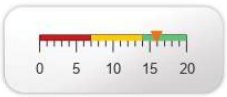
Diversity (84.00 %)



Probiotics (85.13 %)



Commensals (79.60 %)



Pathobionts (66.67 %)

Probiotics

Probiotics are beneficial, protective bacteria. Probiotics are often called "good" bacteria. The beneficial impact of probiotics can be lost when present in concentrations exceeding the ideal range[1].

Probiotics - Akkermansia

Bacteria	Chart	Percent	Range	Interpretation	Score
Akkermansia		0.133%	(0.02-2.1%)	Optimal	100.0%

Akkermansia is a genus in the phylum Verrucomicrobia, containing only 2 species of which one, namely A. muciniphila is the most well known and is considered an integral part of a balanced human gut flora. Akkermansia muciniphila is currently being studied for its effects on human metabolism.

Recent studies have indicated that Akkermansia muciniphila in the intestinal tract may reduce obesity, type 2 diabetes, and inflammation.
Elevated levels of Akkermansia muciniphila have been associated with multiple sclerosis and intestinal inflammation.

Muciniphila can degrade mucin and exert competitive inhibition on other pathogenic bacteria that degrade the mucin. These findings provide a rationale for A. muciniphila to become a promising probiotic and as such, several probiotic manufacturers are working on probiotic supplements and foods containing it.

63rd percentile

Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
0.000%	0.002%	0.019%	0.706%	0.540%	11.758%

Probiotics - Bifidobacterium

Bacteria	Chart	Percent	Range	Interpretation	Score
Bifidobacterium	0 2 4 6 8 10	1.847%	(>=2.5-5.0%)	Low	73.88%

Bifidobacterium is a genus of gram-positive bacteria. They are ubiquitous inhabitants of the gastrointestinal tract, vagina and mouth of mammals, including humans. Bifidobacteria are one of the major genera of bacteria that make up the gastrointestinal tract microbiota in mammals. Some bifidobacteria are used as probiotics.

Different species and/or strains of bifidobacteria may exert a range of beneficial health effects, including the regulation of intestinal microbial homeostasis, the inhibition of pathogens and harmful bacteria that colonize and/or infect the gut mucosa, the modulation of local and systemic immune responses, the repression of procarcinogenic enzymatic activities within the microbiota, the production of vitamins, and the bioconversion of a number of dietary compounds into bioactive molecules. Bifidobacteria improve the gut mucosal barrier and lower levels of lipopolysaccharide in the intestine.

Bifidobacteria may also improve abdominal pain in patients with irritable bowel syndrome (IBS) though studies to date have been inconclusive. Naturally occurring Bifidobacterium may discourage the growth of Gram-negative pathogens in infants.

These foods and supplements are known to increase Bifidobacterium.

Our food and prebiotic recommendations are based on selectively feeding or crowding out specific bacteria and do not imply tolerance for a particular individual. Please introduce new foods and prebiotics gently and slowly.Refer to your overall recommendations to see the overall impact.

Prebiotics & Other Ingredients

Acacia fiber · Arabinogalactan · Galactooligosaccharides · Guar gum · Gum arabic · Lactose (not in lactose intolerant) · Lactulose · Milk oligosaccharides · Partially Hydrolyzed Guar Gum · Pectin · Raffinose · Resistant starch · Resveratrol · Stachyose · Xylooligosaccharides

Supplements with this icon should be used with caution and for a limited time only as it can decrease Probiotic and Commensal bacteria. Please consult your practitioner.

Probiotics

Bifidobacterium longum

General Recommendations

Plant based diet

Recommended Foods

Acacia tree · Apples · Apricots · Artichoke · Asparagus · Banana · Beans · Beetroot · Broccoli · Carrots · Cashews · Cherries · Chickpeas · Chicory · Cottonseed flour · Cranberries · Fennel · Green banana · Green tea · Guar bean · Leek · Lentils · Lettuce · Matcha · Oat · Onions · Oranges · Peas · Pomegranate · Potato · Raddichio · Soy flour · Strawberries · White beans · Zhenjiang aromatic vinegar · Adzuki beans · Black sesame seeds · Walnuts

88th percentile

Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
0.003%	0.032%	0.197%	0.751%	0.824%	8.591%

Probiotics - Blautia

Bacteria	Chart	Percent	Range	Interpretation	Score
Blautia	0 5 10 15 20	7.769%	(5.0-10.0%)	Optimal	100.0%

Blautia may assist in the digestion of complex carbohydrates. An abundance of these bacteria is a strong indication of a healthy gut. Blautia levels are increased in healthy people when compared to patients with liver disease and colorectal cancer and children with diabetes. Blautia produces anti-inflammatory short chain fatty acids called butyrate.

These foods and supplements are known to reduce Blautia.

