



3827759

## 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>Formed</b> |       | <b>Form</b> -A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions.                              |
| Mucous       | <b>NEG</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>53.0 *H</b>   | 0.0 - 50.0     | ug/g    |  |
| Pancreatic Elastase    | <b>&gt;500.0</b> | > 200.0        | ug/g    |  |
| Faecal Secretory IgA   | <b>504.9 *L</b>  | 510.0 - 2010.0 | ug/g    |  |
| Faecal Zonulin         | <b>107.0</b>     | 0.0 - 107.0    | ng/g    |  |
| Faecal B-Glucuronidase | <b>2019.6</b>    | 337.0 - 4433.0 | U/g     |  |
| Steatocrit             | <b>1.0</b>       | 0.0 - 15.0     | %       |  |
| anti-Gliadin IgA       | <b>&lt;20</b>    | 0.0 - 100.0    | units/L |  |

### Microbiome Mapping Summary

#### Parasites & Worms

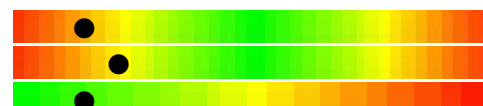
#### Bacteria & Viruses

Morganella species  
Streptococcus species  
Proteus species  
Proteus mirabilis.

#### Fungi and Yeasts

### Key Phyla Microbiota

|                                       |                |              |                         |  |
|---------------------------------------|----------------|--------------|-------------------------|--|
| <b>Bacteroidetes</b>                  | <b>1.10 *L</b> | 8.61 - 33.10 | x10 <sup>11</sup> org/g |  |
| <b>Firmicutes</b>                     | <b>6.55</b>    | 5.70 - 30.40 | x10 <sup>10</sup> org/g |  |
| <b>Firmicutes:Bacteroidetes Ratio</b> | <b>0.60</b>    | < 1.00       | RATIO                   |  |





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| Parasites and Worms. | Result | Range | Units |
|----------------------|--------|-------|-------|
|----------------------|--------|-------|-------|

**Parasitic Organisms**

|                          |     |       |                        |  |
|--------------------------|-----|-------|------------------------|--|
| 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 |
|-------------------------------|--------|-------|-------|
|-------------------------------|--------|-------|-------|

|                         |        |            |                        |  |
|-------------------------|--------|------------|------------------------|--|
| Bacillus species.       | <dl    | < 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      | 5.3 *H | < 1.0      | x10 <sup>3</sup> org/g |  |
| Pseudomonas species     | <dl    | < 1.0      | x10 <sup>4</sup> org/g |  |
| Pseudomonas aeruginosa. | <dl    | < 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   | 6.3 *H | < 1.0      | x10 <sup>3</sup> org/g |  |
| Methanobacteriaceae     | 0.55   | < 5.00     | x10 <sup>9</sup> org/g |  |
| Desulfovibrio piger     | <dl    | 0.0 - 18.0 | x10 <sup>7</sup> org/g |  |
| Oxalobacter formigenes  | 20.0   | > 15.0     | x10 <sup>7</sup> org/g |  |

**Potential Autoimmune Triggers**

|                        |        |         |                        |  |
|------------------------|--------|---------|------------------------|--|
| Citrobacter species.   | <dl    | < 5.0   | x10 <sup>5</sup> org/g |  |
| Citrobacter freundii.  | <dl    | < 5.0   | x10 <sup>5</sup> org/g |  |
| Klebsiella species     | <dl    | < 5.0   | x10 <sup>3</sup> org/g |  |
| Klebsiella pneumoniae. | <dl    | < 5.0   | x10 <sup>4</sup> org/g |  |
| Prevotella copri       | <dl    | < 1.0   | x10 <sup>7</sup> org/g |  |
| Proteus species        | 6.5 *H | < 5.0   | x10 <sup>4</sup> org/g |  |
| Proteus mirabilis.     | 2.0 *H | < 1.0   | x10 <sup>3</sup> org/g |  |
| Fusobacterium species  | 0.20   | < 10.00 | x10 <sup>7</sup> org/g |  |

| Fungi & Yeast | Result | Range | Units |
|---------------|--------|-------|-------|
|---------------|--------|-------|-------|

|                        |     |       |                        |  |
|------------------------|-----|-------|------------------------|--|
| 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 |  |



