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Did you know that our bodies host 100 trillion microbes, many of which reside in the gut, collectively known as the gut microbiome? This vast ecosystem holds 2-3 million genes — compared to just 23,000 in the human genome — revealing a remarkable complexity that far exceeds human genetics.

The gut microbiome, which can weigh up to 2-3 kilograms (Yes, 2-3% of your body weight is microbial!), was once thought to be mainly involved in digestion. However, we know now because of advances in genetic analysis and computing power that the microbiome plays a critical role in many areas of health, including mental well-being, cardiovascular health, immune function, and the risk of chronic diseases. For example, identical twins with different microbiome profiles may experience 8-10 times difference in blood sugar responses to the same foods.

At AMILI, we are committed to advancing gut microbiome science and translating these findings into clinically meaningful insights. We hope you find this report valuable and encourage you to retest every 3-6 months to track changes in your microbiome over time.

Thank you for placing your trust in AMILI's expertise and commitment to scientific excellence.

Dr Jeremy Lim

Chief Executive Officer

Dr. Pijika Watcharapichat

GirhIV.

Head, Medical and Clinical Informatics

This report is for research use only and is not a diagnostic evaluation. Please consult your healthcare provider for any questions regarding the diagnosis, treatment, mitigation, or prevention of any disease, medical condition, or health impairment.





### + Your Microbiome Health Score

Evaluates the balance of key bacteria in your gut microbial community.



#### POOR ▼

Your gut shows an imbalance, with reduced beneficial bacteria and a higher proportion of diseased associated bacteria, which may impact gut health and overall resilience.

### GOOD V

Your gut has a balanced ratio of beneficial to less desirable bacteria, supporting stable gut function and resilience.

### GOOD ▼

Your gut microbiome is thriving, with abundant beneficial bacteria and optimal diversity, promoting overall well-being and strong gut health.

# + Your Diversity Score

Measures the overall diversity of bacterial groups in your microbiome and reflects the richness and evenness of all bacterial specieies



#### POOR ▼

May suggest fewer species of gut bacteria are present, hence leading to increased risks of health conditions. This imbalance may arise from lifestyle or medical conditions.

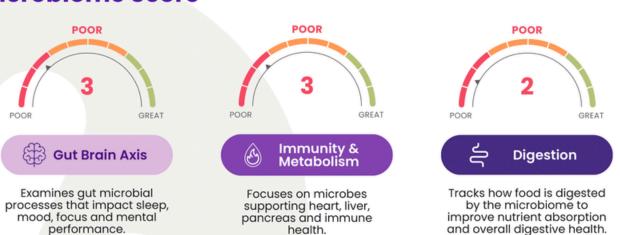
#### GOOD ▼

Indicates a healthy, resilient gut with a variety of beneficial bacteria.

### GREAT ▼

Indicates a balanced gut microbiome that supports healthy metabolism and reduces risks associated with both obesity and inflammation.

# + Your AMILI Microbiome Score



<sup>\*</sup>AMILI Microbiome Scores are calculated from bacterial abundances and key functions, and are measured on a scale from 1 to 10.



### + Your Microbiome Composition

These key bacteria populations help us understand how your gut health may impact overall well-being.

### Proteobacteria:

Elevated levels are linked to inflammation and obesity. 1

### Actinobacteria:

Contribute to gut microbial balance and are associated with aging-related shifts in gut composition.<sup>2</sup>

### Bacteroidota:

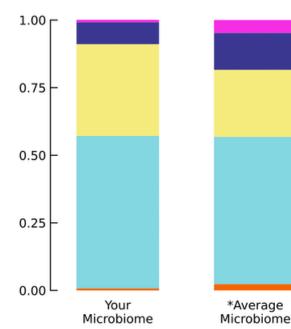
Play a key role in digestion and support weight management by aiding nutrient metabolism.<sup>3</sup>

#### Firmicutes:

Protect the gut lining and facilitate energy and fat absorption, potentially impacting weight and metabolism.<sup>4</sup>

### Fusobacteria & Others:

High levels can produce toxins contributing to inflammation. <sup>5</sup>



### + Your Firmicutes to Bacteroidetes Ratio



### **LOW RATIO** ▼

Linked to inflammation risk (more Bacteroidetes, fewer Firmicutes).

