



GI-MAP® Comprehensive Stool Profile Information Sheet

The GI-MAP® was designed to assess a patient's microbiome from a single stool sample, with particular attention to microbes that cause disease or that disrupt normal microbial balance and contribute to perturbations in the GI flora and contribute to illness, going beyond the standard parameters for identifying gastrointestinal disorders. This profile uses DNA analysis to identify microbiota including anaerobes, a previously immeasurable area of the gut environment. DNA assessment is specific and accurate, avoids the pitfalls of sample transport, reports results as specific numbers, and is more sensitive than classic laboratory methods. This profile will specify colony numbers of **pathogenic bacteria**, **beneficial bacteria** ("probiotics"), **Yeast/Fungi**, and **Parasites**. Bacteria play major roles in health. They provide colonization resistance against potentially pathogenic organisms, aid in digestion and absorption, produce vitamins and Small Chain Fatty Acids (SCFA's), and stimulate the GI immune system.

DNA probes allow detection of multiple species within a genus, so the genera that are reported cover many species. "**Opportunistic Bacteria**" may cause symptoms and can affect digestion and absorption, nutrient production, pH and immune state. Antibiotic sensitivity tests will be performed on all opportunistic bacteria found, although clinical history is usually considered to determine treatment since the organisms are not generally considered to be pathogens.

Yeast overgrowth has been linked to many chronic conditions, in part because of antigenic responses in some patients to even low rates of yeast growth. Potential symptoms include diarrhea, headache, bloating, atopic dermatitis and fatigue.

Parasite infections are a major cause of non-viral diarrhea. Symptoms may include constipation, gas, bloating, increased allergy response, colitis, nausea and distention. This digestive testing evaluates **Digestion and Absorption** status of the "gut". This testing also looks for signs of **inflammation** in the intestines. Finally, this analysis looks at the immune status of the intestines. **slgA** indicates immune system reactions and **Anti-gliadin slgA** is a screening marker for gluten sensitivity.

What is being Measured?

Digestion and Absorption Markers

This part of the test looks at how well you are breaking down and absorbing protein, fats and carbohydrates.

- **Pancreatic Elastase 1** – Pancreatic Elastase is secreted by the pancreas, with a direct correlation to pancreatic function and a strong correlation with the gold-standard test for pancreatic insufficiency (secretin-pancreozymin test). PE1 is a stable marker; it is not degraded during intestinal transit, is not greatly affected by changes in intestinal transit time, and is not affected by pancreatic enzyme-replacement therapy
- **Steatocrit** -helps to assess for small intestinal malabsorption

Gut Inflammation and Immunology Markers

This part of the test is looking for inflammation in the gut.

- **Calprotectin** – Calprotectin is a sensitive, stable marker that is unaffected by medications, dietary supplements or digestive enzymes. Calprotectin is the noninvasive “test of choice” for differentiating Irritable Bowel Syndrome (IBS) from Inflammatory Bowel Disease (IBD).
- **Fecal sIgA** – Fecal SIgA is the chief antibody in the membranes of the gastrointestinal and respiratory tracts. It is the most abundant antibody produced in the intestine. Secretory IgA is resistant to degradation in the harsh environment of the gastrointestinal tract and regulates the balance of commensal bacteria in the gut, preventing colonization of pathogens and regulating epithelial barrier function (associated with Leaky gut / intestinal permeability).
- **Fecal anti-gliadin antibodies** can indicate an immune response to gluten in the diet. Gliadin is a component of gluten, the protein found in wheat and other field grass grains such as barley, malt and rye. Because gliadin could stimulate intestinal immunity and increase levels of fecal anti-gliadin antibody even when serum concentrations are undetectable,^{154,155} it is often used as marker for non-celiac gluten sensitivity. High levels of fecal anti-gliadin antibodies can provide clinicians with an effective treatment strategy: a gluten-free diet.
- **Beta Glucuronidase** – Raised levels can be associated with an oestrogen dominance and dysbiosis.
- **Fecal Occult Blood (Hidden blood)** – This can reflect bleeding higher up in the GI tract.