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| 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 | ● |
| Yersinia enterocolitica.        | <dl    | < 1.0 | x10 <sup>5</sup> CFU/g | ● |
| Helicobacter pylori             | <dl    | < 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         | 1.4 *L | 1.6 - 250.0  | x10 <sup>9</sup> CFU/g | ● |
| Bifidobacterium species      | 12.4   | > 6.7        | x10 <sup>7</sup> CFU/g | ● |
| Bifidobacterium longum       | 11.3   | > 5.2        | x10 <sup>6</sup> CFU/g | ● |
| Enterococcus species         | 60.2   | 1.9 - 2000.0 | x10 <sup>5</sup> CFU/g | ● |
| Escherichia species          | 3041.1 | 3.7 - 3800.0 | x10 <sup>6</sup> CFU/g | ● |
| Lactobacillus species        | 68.2   | 8.6 - 6200.0 | x10 <sup>5</sup> CFU/g | ● |
| Lactobacillus Rhamnosus      | 4.0 *L | 8.3 - 885.0  | x10 <sup>4</sup> CFU/g | ● |
| Clostridium species          | 5.3    | 5.0 - 50.0   | x10 <sup>6</sup> CFU/g | ● |
| Enterobacter species         | 6.0    | 1.0 - 50.0   | x10 <sup>6</sup> CFU/g | ● |
| Akkermansia muciniphila      | 3.40   | 0.01 - 50.00 | x10 <sup>3</sup> CFU/g | ● |
| Faecalibacterium prausnitzii | 0.5 *L | 1.0 - 500000 | x10 <sup>3</sup> CFU/g | ● |

| Short Chain Fatty Acids             | Result  | Range       | Units  |   |
|-------------------------------------|---------|-------------|--------|---|
| Short Chain Fatty Acids, Beneficial | 13.9    | > 13.6      | umol/g | ● |
| Butyrate                            | 1.7 *L  | 10.8 - 33.5 | %      | ● |
| Acetate                             | 87.5 *H | 44.5 - 72.4 | %      | ● |
| Propionate                          | 10.4    | 0.0 - 32.0  | %      | ● |
| Valerate                            | 0.4 *L  | 0.5 - 7.0   | %      | ● |



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**JESS SOBANSKI**  
**23-Aug-1997**      **Female**

8 REACH STREET  
THE PONDS NSW 2769

LAB ID : 3827759  
UR NO. : 6609530  
Collection Date : 11-Jul-2022  
Received Date:13-Jul-2022



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## Pathogen Summary:

### Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

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.

### Metabolism Comment

In a healthy gut Short Chain Fatty Acids are exhibited in the following proportions;  
Butyrate, Acetate, Propionate ( 16% : 60% : 24% )

#### LOW BUTYRATE LEVEL:

Butyrate is a short chain fatty acid that is extremely important for gut health. It is the main fuel source for gut cells, which helps keep the gut cell barrier intact, can reduce inflammation, and helps control appetite. Low levels of butyrate production have been observed in individuals with inflammatory bowel diseases, insufficient fibre intake, slow transit time, recent antibiotic therapy. Low butyrate may also be associated with an increased risk of colon cancer & constipation.

Consuming foods high in resistant starch has been shown to increase butyrate levels.

#### ELEVATED ACETATE LEVEL:

Acetate is the most abundant short chain fatty acid produced in the gut. It plays an important role in fat metabolism, glucose metabolism and the immune system. Several bacterial species can also convert acetate to butyrate. The consumption of fruits, vegetables, legumes and fibre are associated with increased short chain fatty acids, including acetate.

#### VALERATE:

Valerate is a short chain fatty acid that is important for gut health. Although Acetate, propionate, and butyrate make up the the most abundant SCFAs in gastrointestinal tract (95%), Valerate and other SCFA's make up the remaining and work optimally when within range.



