



## COMPLETE MICROBIOME MAPPING

### General Macroscopic Description

	Result	Range	Markers
Stool Colour	<b>Brown</b>		<b>Colour</b> - Brown is the colour of normal stool. Other colours may indicate abnormal GIT conditions.
Stool Form	<b>Unformed</b>		<b>Form</b> - A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions.
Mucous	<b>+</b>	< +	<b>Mucous</b> - Mucous production may indicate the presence of an infection, inflammation or malignancy.
Occult Blood	<b>++</b>	< +	<b>Blood (Macro)</b> - The presence of blood in the stool may indicate possible GIT ulcer, and must always be investigated immediately.

### GIT Functional Markers

	Result	Range	Units	
Calprotectin.	<b>60.0 *H</b>	0.0 - 50.0	ug/g	
Pancreatic Elastase	<b>&gt;500.0</b>	> 200.0	ug/g	
Faecal Secretory IgA	<b>463.0 *L</b>	510.0 - 2010.0	ug/g	
Faecal Zonulin	<b>109.0 *H</b>	0.0 - 107.0	ng/g	
Faecal B-Glucuronidase	<b>3250.0</b>	337.0 - 4433.0	U/g	
Steatocrit	<b>17.0 *H</b>	0.0 - 15.0	%	
anti-Gliadin IgA	<b>160.0 *H</b>	0.0 - 157.0	units/L	

### Microbiome Mapping Summary

Parasites & Worms	Bacteria & Viruses	Fungi and Yeasts
	Bacillus species. Pseudomonas aeruginosa. Streptococcus species Citrobacter freundii. Klebsiella pneumoniae. Helicobacter pylori	

### Key Phyla Microbiota

Bacteroidetes	<b>22.49</b>	8.61 - 33.10	x10 <sup>11</sup> org/g	
Firmicutes	<b>37.68 *H</b>	5.70 - 30.40	x10 <sup>10</sup> org/g	
Firmicutes:Bacteroidetes Ratio	<b>0.17</b>	< 1.00	RATIO	



## Parasites and Worms. Result Range Units

### Parasitic Organisms

Organism	Result	Range	Units	Visual
Cryptosporidium.	<dl	< 1.0	x10 <sup>6</sup> org/g	●
Entamoeba histolytica.	<dl	< 1.0	x10 <sup>4</sup> org/g	●
Giardia lamblia.	<dl	< 5.0	x10 <sup>3</sup> org/g	●
Blastocystis hominis.	<dl	< 2.0	x10 <sup>3</sup> org/g	●
Dientamoeba fragilis.	<dl	< 1.0	x10 <sup>5</sup> org/g	●
Endolimax nana	<dl	< 1.0	x10 <sup>4</sup> org/g	●
Entamoeba coli.	<dl	< 5.0	x10 <sup>6</sup> org/g	●
Pentatrichomonas hominis	<dl	< 1.0	x10 <sup>2</sup> org/g	●

### Worms

Ancylostoma duodenale, Roundworm	Not Detected
Ascaris lumbricoides, Roundworm	Not Detected
Necator americanus, Hookworm	Not Detected
Trichuris trichiura, Whipworm	Not Detected
Taenia species, Tapeworm	Not Detected
Enterobius vermicularis, Pinworm	Not Detected

Comment: Not Detected results indicate the absence of detectable DNA in this sample for the worms reported.

## Opportunistic Bacteria/Overgr Result Range Units

Bacteria	Result	Range	Units	Visual
Bacillus species.	1.9 *H	< 1.5	x10 <sup>5</sup> org/g	●
Enterococcus faecalis	<dl	< 1.0	x10 <sup>4</sup> org/g	●
Enterococcus faecium	<dl	< 1.0	x10 <sup>4</sup> org/g	●
Morganella species	<dl	< 1.0	x10 <sup>3</sup> org/g	●
Pseudomonas species	<dl	< 1.0	x10 <sup>4</sup> org/g	●
Pseudomonas aeruginosa.	9.6 *H	< 5.0	x10 <sup>2</sup> org/g	●
Staphylococcus species	<dl	< 1.0	x10 <sup>4</sup> org/g	●
Staphylococcus aureus	<dl	< 5.0	x10 <sup>2</sup> org/g	●
Streptococcus species	1.9 *H	< 1.0	x10 <sup>3</sup> org/g	●
Methanobacteriaceae	2.30	< 5.00	x10 <sup>9</sup> org/g	●