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Prebiotics & Other Ingredients

Chitooligosaccharides | Mannose oligosaccharides | Triphala

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Recommended Foods

Adzuki beans 

Walnuts 

Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
1.445%	4.981%	7.280%	7.951%	10.239%	21.330%

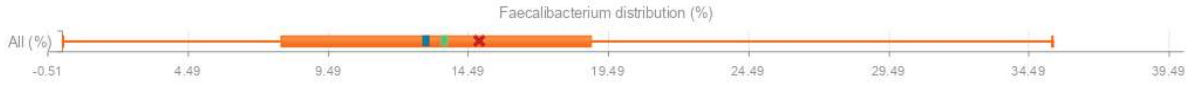
Probiotics - Faecalibacterium

Bacteria	Chart	Percent	Range	Interpretation	Score
Faecalibacterium	0 5 10 15 20	14.891%	(>=10.0-15.0%)	Optimal	100.0%

Faecalibacterium is a probiotic genus of bacteria. Its sole known species, Faecalibacterium prausnitzii is gram-positive and is one of the most abundant and important commensal bacteria of the human gut microbiota. It boosts the immune system, among other things.

Lower than usual levels of F. prausnitzii in the intestines have been associated with Crohn's disease, obesity, asthma and major depressive disorder, and higher than usual levels have been associated with psoriasis.

59th percentile



Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
0.063%	7.796%	12.977%	13.655%	18.883%	35.354%

Probiotics - Lactobacillus

Bacteria	Chart	Percent	Range	Interpretation	Score
Lactobacillus	0 — 0.5 — 1 — 1.5	0.007%	(0.01-1.0%)	Low	70.0%

Lactobacillus is a genus of Gram-positive, non-spore-forming bacteria. They are a major part of the lactic acid bacteria group (i.e., they convert sugars to lactic acid). In humans, they constitute a significant component of the microbiota at a number of body sites, such as the digestive system, urinary system, and genital system.
Lactobacillus forms biofilms in the vaginal and gut microbiota, allowing them to persist during harsh environmental conditions and maintain ample populations. Lactobacillus exhibits a mutualistic relationship with the human body, as it protects the host against potential invasions by pathogens, and in turn, the host provides a source of nutrients.
Lactobacillus is the most common probiotic found in food such as yogurt, and it is diverse in its application to maintain human well-being, as it can help treat diarrhea, vaginal infections, and skin disorders such as eczema.

☞ These foods and supplements are known to increase Lactobacillus.
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Prebiotics & Other Ingredients

Acacia fiber, Arabinogalactan, Beta-glucan, Calanus oil, Gum arabic, Konjac glucomannan, Lactose (not in lactose intolerant), Lactulose, Omega-3, Partially Hydrolyzed Guar Gum, Raffinose, Stachyose, Turmeric

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Probiotics

Lactobacillus acidophilus

Recommended Foods

Acacia tree, Barley, Beans, Chickpeas, Cottonseed flour, Cranberries, Green tea, Lentils, Matcha, Mushrooms, Oat, Onions, Peas, Pomegranate, Rye, Seaweed, Soy flour, Strawberries, Zhenjiang aromatic vinegar, Adzuki beans, Pistachios

37th percentile

Lactobacillus distribution (%)

All (%) -0.01 — 0.09 — 0.19 — 0.29 — 0.39 — 0.49

Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
0.000%	0.004%	0.011%	0.035%	0.031%	0.453%

Biomesight Gut Microbiome Report - Offline Summary only - Interactive platform with community statistics and analytics available at www.biomesight.com

Food Intolerances beta

While many intolerances are predetermined genetically (e.g. through lack of enzyme production), some are also impacted by our gut microbiota. Many gut bacteria produce enzymes relevant to degrading substrates ingested both through diet as well as those produced as byproducts of metabolizing other substrates. Intolerance should not be confused with allergies. Intolerances are milder reactions based on lack of enzymes and not an immune reaction. For both lactose & oxalate degraders, close to or higher than the median is desired.

Blog: Exploring Gut Bacterial Metabolites

Blog: Deep dive into oxalates

We show how the relative abundances of the bacteria in your sample compares to the median levels (midpoint) of those within our sample set.

It is important to note that this is not a measure of these metabolites found in the stool sample.

Degraded Substrate	Comparison	Associated Symptoms	Rating beta
+ Lactose		Bloat, Diarrhoea	

Lactose digestion is determined by the ability to produce the lactase enzyme. While all human babies produce lactase, many adults produce very little. Lactose intolerance (via endogenous lactase enzyme production) can be determined through a genetic test. A further factor influencing lactose intolerance is the presence/absence of lactose degrading bacteria in the small intestine and to a lesser degree in the colon.

80th percentile

Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
0.026%	0.137%	0.327%	0.718%	0.821%	6.658%

Degraded Substrate	Comparison	Associated Symptoms	Rating beta
+ Oxalates		Kidney Stones, Reduced mineral absorpion, Inflammation, Autoimmunity	

Leafy greens and other popular plant foods contain an antinutrient called oxalate. Gut bacteria contribute to oxalate metabolism through the production of enzymes that degrade oxalate. Oxalates are not just ingested through the dietary intake but are also synthesized by the body. Most oxalates are produced by the body through the breakdown of Dehydroascorbic acid (DHA), an oxidized form of ascorbic acid (vitamin C). One of the main health concerns around oxalates is that it can bind to minerals in the gut and prevent the body from absorbing them. It also increases the risk of developing kidney stones as it is excreted through urine and stool.