### **OPTIMUM RATIO** ▼

Indicates a balanced gut microbiome that supports healthy metabolsim and reduces risk associated with both obesity and inflammation.

### HIGH RATIO ▼

Linked to higher obesity risk (more Firmicutes, fewer Bacteroidetes).

<sup>\*</sup>Calculated based on healthy individuals in AMILI's multi-ethnic asian database.



### **Your Dietary Recommendations**



### Bamboo Shoot 🚳 🧁

Bamboo shoots are high in blood pressure-lowering potassium and antioxidants that help prevent narrowing of the arteries. Consumption of bamboo shoots has been found to lower total and LDL holesterol levels.



Ginger 🌐 🙆 🧁

Ginger may help lower blood cholesterol and pressure due to its high antioxidant content. These antioxidants may also delay cognitive decline and memory loss.



Apple 🜐 🙆 🧁

Apple's soluble fibre nourishes the gut bacteria and may prevent weight gain. Together with its phytochemicals, it helps to lower blood cholesterol and promote better blood glucose control.



Coriander 🜐 🙆 😩

Coriander is a source of quercetin which promotes gut microbial diversity, and in turn prevents the growth of pathogens in our gut. Coriander may also prevent high blood pressure and high blood cholesterol.

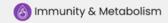


Beetroot 🛞 🙆 🧁

Beetroot's anthocyanins protect the heart and blood vessels by preventing the oxidation of cholesterol. Fibre in beetroot also supports weight loss, and slow glucose absorption.









### **Your Precision Probiotics**



### **Amili Probiotics Formulation 2**

Designed to improve your overall physical and mental well-being. Contains L.Rhamnosus and B.Breve, which has been shown to improve locomotor activities and reduce neuroinflammation, respectively.

For more information, please refer to: Our Supplement Details page.





# Gut-Brain Axis

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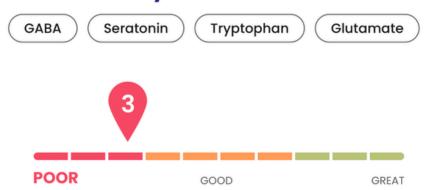
The gut-brain axis is the communication network linking the gut and brain through nerves, hormones, and microbial signals. It plays a key role in regulating digestion, mood, and overall health.

These metabolites play a key role in regulating the Gut-Brain Axis.



# Gut-Brain Axis

### **Key Metabolities:**



There may be an **imbalance** in your gut bacteria or weak communication between your gut and brain, which could contribute to issues like poor stress response, mood swings, or digestive discomfort.

# Stress Management



GABA )

- GABA is a neurotransmitter that helps the brain and body communicate, playing a key role in calming the nervous system, influencing mood, sleep, and stress levels.
- Abundance of bacterial groups associated with GABA production is low, resulting in a poor score.
- Reduce GABA levels can increase anxiety, impair sleep regulation, and elevate stress.



# Gut-Brain Axis





Your Result: GOOD

### Seratonin

 Serotonin regulates mood, sleep, appetite, and digestion, promoting happiness, calm, focus, better sleep, and stress management.

- Abundance of bacterial groups associated with serotonin production is moderate, resulting in a good score.
- Moderate serotonin levels support gut function, mood regulation, and emotional stability through neural signaling.

### Cell Communication



Your Result: GOOD

### Tryptophan

- Tryptophan is an essential amino acid that your body uses to produce serotonin, a neurotransmitter involved in regulating mood, sleep, and overall well-being.
- Abundance of bacterial groups associated with tryptophan production is moderate, resulting in a good score.
- Moderate tryptophan levels support serotonin synthesis, aiding cognitive function, emotional regulation, and mental well-being.