### Potential Autoimmune Triggers

Species	Result	Range	Units	Visual
Citrobacter species.	4.7	< 5.0	x10 <sup>5</sup> org/g	●
Citrobacter freundii.	80.0 *H	< 5.0	x10 <sup>5</sup> org/g	●
Klebsiella species	4.3	< 5.0	x10 <sup>3</sup> org/g	●
Klebsiella pneumoniae.	67.0 *H	< 5.0	x10 <sup>4</sup> org/g	●
Prevotella copri	<dl	< 1.0	x10 <sup>7</sup> org/g	●
Proteus species	<dl	< 5.0	x10 <sup>4</sup> org/g	●
Proteus mirabilis.	<dl	< 1.0	x10 <sup>3</sup> org/g	●
Fusobacterium species	5.30	< 10.00	x10 <sup>7</sup> org/g	●

## Fungi & Yeast Result Range Units

Fungi	Result	Range	Units	Visual
Candida species.	<dl	< 5.0	x10 <sup>3</sup> org/g	●
Candida albicans.	<dl	< 5.0	x10 <sup>2</sup> org/g	●
Geotrichum species.	<dl	< 3.0	x10 <sup>2</sup> org/g	●
Microsporidium species	<dl	< 5.0	x10 <sup>3</sup> org/g	●
Rhodotorula species.	<dl	< 1.0	x10 <sup>3</sup> org/g	●



Bacterial Pathogens	Result	Range	Units
Aeromonas species.	<dl	< 1.0	x10 <sup>3</sup> CFU/g
Campylobacter.	<dl	< 1.0	x10 <sup>3</sup> CFU/g
C. difficile, Toxin A	<dl	< 1.0	x10 <sup>3</sup> CFU/g
C. difficile, Toxin B	<dl	< 1.0	x10 <sup>3</sup> CFU/g
Enterohemorrhagic E. coli	<dl	< 1.0	x10 <sup>3</sup> CFU/g
E. coli O157	<dl	< 1.0	x10 <sup>2</sup> CFU/g
Enteroinvasive E. coli/Shigella	<dl	< 1.0	x10 <sup>3</sup> CFU/g
Enterotoxigenic E. coli LT/ST	<dl	< 1.0	x10 <sup>3</sup> CFU/g
Shiga-like Toxin E. coli stx1	<dl	< 1.0	x10 <sup>3</sup> CFU/g
Shiga-like Toxin E. coli stx2	<dl	< 1.0	x10 <sup>3</sup> CFU/g
Salmonella.	<dl	< 1.0	x10 <sup>4</sup> CFU/g
Vibrio cholerae	<dl	< 1.0	x10 <sup>5</sup> CFU/g
Listeria monocytogenes	<dl	< 1.0	x10 <sup>3</sup> CFU/g
Yersinia enterocolitica.	<dl	< 1.0	x10 <sup>5</sup> CFU/g
Helicobacter pylori	<b>56.0 *H</b>	< 1.0	x10 <sup>3</sup> CFU/g

**Comment: Helico Pylori virulence factors will be listed below if detected POSITIVE**

H.pylori Virulence Factor, babA	Not Detected
H.pylori Virulence Factor, cagA	Not Detected
H.pylori Virulence Factor, dupA	Not Detected
H.pylori Virulence Factor, iceA	Not Detected
H.pylori Virulence Factor, oipA	Not Detected
H.pylori Virulence Factor, vacA	Not Detected
H.pylori Virulence Factor, virB	Not Detected
H.pylori Virulence Factor, virD	Not Detected