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## **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/LOW NORMAL 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.



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## Opportunistic Bacteria Comment

### ELEVATED MORGANELLA LEVEL:

#### Sources:

M. morganii originates from the gill and skin of fish. It is possible that it may cross-contaminate during handling of fish in processing plants and restaurants.

#### Pathogenicity:

The role of Morganella as an etiological agent in diarrheal disease is controversial. Although Morganella constitutes part of the normal flora, in certain hosts it may be a potential pathogen.

Recently it was shown that the majority of clinical isolates of Morganella belonged to the subspecies Morganii.

#### Symptoms:

Diarrhea has been associated with infection of this organism.

#### Treatment:

Currently, standard texts provide no specific antimicrobial guidelines for GI overgrowth of Morganella.

Carbapenems, 3rd and 4th generation cephalosporins and fluoroquinolones are the agents recommended for Extra-intestinal infections. For further treatment suggestions, refer to the 4R protocol at the end of this report.

### 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.

### DESULFOVIBRIO COMMENT:

Sulfate is present in different concentrations in the intestine dependent on diet. Remnants not absorbed, alongside the presence of lactate, promote the growth of Sulfate reducing bacteria (SRB). Desulfovibrio Piger is the dominant SRB genus and has been implicated in gastrointestinal disorders such as ulcerative colitis via the reduction of sulfate to hydrogen sulphide in the gut.

High Desulfovibrio piger levels serves as an indicator of inflammatory bowel disease.

Treatment options include lowering the intake of sulfate rich foods such as some breads, dried fruits, beers, ciders and wines.

Reference: Kushkevych et. Al., J. Clin. Med. 2019, 8, 1054; doi:10.3390/jcm8071054

### OXALOBACTER COMMENT:

Oxalate is formed in the liver by amino acid catabolism as well as present in a wide range of foods including tea, coffee, chocolate and certain fruits and vegetables. High concentration of oxalate in the urine is related to the potential formation of calcium oxalate kidney stones. Oxalobacter Formigenes is the main known bacterial species involved in oxalate degradation in the gut.

Levels of O. Formigenes tends to decrease with age as well as with the use of antibiotics or other drugs, with low levels identified as a risk factor for calcium oxide stone formation. Treatment options include probiotic treatment and low oxalate diet modification.

Urinary oxalate levels can also be monitored by test code 4025 (oxalate urinary).

Reference: Duncan et. al., Applied and Environmental Microbiology, Aug. 2002, p. 3841-3847

Kaufman et. al., J Am Soc Nephrol. 2008 Jun; 19(6): 1197-1203.

## Potential Autoimmune Comments

### ELEVATED PROTEUS SPECIES LEVEL:

#### Sources:





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Food has been implicated as a vehicle of infection.

**Pathogenicity;**

Part of the normal flora of the GI tract, though has been shown to be an independent causative agent of intestinal disorders. May also play a role as an opportunistic organism in enteric infection due to other pathogens.

**Symptoms:**

Occasionally implicated in diarrheal disorders.

Recently, it has been suggested that *P. mirabilis* may be an etiological agent in rheumatoid arthritis.

The mechanism may be related to the molecular cross reactivity between *P. mirabilis* and the HLA antigens, specifically HLA-DR4.

**Treatment:**

Currently, standard texts provide no specific antimicrobial guidelines for GI overgrowth of *Proteus*.

Ampicillin is recommended for extra-intestinal infections of *P. mirabilis*, followed by trimethoprim/sulfamethoxazole.

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

**ELEVATED PROTEUS MIRABILIS LEVEL:**

**Sources:**

Food has been implicated as a vehicle of infection.

**Pathogenicity;**

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**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.

## **Phyla Microbiota Comment**

**LOW BACTEROIDETES LEVEL:**

Gram-negative *Bacteroidetes* are a bacterial phyla that make up a large proportion of the human digestive tract, including the mouth, nose, throat, and colon. A low result in *bacteroidetes* may suggest imbalanced normal microbes in the GI tract.