87th percentile

Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
0.010%	0.081%	0.276%	0.825%	0.912%	9.003%

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Longevity beta

Our gut microbiota are capable of producing enzymes implicated in longevity which we cannot produce ourselves. These enzymes are responsible for processing substrates from food into beneficial metabolites. They increase longevity by decreasing the slow damage associated with aging via their antioxidative properties. Additionally, these metabolites have been found to combat the three leading causes of death in both the USA and UK: cancer, heart disease, and neurological diseases such as dementia and Alzheimer's disease. Myrosinase producers close to or higher than the median is desired.

Important : Your rating is not a predictor of your longevity! It is simply feedback on an aspect of longevity that your gut microbiota contribute to.

Oliver Luk, BSc: Myrosinase

Research Summary: Myrosinase

We show how the relative abundances of the bacteria in your sample compares to the median levels (midpoint) of those within our sample set.

It is important to note that this is not a measure of these metabolites found in the stool sample.

Enzyme	Comparison	Associated Benefits	Rating beta
+ Myrosinase		Anti-carcinogenic, Anti-ageing	

Inherently, humans cannot produce the enzyme myrosinase so instead, we rely on our gut microbiota to produce it. This enzyme is responsible for processing glucosinolate compounds into their isothiocyanate products. These glucosinolate compounds are typically found in vegetables from the Brassicaceae family, which includes cruciferous vegetables such as broccoli, Brussels sprouts, cabbage, and capers. The primary focus of research on these compounds is the glucosinolate glucoraphanin , and its isothiocyanate product sulforaphane .

These glucosinolates cannot be fully metabolised by the vegetable's own myrosinase after being cooked, since the heat partially inactivates or denatures the myrosinase enzymes. Despite this, the leftover glucosinolates are still metabolised to isothiocyanates in humans. This is explained by the gut microflora because within the gut of humans are myrosinase-producing bacteria.

Sulforaphane is a powerful organic sulfur-containing phytochemical that has been found to be associated with a wide range of health benefits, such as: protecting against cancer by inducing the detoxification and excretion of carcinogens, protecting against otherwise lethal pathogens such as SARS-CoV-2, and reducing blood sugar levels associated with type 2 diabetes.

Naturally, these antioxidative properties also extend to the reduction of other age-associated oxidative stress processes such as neurodegeneration, skin damage caused by UV radiation, build-up of plaque in the arteries, and increased blood pressure.

56th percentile

Lower	Q1(25%)	Median	Average	Q3 (75%)	Upper
0.133%	1.845%	4.511%	6.379%	9.384%	26.445%

Overall Recommendations

These recommendations are personalized using your completed health profile and selected microbiome sample.

☒ Our food and supplements recommendations are based on selectively feeding or crowding out specific bacteria and do not imply tolerance for a particular individual. Please introduce new foods and supplements gently and slowly.

FOOD TO ADD OR CONTINUE

☞ Green (enjoy): The number indicates the number of bacteria it is expected to improve.
☞ Try to consume some of these foods more regularly.

FOOD TO REDUCE

☞ Orange/Red (reduce): The number indicates the number of bacteria it is expected to worsen.
☞ Try to reduce consumption of these foods.

PREBIOTICS TO ADD OR CONTINUE

☞ Green (enjoy): The number indicates the number of bacteria it is expected to improve.
☞ Choose one or two of these supplements.
☞ Introduce them separately. Start with 1 capsule or 1/4 of a teaspoon and work up to the full dosage slowly to build tolerance. Refer to the package instructions for recommended dosage.

4 lactulose	3 Galactooligosaccharides	3 Omega-3	2 pectin	2 Yeast beta-glucan	2 acacia fiber
2 Arabinogalactan	2 gum arabic	2 raffinose	2 resveratrol	2 stachyose	2 xylooligosaccharides
2 calanus oil	1 guar gum	1 berberine ☒	1 neem ☒	1 thyme ☒	1 beta-glucan
1 konjac glucomannan	1 turmeric	1 psyllium	1 nicotinamide mononucleotide	1 quercetin	1 ShenLing BaiZhu San

PREBIOTICS TO REDUCE

☞ Orange/Red (reduce): The number indicates the number of bacteria it is expected to worsen.

1 pea fiber

1 taurine

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PROBIOTICS TO ADD OR CONTINUE

☞ Green (enjoy): The number indicates the number of bacteria it is expected to improve.
☞ Choose one or two of these supplements.
☞ Introduce them separately. Start with 1 capsule or 1/4 of a teaspoon and work up to the full dosage slowly to build tolerance. Refer to the package instructions for recommended dosage.

1 Bacillus coagulans | 1 Bifidobacterium longum | 1 Lactobacillus acidophilus | 1 Bifidobacterium longum BB536 | 1 Lactobacillus rhamnosus GG

PROBIOTICS TO REDUCE

☞ Orange/Red (reduce): The number indicates the number of bacteria it is expected to worsen.

1 Bacillus subtilis

LIFESTYLE TO ADD OR CONTINUE

☞ Green (enjoy): The number indicates the number of bacteria it is expected to improve.