Viral Pathogens	Result	Range	Units
Adenovirus 40/41	<dl	< 1.0	x10 <sup>10</sup> CFU/g
Norovirus GI/II	<dl	< 1.0	x10 <sup>7</sup> CFU/g
Bocavirus	<dl	< 1.0	x10 <sup>10</sup> CFU/g

Normal Bacterial GUT Flora	Result	Range	Units
Bacteroides fragilis	46.0	1.6 - 250.0	x10 <sup>9</sup> CFU/g
Bifidobacterium species	650.0	> 6.7	x10 <sup>7</sup> CFU/g
Enterococcus species	23.0	1.9 - 2000.0	x10 <sup>5</sup> CFU/g
Escherichia species	56.0	3.7 - 3800.0	x10 <sup>6</sup> CFU/g
Lactobacillus species	7.9 *L	8.6 - 6200.0	x10 <sup>5</sup> CFU/g
Clostridium species	48.0	5.0 - 50.0	x10 <sup>6</sup> CFU/g
Enterobacter species	3.6	1.0 - 50.0	x10 <sup>6</sup> CFU/g
Akkermansia muciniphila	27.00	0.01 - 50.00	x10 <sup>3</sup> CFU/g
Faecalibacterium prausnitzii	56.0	1.0 - 500000	x10 <sup>3</sup> CFU/g

Short Chain Fatty Acids	Result	Range	Units
Short Chain Fatty Acids, Beneficial	14.0	> 13.6	umol/g
Butyrate	36.8 *H	10.8 - 33.5	%
Acetate	45.0	44.5 - 72.4	%
Propionate	17.0	0.0 - 32.0	%
Valerate	1.2	0.5 - 7.0	%



## Pathogen Summary:

### Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

UNFORMED/LIQUID stools may indicate the presence of infection and/or inflammation.

Consider dysbiosis, food sensitivity, high dose vitamin C and magnesium, infection, intestinal permeability, laxative use, malabsorption, maldigestion, stress. Other causes: bacterial, fungal, viral and other parasitic infections.

Treatment:

- Investigate and treat possible underlying cause.
- Assess other CDSA markers such as pH, pancreatic elastase 1 & microbiology markers."

### MUCOUS PRESENT:

The presence of mucous (or pus), which are normally absent, can indicate Irritable Bowel Syndrome, intestinal wall inflammation (from infection), diverticulitis or other intestinal abscess.

Treatment:

- Investigate and treat possible underlying cause.
- Assess other CDSA markers such as calprotectin, M2PK & microbiology markers.

BLOOD PRESENT: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.

Treatment:

- Investigate the cause of bleeding using other diagnostic tools such as endoscopy
- Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.

### GIT Markers Comment

PANCREATIC ELASTASE: Normal exocrine pancreatic function.

Pancreatic Elastase reflects trypsin, chymotrypsin, amylase and lipase activity.

This test is not affected by supplements of pancreatic enzymes.

Healthy individuals produce on average 500 ug/g of PE-1. Thus, levels below 500 ug/g and above 200 ug/g suggest a deviation from optimal pancreatic function.

The clinician should therefore consider digestive enzyme supplementation if one or more of the following conditions is present:

Loose watery stools, Undigested food in the stools, Post-prandial abdominal pain, Nausea or colicky abdominal pain, Gastroesophageal reflux symptoms, Bloating or food intolerance.

### CALPROTECTIN MILDLY ELEVATED:

MILD TO MODERATE inflammation of the GIT.

Patients without GIT inflammation and untreated IBS sufferers have levels below 50 ug/g.

The inflammatory response could be due to IBD, infection, polyps, neoplasia, or the use of non-steroidal anti-inflammatory drugs (NSAIDs).

Calprotectin may also be elevated in children with chronic diarrhea secondary to cow's milk allergy or multiple food allergies.