### M Brain Signalling



Your Result: POOR

### Glutamate

- Glutamate is a key neurotransmitter, playing a central role in facilitating learning, memory formation, and communication between nerve cells (neurons) 11.
- Abundance of bacterial groups associated with glutamate production is low, resulting in a poor score.
- Reduced glutamate levels can impair gut-brain communication, limiting cognitive processes and memory.



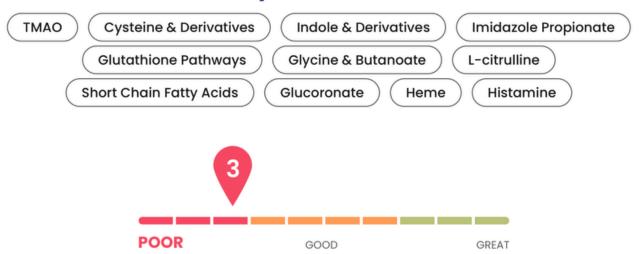
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Immunity, metabolism, and gut health are closely connected through the gut microbiome. The gut-immune axis helps regulate immune responses, while the gut also influences metabolism by producing short-chain fatty acids (SCFAs) that support energy balance, insulin sensitivity, and fat storage.

These metabolites are essential for regulating Immunity and Metabolism.



### **Key Metabolities:**



There may be an imbalance in your gut bacteria, which could contribute to issues pertaining to immune, energy and metabolic functions.



TMAO

- TMAO (trimethylamine N-oxide) is produced by gut bacteria from red meat, eggs, and dairy, affecting cholesterol metabolism and increasing the risk of atherosclerosis and cardiovascular disease. 12
- Abundance of bacterial groups associated with TMAO production processes is moderate, resulting in a good score.
- Moderate TMAO production suggests moderate cardiovascular risk, as these metabolites contribute to atherosclerosis.





### **Inflammation Management**



Your Result: POOR

### Cysteine & Derivatives

- Cysteine supports protein and glutathione production, aiding immunity, cell protection and maintains microbiome balance. Its derivatives, NAC and cystine, promote lung, liver, and skin health. <sup>13</sup>
- Abundance of bacterial groups responsible for cysteine production is low, resulting in a poor score.
- Insufficient cysteine production by the gut microbiome impair inflammation regulation, collagen synthesis, and tissue integrity.

# Gut Lining Protection



Your Result: GOOD

### Indole & Derivatives

- Indole, produced from tryptophan and found in foods like broccoli, supports gut health by strengthening the intestinal lining, promoting beneficial bacteria, and reducing inflammation. <sup>14</sup>
- Abundance of bacterial groups responsible for indole production is moderate, resulting in a good score.
- Adequate indole production supports intestinal barrier integrity and suppresses bacterial virulence, promoting gut health.

### **O** Glucose Regulation



Your Result: GOOD

### Imidazole Propionate

- Imidazole propionate, derived from histidine in protein-rich foods, can disrupt the gut microbiome, increase inflammation, and contribute to metabolic issues. 16
- Abundance of bacterial groups with imidazole propionate production is moderate, resulting in a good score.
- Suboptimal imidazole propionate suggests dysregulated glucose metabolism and impaired metabolic regulation.





### **Oxidative Stress Management**



Your Result: GOOD

### **Glutathione Pathways**

- Glutathione neutralizes free radicals, reducing oxidative stress, inflammation, supports the barrier, and promotes beneficial bacteria, linking antioxidant defense to gut health. <sup>17</sup>
- Abundance of bacterial groups associated with glutathione pathways is moderate, resulting in a good score.
- Moderate glutathione metabolism neutralizes reactive oxygen species, reducing oxidative stress and cellular damage.