Microbiology Markers – Microbiome

This part of the test is looking at levels of good and bad bacteria, yeasts and parasites.

PCR technology is used to test for the presence of the DNA of bacteria – the new and more comprehensive way that levels of different bacteria are checked. The different types of bacteria checked are:

Bacterial pathogens:

Campylobacter

C. diff Toxin A

C. diff Toxin B**

Enterohemorrhagic E. coli

E. coli O157**

Enteroinvasive E. coli/Shigella Enteropathogenic E. coli

Enterotoxigenic E. coli LT/ST** (ETEC) Shiga-like Toxin producing E. coli stx1 Shiga-like

Toxin producing E. coli stx2 (STEC)** Salmonella

Vibrio cholerae

Yersinia enterocolitica

Parasitic pathogens

Cryptosporidium**

Entamoeba histolytica**

Giardia

Viral pathogens:

Adenovirus 40/41**

Norovirus GI Norovirus GII**

H. pylori

- Helicobacter pylori
- Virulence Factor, babA
- Virulence Factor, cagA**
- Virulence Factor, cagPAI
- Virulence Factor, dupA
- Virulence Factor, iceA
- Virulence Factor, opiA
- Virulence Factor vacA**

Normal/Commensal Bacterial Flora

Bifidobacter spp.** Clostridium spp. Enterobacter spp. Enterococcus spp. Escherichia spp. (E. coli) Lactobacillus spp.** Phyla Microbiota Bacteroidetes Firmicutes

Firmicutes/Bacteriodes (F/B Ratio)

Opportunistic Bacteria

Potential Autoimmune Triggers

Citrobacter spp.

Citrobacter freundii

Klebsiella spp.**

Klebsiella pneumoniae
Mycobacterium avium
Prevotella copri
Proteus spp.
Proteus mirabilis

Additional Dysbiotic/Overgrowth

Bacteria Bacillus spp.
Enterococcus faecalis
Enterococcus faecium
Morganella morganii
Pseudomonas spp.**
Pseudomonas aeruginosa
Staphylococcus spp.
Staphylococcus aureus
Streptococcus spp.

Fungi/yeast:

Candida albicans
Candida spp.
Cyclospora cayetanensis
Geotrichum spp.
Microsporidia spp. including Enterocytozoon bieneusi and Encephalitozoon intestinalis **
Rhodotorula spp.
Trichosporon spp.

Viruses:

CMV-Cytomegalovirus EBV- Epstein Bar Virus

Parasites:

Protozoa
Blastocystis hominis** Chilomastix mesnelli
Cyclospora cayetanensis
Dientamoeba fragilis
Endolimax nana
Entamoeba coli**
Pentatrichomonas hominis (formerly Trichomonas vaginalis)

Worms

Ancylostoma duodenale Ascaris lumbricoides Necatur americanus Trichuris trichiura
Taenia solium/saginata

Cost £295

Bacterial Sensitivity

A Sensitivity panels is provided against any of the additional bacteria or yeasts that may be pathogenic (problem causing) which will show which pharmaceutical medicines and plant based supplements will be effective and which they are resistant to and would therefore would be ineffective.

Specimen Requirement

- x1 stool samples
- Shipping of sample back to the laboratory has to be Monday, Tuesday or Wednesday, full instructions will be within the kit. The cost of this shipping is approx £6.00

Before taking this Test

- **Refrain** from taking antacids, and aspirin for two days prior to specimen collection, unless otherwise instructed by your healthcare provider.
- If taking antibiotics, antiparasitics, antifungals, probiotic supplements (acidophilus, etc.), or consuming food products containing beneficial flora (e.g. Activia®), it is recommended that you wait a **minimum of 7 days after your last dose** before beginning the test.
- **Never discontinue** prescription medications without consulting your healthcare provider first.
- The test kit will come with full instructions.
- **Turn-around time 15 days**