Whether inflammatory or neoplastic, the cause of elevated calprotectin MUST be ascertained by endoscopy or radiography. If these evaluations do not yield signs of overt disease, other tests may be considered to uncover causes of chronic bowel inflammation:

- Intestinal Dysbiosis Assessment - Organic Acids
- IgG/IgA 96 Food Allergy Assessment
- Celiac Antibodies Panel

### FAECAL SECRETORY IgA:

Production of sIgA is important to the normal function of the gastrointestinal mucosa as an immune barrier.

It represents the first line immune defense of the GIT.

Elevated levels are associated with an upregulated immune response.

### LOW sIgA LEVEL:

The primary function of secretory IgA (sIgA) is an antibody protein secreted into the gastrointestinal tract as a first line of immune defence against pathogenic microorganisms. sIgA binds to invading micro organisms and toxins and entrap them in the mucus layer or within the epithelial cells, so inhibiting microbial motility, agglutinating the organisms and neutralising their exotoxins and then assist in their harmless elimination from the body in the faecal flow. sIgA also 'tags' food as acceptable, so low sIgA leads to increased sensitivity to foods.

Several studies link stress and emotionality with levels of sIgA. Production is adversely affected by stress, which is mediated by cortisol levels.

\*\*Reduced sIgA levels may be associated with sub optimal adrenal output. Consider an Adrenocortex Stress profile.

Treatment: Investigate the root cause of inflammation. Consider the use of probiotics (saccharomyces boulardii), choline, essential



fatty acids, glutathione, glycine, glutamine, phosphatidylcholine, Vitamin C and Zinc which are all required for efficient production of sIgA.

#### ELEVATED ZONULIN LEVELS:

Zonulin is a protein that modulates intestinal barrier function. Zonulin release facilitates the opening of tight junctions between the cells of the intestinal lining to allow for passage of nutrients and fluids into the body. However, Zonulin release can be "overstimulated" by certain external factors to cause excessive opening of tight junctions, leading to intestinal hyperpermeability or "leaky gut", inflammation, liver overload, nutrient deficiencies, rheumatoid arthritis and autoimmune disorders.

Identify the possible cause/s (Gut microorganism imbalance or the presence of dietary Gluten/gliadin) and remove to reduce further damage.

If it's gluten for gluten sensitivity or celiac disease, remove gluten.

If bacterial overgrowth or dysbiosis, treat the bacterial overgrowth.

#### Treatment:

Firstly, fix the gut. Treat/repair the gut before proceeding with other protocols; nutrients and other supplements can be damaging to the system if they get out of the gut

Follow a grain - free diet for at least 12 months.

Eliminate gluten, sugar, processed food, artificial flavorings, colors, trans fats.

#### Supplementation:

Caprylic acid, Probiotics, acidophylis and B complex, fish oil, Magnesium D3, CoQ10, Mg Citrate, Boswellia & Curcumin, Milk Thistle, Selenium

For patients with chronic digestive issue: Vitamin A, L-Glutamine, Probiotics

#### Further investigations to consider:

- SIBO Breath Test,
- IgG or IgA 96 Food Sensitivity

#### ELEVATED STEATOCRIT:

The presence of steatorrhea is an indirect indicator of incomplete fat digestion. Consider high dietary fat intake, cholestasis, malabsorption and digestion (diarrhoea, pancreatic or bile salt insufficiency), intestinal dysbiosis, parasites, NSAIDs use, short bowe syndrome, whipple disease, crohn's disease, food allergies & sensitivities.

#### Treatment:

- o Prebiotic and probiotic supplementation
- o Supplement hydrochloride, digestive enzymes or other digestive aids
- o Investigate underlying causes
- o Investigate food sensitivities and allergies
- o Remove potential irritants
- o Review markers such as pancreatic elastase 1 and calprotectin

#### ELEVATED FAECAL anti-GLIADIN IgA LEVEL:

Gliadin is a component of gluten, the protein found in wheat and other field grass grains such as barley, malt, and rye. The presence of faecal anti-gliadin antibodies can indicate an immune response (in the gut) to gluten in the diet. Faecal anti-gliadin antibodies do not necessarily correlate with blood levels.