# Anti-Inflammation POOR GOOD GREAT Your Result: POOR

### Glycine & Butanoate

- Glycine, an amino acid involved in protein synthesis, supports the gut barrier by aiding in tissue repair and reducing oxidative stress, which helps maintain a stable gut environment. Butyrate, a short-chain fatty acid produced by gut bacteria during fiber fermentation, serves as a primary energy source for intestinal cells, strengthens the gut lining, and reduces inflammation. <sup>18</sup>
- Abundance of bacterial groups associated with glycine and butanoate metabolism is low, resulting in a poor score.
- Reduced production of anti-inflammatory compounds in the gut and impaired inflammation regulation indicates an increased risk of gut inflammation.



### **Intestinal Permeability**



Your Result: POOR

### L-citrulline

 L-citrulline is an amino acid that supports gut health by protecting the intestinal lining and promoting nutrient absorption.

- Abundance of bacterial groups associated with L-citrulline metabolism is low, resulting in a poor score.
- Low citrulline levels impair the intestinal barrier, increasing permeability and allowing harmful substances to enter the bloodstream, causing systemic inflammation and exacerbating digestive disorders..

# 4

### **Intestinal Health**



Your Result: GOOD

### **Short Chain Fatty Acids**

- Short-chain fatty acids (SCFAs) are produced by gut bacteria during fiber fermentation.
   They fuel intestinal cells, strengthen the gut lining, reduce inflammation, and support beneficial bacteria.
- Abundance of bacterial groups associated with production of SCFAs is moderate, resulting in a good score.
- Moderate short-chain fatty acid levels suggest a balanced microbiome and sufficient fiber intake, supporting a healthy gut barrier.







Your Result: GOOD

### Glucoronate

- Glucoronate helps detoxify the body by binding to toxins, making them easier to eliminate. It supports liver function and maintains healthy joints and tissues.
- Abundance of bacterial groups associated with production of glucoronate is moderate, resulting in a good score.
- Moderate levels indicate a balanced detoxification, supporting overall health, liver function, gut health, and joint integrity.

# Iron Optimisation



Your Result: POOR

### Heme

- Heme, found in hemoglobin, helps carry oxygen in red blood cells. It contains iron, essential for oxygen transport and is also involved in energy production and cell repair.
- Abundance of bacterial groups associated with production of heme is low, resulting in a poor score.
- Reduced heme levels may impair oxygen transport, energy production, and overall blood health, potentially leading to fatigue and weakened immune function.



### Histamine

- Histamine is a chemical involved in immune responses, especially during allergic reactions, causing symptoms like itching and swelling. It also regulates stomach acid and the sleep-wake cycle.
- Abundance of bacterial groups associated with production of histamine is moderate, resulting in a good score.
- Moderate histamine levels indicate a balanced immune response, proper digestion, and regulation of sleep and allergic reactions.

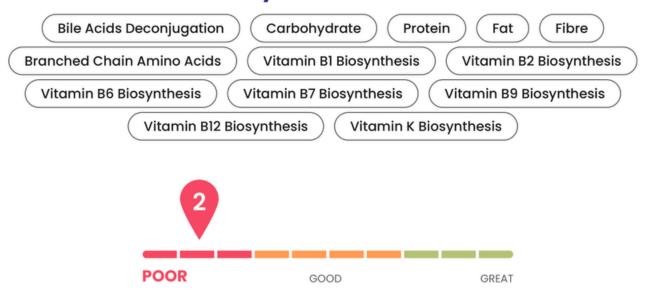
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Digestion and gut health are interconnected, with the microbiome supporting nutrient breakdown, absorption, and gut lining integrity. A balanced microbiome is essential for efficient digestion, metabolic health, and overall gut function.

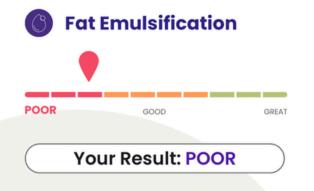
These metabolites support and regulate healthy digestion.



### **Key Metabolities:**



There may be an imbalance in your gut bacteria, which may be inefficiently digesting and absorping nutrients.