A lower level of *bacteroidetes* is considered an unfavourable outcome which allows for the potential of elevated *firmicutes* leading to a possible imbalanced *firmicutes:bacteroidetes* ratio.

**Treatment:**

It is suggested to eat a diverse range of foods including polyphenols. It is further suggested to decrease foods rich in fat and sugar as they encourage *firmicute* levels to rise. Investigate other causes relating to a low *bacteroidetes* level.

## **Normal Bacterial Flora Comment**

**LOW BACTEROIDES FRAGILIS LEVEL:**

Organism of the *Bacteroidetes* phylum. Immune-modulating normal gut species believed to be involved in microbial balance, barrier integrity, and neuroimmune health.

Low levels may contribute to reduced anti-inflammatory activity in the intestine.



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**LOW LACTOBACILLUS RHAMNOSUS LEVEL:**

Lactobacillus Rhamnosus is a bacteria in the Firmicutes phylum. Lactobacillus rhamnosus is one of the most widely used probiotic strains. Various health effects are well documented including the prevention and treatment of gastro-intestinal infections and diarrhea, and stimulation of immune responses. Low levels may be linked to poor digestive health, diarrhea and IBS symptoms.

**LOW FAECALBACTERIUM PRAUSNITZII LEVEL:**

Faecalibacterium prausnitzii is a common inhabitant in the human gut. Faecalibacterium is a key SCFA producer (butyrate) which produces an anti-inflammatory protein, making this species important for a healthy gut. Low levels of Faecalibacterium prausnitzii are widely associated with a range of inflammatory and autoimmune conditions. A diet with prebiotic fibres including inulin, pectin, and fructooligosaccharides may help increase levels of F. prausnitzii. Examples of foods high in these prebiotics include asparagus, onions, leeks, Wholegrain wheat, apples and pears.





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# The Four “R” Treatment Protocol

|                    |                                                                                                                                                                                                                                                                                                                      |                                  |                                                                                                                                                                                                                                                                                                          |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REMOVE             | 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.<br><br>Consider testing IgG96 foods as a tool for removing offending foods. | 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                                                                                                                                                                                                                                                                                 |
| REPLACE            | In cases of maldigestion or malabsorption, it may be necessary to restore proper digestion by supplementing with digestive enzymes.                                                                                                                                                                                  | DIGESTIVE SUPPORT                | Betaine hydrochloride, tilactase, amylase, lipase, protease, apple cider vinegar, herbal bitters                                                                                                                                                                                                         |
| REINOCULATE        | Recolonisation with healthy, beneficial bacteria. Supplementation with probiotics, along with the use of prebiotics helps re-establish the proper microbial balance.                                                                                                                                                 | PREBIOTICS                       | Sippery elm, pectin, larch arabinogalactans                                                                                                                                                                                                                                                              |
|                    |                                                                                                                                                                                                                                                                                                                      | PROBIOTICS                       | Bifidobacterium animalis subsp. lactis, lactobacillus acidophilus, lactobacillus plantarum, lactobacillus casei, bifidobacterium breve, bifidobacterium bifidum, bifidobacterium longum, lactobacillus salivarius, salivarius, lactobacillus paracasei, lactobacillus rhamnosus, Saccharomyces boulardii |
| REPAIR & REBALANCE | 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.                                                                                                               | INTESTINAL MUCOSA IMMUNE SUPPORT | Saccharomyces boulardii, lauric acid                                                                                                                                                                                                                                                                     |
|                    |                                                                                                                                                                                                                                                                                                                      | INTESTINAL BARRIER REPAIR        | L-Glutamine, aloe vera, liquorice, marshmallow root, okra, quercetin, slippery elm, zinc carnosine, Saccharomyces boulardii, omega 3 essential fatty acids, B vitamins                                                                                                                                   |
|                    |                                                                                                                                                                                                                                                                                                                      | SUPPORT CONSIDERATION            | Sleep, diet, exercise, and stress management                                                                                                                                                                                                                                                             |