When levels are elevated it is suggested to investigate underlying causes, such as chronic dysbiosis, acute infections, acute stress, or food sensitivities. Review Zonulin levels in conjunction with anti-gliadin IgA.

#### Treatment:

Consider a gluten elimination diet for a trial period. If patients have been gluten-free, consider hidden sources of gluten and gliadin cross-reactive food such as dairy, corn, oats, millet, rice and yeast. A food sensitivity panel may benefit the patient in this case to identify hidden food sensitivities. Other intestinal barrier support may include supplements such as L-glutamine, zinc carnosine, and colostrum.

## Opportunistic Bacteria Comment

#### ELEVATED BACILLUS SPECIES LEVEL:

Bacillus species are spore forming, gram-positive rods belonging to the Bacillaceae family. There are currently 50 valid species within the genus.

It has been noted that some strains are used as probiotics.

#### Sources:

Meat dishes are a common source of infection in other species of Bacillus such as B. subtilis and B. licheniformis. B. cereus food poisoning includes meats, pasta, vegetable dishes, desserts, cakes, sauces and milk.

#### Pathogenicity:

As yet, no toxins or other virulence factors have been identified in association with the symptoms that accompany



non-B. cereus species.

**Symptoms:**

B. licheniformis and B. subtilis are associated with food-borne diarrheal illness.

**Treatment:**

It should be noted that the level of Bacillus spp should be considered in context of clinical symptoms. The level may be neither beneficial nor pathogenic. Where present, often inadequate levels of beneficial bacteria are also noted. These organisms may become dysbiotic at high levels where treatment may become necessary.

**Natural Microbials:**

In high levels of Bacillus spp, a combination of berberine and plant tannins have shown a high susceptibility success for treatment.

**Antibiotics:**

B. species is almost always susceptible to clindamycin, erythromycin and vancomycin.

**ELEVATED PSEUDOMONAS AERUGINOSA LEVEL:**

Pseudomonas is found in water and soil as well as fruits and vegetables.

Bottled water can be a common source of infection.

Because the organism is able to survive aqueous environments, it is an important nosocomial pathogen. Pseudomonas can also be found on a number of surfaces and in aqueous solutions.

**Pathogenicity:**

Pseudomonas is considered an opportunistic pathogen.

**Symptoms:**

In the gastrointestinal tract it can cause inflammation, epithelial barrier dysfunction, tight cell junction interruption, and intestinal permeability.

**Treatment:**

Ciprofloxacin is recommended for the treatment of Pseudomonas induced antibiotic-associated colitis. Pseudomonas is usually susceptible to antipseudomonal penicillins, aminoglycosides, carbapenems, 3rd generation cephalosporins and gentamycin.

**Other Herbal antimicrobials include:**

Pseudomonas aeruginosa shows a high susceptibility rate using a combination of berberine, plant-tannins and oregano.

**STREPTOCOCCUS SPECIES:**

**Description:**

Streptococcus is a gram-positive bacteria in the Firmicutes phylum. Streptococcus is generally a common isolate from gut flora. However, emerging research suggests that high levels in the intestine may result from low stomach acid, PPI use, reduced digestive capacity, SIBO or constipation; Elevated levels may also be indicative of intestinal inflammatory activity, and may cause loose stools.

**Sources:**

Recent infections with streptococcus pyogenes or scarlet fever can be linked to the presence of this species in faeces.

**Treatment:**

Treatment of streptococcus in gut flora is not always recommended. A practitioner may take into consideration a range of patient factors and symptoms to determine if treatment is necessary. In this case please refer to the 4R treatment protocol located at the end of this report.

**METHANOBACTERIACEAE:**

Family of bacteria-like microbes that produce methane. Facilitates carbohydrate fermentation and short-chain fatty acid production by beneficial bacteria.

LOW levels may indicate reduced production of short-chain fatty acids and may be associated with inflammation.

HIGH levels linked to chronic constipation, as well as some types of SIBO and IBS.