### Bile Acids Deconjugation

- Bile acid deconjugation occurs in the gut when specific bacteria break down bile acids produced by the liver for fat digestion. This process shapes the gut microbiome by promoting beneficial bacteria, maintaining microbial balance, and reducing inflammation, highlighting its role in supporting digestive and microbiome health.
- Abundance of bacterial groups responsible for bile acid deconjugation ia low, resulting in a poor score.
- Dysfunctional gut microbiome activity may impair lipid absorption and fat-soluble vitamin metabolism, disrupting nutrient bioavailability.







Your Result: GOOD

### Carbohydrate

- Carbohydrate digestion breaks down carbs into sugars for energy, with undigested fiber reaching the large intestine. Gut bacteria ferment this fiber, producing short-chain fatty acids (SCFAs) that strengthen the gut barrier, support beneficial bacteria, and promote a healthy microbiome.
- The body uses carbohydrate to derive energy and when undigested by the gut, causes gas and bloating.
- Abundance of bacterial groups associated with carbohydrate digestion is moderate, resulting in a good score.
- Efficient carbohydrate metabolism optimizes energy extraction, promoting effective energy utilisation and supporting metabolic homeostasis.

# Protein Digestion



Your Result: POOR

### Protein

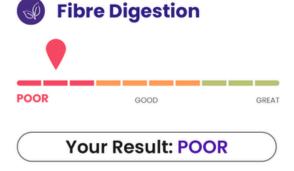
- Protein digestion breaks down proteins into amino acids for muscle building, tissue repair, and essential functions. In the gut, undigested protein is fermented by bacteria, producing beneficial compounds like SCFAs and indoles that strengthen the gut lining, reduce inflammation, and support a healthy microbiome.
- Abundance of bacterial groups associated with protein digestion is low, resulting in a poor score.
- Inefficient protein digestion and amino acid absorption can impair muscle repair, recovery, and growth.





Fat

- Fat digestion breaks down fats from foods like oils, nuts, and dairy into fatty acids for energy, hormones, and cell health. Healthy fats, like omega-3s, support beneficial gut bacteria and reduce inflammation, promoting a balanced microbiome and overall gut health.
- Abundance of bacterial groups associated with fat digestion is moderate, resulting in a good score.
- Suboptimal fat digestion and metabolism hinder energy extraction, lipid oxidation, and metabolic homeostasis.



Fibre

- The body relies on gut bacteria to digest fiber from foods like fruits, vegetables, and whole grains. In the large intestine, bacteria ferment fiber into short-chain fatty acids (SCFAs), which strengthen the gut lining, reduce inflammation, and fuel gut cells. Fiber also supports beneficial bacteria, promotes regular digestion, and maintains a healthy gut microbiome
- Abundance of bacterial groups involved in fibre fermentation is low, resulting in a poor score.
- Reduced fiber fermentation in the gut microbiome lowers SCFA production, compromising intestinal barrier integrity and gut health.





### **Muscle Growth & Repair**



Your Result: GOOD

### Branched Chain Amino Acids

- Branched-chain amino acids (BCAAs)—
  leucine, isoleucine, and valine—support gut
  health by maintaining the intestinal lining,
  reducing oxidative stress, and fueling
  intestinal cells. They also promote beneficial
  bacteria, linking protein metabolism to a
  healthy microbiome.
- Abundance of bacterial groups associated with the digestion and utilisation of BCAAs is moderate, resulting in a good score.
- Suboptimal metabolism of branched-chain amino acids may support protein synthesis, muscle repair, and intestinal barrier health.

### B

### **Vitamin B1 Biosynthesis**



Your Result: POOR

### Vitamin B1 Biosynthesis

- Vitamin B1 (thiamine) is essential for converting food (carbohydrates) into energy and supporting the nervous system, digestion, and gut health.
- Thiamine helps maintain a strong gut lining and balanced bacteria.
- Abundance of bacterial groups involved in Vitamin B1 production is low, resulting in a poor score.
- Insufficient vitamin B1 production by the gut microbiome may impair carbohydrate metabolism, energy production, and metabolic health.







Your Result: GOOD

### Vitamin B2 Biosynthesis

- Vitamin B2 (riboflavin) is vital for energy production, metabolism, and overall health, and it also plays an important role in supporting gut health by maintaining the gut lining, promoting the growth and function of beneficial bacteria, and reducing inflammation.
- Abundance of riboflavin-producing bacterial groups is moderate, resulting in a good score.
- Suboptimal vitamin B2 production by the gut microbiome may disrupt microbial balance, gut function, and efficient energy production.

### Vitamin B6 Biosynthesis



### Vitamin B6 Biosynthesis

- Vitamin B6 (pyridoxine) plays a crucial role in protein metabolism, energy production, and brain function, while also influencing gut health by reducing inflammation, boosting immunity, and promoting the growth of beneficial bacteria.
- Abundance of bacterial groups associated with vitamin B6 production is low, resulting in a poor score.
- Decreased vitamin B6 production by the gut microbiome may disrupt amino acid metabolism, red blood cell production, neurotransmitter synthesis, and gut function.





### Vitamin B7 Biosynthesis



Your Result: POOR

### Vitamin B7 Biosynthesis

- Vitamin B7 (biotin) plays a key role in converting food into energy and supports healthy skin, hair, nails, and the nervous system while maintaining a healthy gut lining and supports a balanced microbiome by promoting beneficial bacteria.
- · Abundance of bacterial groups associated with vitamin B7 production is low, resulting in a poor score.
- Reduced vitamin B7 production by the gut microbiome may impair carbohydrate and fat metabolism, affect skin, nail, and hair health, and disrupt liver and nervous system function.

### **Vitamin B9 Biosynthesis**



### Vitamin B9 Biosynthesis

- Vitamin B9 (folate) is essential for DNA synthesis, red blood cell production, and cell growth while supporting gut health by maintaining the gut lining, promoting beneficial bacteria, and reducing inflammation.
- Abundance of bacterial groups associated with vitamin B9 production is low, resulting in a poor score.
- · Low vitamin B9 production by the gut microbiome may impair red and white blood cell formation, cellular processes, and DNA synthesis, affecting overall health.







Your Result: POOR

### Vitamin B12 Biosynthesis

- Vitamin B12 (cobalamin) is essential for energy production, red blood cell formation, DNA synthesis, and nervous system health while maintaining the gut lining and supports the growth and function of beneficial gut bacteria
- Abundance of bacterial groups associated with vitamin B12 production is low, resulting in a poor score.
- Reduced vitamin B12 production by the gut microbiome may impair neurological function, hinder red blood cell production, and cause fatigue and gastrointestinal disturbances.

### Vitamin K Biosynthesis



Your Result: GOOD

### Vitamin K Biosynthesis

- Vitamin K supports blood clotting, bone health, and gut health by maintaining the integrity of the gut lining and promoting the growth of beneficial bacteria.
- Abundance of bacterial groups associated with vitamin K synthesis is moderate, resulting in a good score.
- Suboptimal vitamin K production by the gut microbiome may affect bone health regulation and disrupt vitamin K-dependent processes, including blood clotting, calcium metabolism, and cardiovascular health.



# Your Health Trajectory

An analysis on how your gut microbiome correlates with key health outcomes



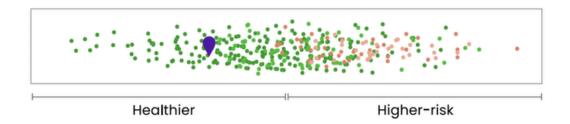
### + How to Interpret Your Results

The graphs in your report provide insights into how your gut microbiome composition may impact your health trajectory. Here's how to understand them:

### **Graph Position:**

If your result ( ightharpoonup ) is closer to the left, your microbiome profile more closely aligns with healthier profiles.

If your result is further to the right, it suggests a microbiome composition more commonly associated with higher-risk profiles.