## Potential Autoimmune Comments

**ELEVATED CITROBACTER FREUNDII LEVEL:**

**Sources:**

Citrobacter is a gram-negative bacteria in the Enterobacteriaceae family. Common in the environment and may be spread by person-to person contact. Several outbreaks have occurred in babies in hospital units. Isolated from water, fish, animals and food.

**Pathogenicity:**

Citrobacter is considered an opportunistic pathogen and therefore can be found in the gut as part of the normal flora.

**Symptoms:**



Citrobacter has occasionally been implicated in diarrheal disease, particularly *C. freundii* and *C. diversus* and *C. koseri*

**Treatment:**

Treatment is not generally required in low amounts. However, where high levels are present and patients are symptomatic. A combination of oregano, plant tannins and oregano has shown high susceptibility.

For further information, refer to the 4R treatment protocol located at the end of this report.

**ELEVATED KLEBSIELLA PNEUMONIAE LEVEL:**

**Sources:**

Klebsiella is part of the Enterobacteriaceae family and as such is a gram-negative bacteria. Klebsiella is Isolated from foods and environmental sources. Klebsiella appears to thrive in individuals on a high starch diet.

**Pathogenicity:**

Part of the normal gut flora in small numbers, but can be an opportunistic pathogen.

Klebsiella is capable of translocating from the gut when in high numbers.

Certain strains of *K. oxytoca* have demonstrated cytotoxin production.

**Symptoms:**

When Klebsiella is found in considerable amounts, symptoms may include abdominal pain, bloating, loose stools, anxiety, insomnia, food allergies.

**Treatment:**

Avoiding carbohydrates such as rice, potatoes, flour products and sugary foods reduces the amount of Klebsiella in the gut

Other Herbal antimicrobials include:

Lemon and clove, Burr marigold, Thyme, Licorice, euphobia, cordyceps. For further treatment options, refer to the 4R treatment protocol located at the end of this report.

**FUSOBACTERIUM SPECIES:**

Fusobacterium species is a gram-negative bacteria in the Fusobacteria phylum. The bacteria is a common member of the human oral microbiome, this pro-inflammatory bacterium can also be found in the human gut. In the mouth, high levels are strongly linked to oral hygiene. In the gut, high levels have been observed in individuals with colon cancer and appendicitis.

**Sources:**

It primarily uses protein as its main source. However, research also shows that it can thrive from sugar.

**Treatment:**

Antimicrobial botanicals such as berberine, oregano, quercetin, curcumin, green and black tea extracts, blueberry extract, cinnamon and rosemary have shown to decrease levels.

## Bacterial Pathogens Comment

**ELEVATED HELICOBACTER PYLORI LEVEL:**

Helicobacter Pylori has been detected in this sample. This indicates the presence of a current infection and is not affected by the presence of other organisms, antacids, barium sulphate, blood or fat.

If the patient has diagnosed gastritis or a peptic ulcer consider:

- Standard triple therapy: e.g. PPI, clarithromycin and amoxicillin/or metronidazole, 7-14 days
- Lactobacillus Probiotics

If the patient is asymptomatic consider natural products including:

- Black currant seed oil and fish oil
- Lactobacillus Probiotics
- Vitamin C
- Mastic gum.

Virulence factors of *H. pylori*, such as *cagA*, *vacA*, *dupA*, *iceA*, *oipA* and *babA*, have been demonstrated to be predictors of severe clinical outcomes. Positive virulence genes represent the potential for an *H. pylori* strain to create pathology. Information about the potential for virulence may help you as the clinician determine if *H. pylori* treatment is necessary.

## Phyla Microbiota Comment

**ELEVATED FIRMICUTES LEVEL:**

Gram-positive Firmicutes are bacterial phyla that make up a large proportion of the entire human digestive tract, including the mouth, nose, throat, and colon. An elevated result of firmicutes are considered an unfavourable outcome as they make your body thrive for sugar in order for firmicutes to survive in the gut. Elevated Firmicutes may generate inflammation, dysbiosis, maldigestion or hypochlorhydria.