### **Understanding Anomalies:**

It's normal for individuals with overall good health to occasionally fall into higher-risk ranges. These results are not diagnostic but instead highlight possible trends for further discussion with your healthcare provider.

### **Key Takeaway:**

These graphs reveal correlations between your gut microbiome and various health risks. Use this information as a guide to better understand your health and discuss proactive steps with your healthcare provider.



### **Obesity & Gut Health**



- Obesity: Linked to excess body fat, which can impact health.
- Gut Imbalance (Dysbiosis): An unhealthy gut microbiome may increase obesity risk.
- Low Bacterial Diversity: Reduces metabolic efficiency, making weight management harder.

# Non-Alcholic Fatty Liver Disease (NAFLD)



- NAFLD (Non-Alcoholic Fatty Liver Disease): Caused by fat build-up in the liver.
- · Liver Inflammation: Fat can trigger inflammation and damage liver cells.
- NASH (Non-Alcoholic Steatohepatitis): A severe form of NAFLD that can lead to liver scarring and cirrhosis.

### Inflammatory Bowel Disease (IBD)



- IBD (Inflammatory Bowel Disease): Refers to chronic inflammation of the digestive tract.
- · Ulcerative Colitis: Causes persistent inflammation and ulcers in the colon and rectum lining.
- **Crohn's Disease:** Involves inflammation of the digestive tract lining, often extending into deeper tissues.



### Colorectal Cancer (CRC)



- Colorectal Cancer(CRC): Includes cancers of the bowel, colon, and rectum.
- Genetic Risk: 75-95% of cases have little to no underlying genetic risk.
- Risk Factors: Age, diet, obesity, smoking, and red meat consumption.

# Type 2 Diabetes Mellitus (T2DM)



- T2DM (Type 2 Diabetes Mellitus): Defined by high blood glucose, insulin resistance, and insufficient insulin production.
- Prevalence: Accounts for nearly 90% of diabetes cases worldwide.
- Causes: Linked to a combination of lifestyle and genetic factors.



# Our Probiotics Details



# + Our Probiotics Details

### Formulation 1 - Immune-Metabolic Health

PROBIOTICS
Formulation 1
ImmuneMetabolic
Health

Our Formulation 1 helps you maintain your health while boosting your immunity.

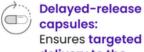
### ☆ Key benefits:

- Empowers body's natural defences.
- · Boosts immunity & fights infection.
- · Supports optimal gut health.

18 billion CFU



- L. plantarum: Reduces inflammation, enhances glucose metabolism, supports fat oxidation, and promotes better sleep quality.
- B. longum: Improves lipid profile, liver health, and kidney function.
- B. animalis ssp. lactis: Promotes immune balance and strengthens inflammatory control.



delivery to the intestine



1 month supply of 30 **veggie capsules** 

### Prebiotics Strains:

- Fructooligosaccharides (FOS) | 30mg: Promotes growth of good gut bacteria and increases mineral absorption.
- Citrus Aurantium L. (Orange Peel Extract) | 60mg: Promotes Short-Chain Fatty Acid (SCFA) production, enhancing digestive health.
- Guar Gum | 20mg: Regulates immune response and reduces inflammation.

### åg ₽

### **Postbiotics Strains:**

• S. salivarius ssp. thermophilus: Regulates immune response and reduces inflammation.

### **Enhanced Gut Health through Synbiotics**









- AMILI Probiotics contain symbiotic blends of probiotics (beneficial bacteria) and prebiotics (non-digestible fibers) to enhance gut health.
- Probiotics improve digestion, nutrient absorption, and immunity.
- Prebiotics act as food for probiotics, boosting their survival and function.
- As synbiotics, they reinforce the gut barrier, combat inflammation, and protect against harmful pathogens.
- Stimulates short-chain fatty acid production, supporting colon function and reducing metabolic disease risks
- Restores gut balance, promoting optimal digestive health and immunity.



# Appendix



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Note: This microbiome test is a non-diagnostic evaluation, and intended to be a wellness and lifestyle assessment.