Firmicutes also compete and kill off surrounding microorganisms for their sugar supply. When there is an over consumption of all that extra sugar consumed, unfortunately it will only have one pathway and that is to be converted into fat increasing insulin levels. Studies have shown that when there is a higher ratio of Firmicutes within the gastrointestinal tract, that there is a link to obesity.

**WellLab**®

P: 03-2727 7434

E: laboratory@psychology.com.my

www.MalaysiaLaboratory.com



**JOE DOE**

Date of Birth: 08-Jan-1985  
Sex: M  
Collected: 31/Oct/2019  
Received: 31/Oct/2019  
INTERNATIONAL PATIENT  
1000  
Lab id: **3640442** UR#:

**Dr.EDWARD CHAN**

International Psychology  
Centre 11-1 Wisma  
Laxton Jalan Desa KUALA  
LUMPUR MALAYSIA  
58100 1000

Therefore, levels of firmicutes within reference range are preferred.

Treatment:

Polyphenols are recommended to lower levels of firmicutes and raise the level of bacteroidetes. An abnormal result in one or both of these phylum suggest imbalanced normal microbes in the GI tract.

### **Normal Bacterial Flora Comment**

LOW LACTOBACILLUS SPECIES LEVEL:

Lactate-producing bacteria in the Firmicutes phylum.

Low levels may be due to low carbohydrate intake or high salt intake, and may also indicate reduced mucosal health.



# The Four “R” Treatment Protocol

<b>REMOVE</b>	<p>Using a course of antimicrobial, antibacterial, antiviral or anti parasitic therapies in cases where organisms are present. It may also be necessary to remove offending foods, gluten, or medication that may be acting as antagonists.</p> <p>Consider testing IgG96 foods as a tool for removing offending foods.</p>	ANTIMICROBIAL	Oil of oregano, berberine, caprylic acid
		ANTIBACTERIAL	Liquorice, zinc carnosine, mastic gum, tribulus, berberine, black walnut, caprylic acid, oil of oregano
		ANTIFUNGAL	Oil of oregano, caprylic acid, berberine, black walnut
		ANTIPARASITIC	Artemesia, black walnut, berberine, oil of oregano
		ANTIVIRAL	Cat's claw, berberine, echinacea, vitamin C, vitamin D3, zinc, reishi mushrooms
		BIOFILM	Oil of oregano, protease
<b>REPLACE</b>	<p>In cases of maldigestion or malabsorption, it may be necessary to restore proper digestion by supplementing with digestive enzymes.</p>	DIGESTIVE SUPPORT	Betaine hydrochloride, filactase, amylase, lipase, protease, apple cider vinegar, herbal bitters
<b>REINOCULATE</b>	<p>Recolonisation with healthy, beneficial bacteria. Supplementation with probiotics, along with the use of prebiotics helps re-establish the proper microbial balance.</p>	PREBIOTICS	Slippery elm, pectin, larch arabinogalactans
		PROBIOTICS	Bifidobacterium animalis sup lactise, lactobacillus acidophilus, lactobacillus plantarum, lactobacillus casei, bifidobacterium breve, bifidobacterium bifidum, bifidobacterium longum, lactobacillus salivarius ssp salivarius, lactobacillus paracasei, lactobacillus rhamnosus, Saccaromyces boulardii
<b>REPAIR &amp; REBALANCE</b>	<p>Restore the integrity of the gut mucosa by giving support to healthy mucosal cells, as well as immune support. Address whole body health and lifestyle factors so as to prevent future GI dysfunction.</p>	INTESTINAL MUCOSA IMMUNE SUPPORT	Saccaromyces boulardii, lauric acid
		INTESTINAL BARRIER REPAIR	L-Glutamine, aloe vera, liquorice, marshmallowroot, okra, quercetin, slippery elm, zinc carnosine, Saccaromyces boulardii, omega 3 essential fatty acids, B vitamins
		SUPPORT CONSIDERATION	Sleep, diet, exercise, and stress management