LABTESTSDIRECT
MAKING HEALTH ONLINE EASY

PATIENT FIRST NAME PATIENT SURNAME

DOB GENDER

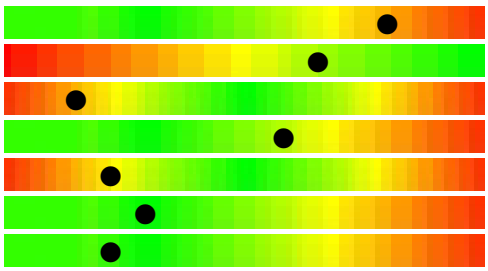
ADDRESS

COMPLETE MICROBIOME MAPPING

General Macroscopic Description

	Result	Range	Markers
Stool Colour	**Brown**		**Colour** - Brown is the colour of normal stool. Other colours may indicate abnormal GIT conditions.
Stool Form	**Formed**		**Form** -A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions.
Mucous	**NEG**	< +	**Mucous** - Mucous production may indcate the presence of an infection, inflammation or malignancy.
Occult Blood	**NEG**	< +	**Blood (Macro)**- 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.	*53.0* *H	0.0 - 50.0	ug/g
Pancreatic Elastase	>500.0	> 200.0	ug/g
Faecal Secretory IgA	*222.0* *L	510.0 - 2010.0	ug/g
Faecal Zonulin	70.0	0.0 - 107.0	ng/g
Faecal B-Glucuronidase	515.0	337.0 - 4433.0	U/g
Steatocrit	1.0	0.0 - 15.0	%
anti-Gliadin IgA	10.0	0.0 - 157.0	units/L



Microbiome Mapping Summary

Parasites & Worms

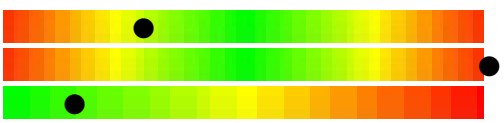
Bacteria & Viruses

Streptococcus species
Citrobacter freundii.

Fungi and Yeasts

Key Phyla Microbiota

Bacteroidetes	10.92	8.61 - 33.10	x10^11 org/g
Firmicutes	*50.67* *H	5.70 - 30.40	x10^10 org/g
Firmicutes:Bacteroidetes Ratio	0.46	< 1.00	RATIO



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Parasites and Worms.	Result	Range	Units
Parasitic Organisms			
Cryptosporidium.	<dl	< 1.0	x10^6 org/g
Entamoeba histolytica.	<dl	< 1.0	x10^4 org/g
Giardia lamblia.	<dl	< 5.0	x10^3 org/g
Blastocystis hominis.	<dl	< 2.0	x10^3 org/g
Dientamoeba fragilis.	<dl	< 1.0	x10^5 org/g
Endolimax nana	<dl	< 1.0	x10^4 org/g
Entamoeba coli.	<dl	< 5.0	x10^6 org/g
Pentatrichomonas hominis	<dl	< 1.0	x10^2 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		

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.	1.1	< 1.5	x10^5 org/g
Enterococcus faecalis	<dl	< 1.0	x10^4 org/g
Enterococcus faecium	<dl	< 1.0	x10^4 org/g
Morganella species	<dl	< 1.0	x10^3 org/g
Pseudomonas species	<dl	< 1.0	x10^4 org/g
Pseudomonas aeruginosa.	<dl	< 5.0	x10^2 org/g
Staphylococcus species	<dl	< 1.0	x10^4 org/g
Staphylococcus aureus	<dl	< 5.0	x10^2 org/g
Streptococcus species	*50.1* *H	< 1.0	x10^3 org/g
Methanobacteriaceae	4.90	< 5.00	x10^9 org/g
Potential Autoimmune Triggers			
Citrobacter species.	<dl	< 5.0	x10^5 org/g
Citrobacter freundii.	*1646.2* *H	< 5.0	x10^5 org/g
Klebsiella species	<dl	< 5.0	x10^3 org/g
Klebsiella pneumoniae.	0.1	< 5.0	x10^4 org/g
Prevotella copri	<dl	< 1.0	x10^7 org/g
Proteus species	<dl	< 5.0	x10^4 org/g
Proteus mirabilis.	<dl	< 1.0	x10^3 org/g
Fusobacterium species	1.60	< 10.00	x10^7 org/g

Fungi & Yeast	Result	Range	Units
Candida species.	<dl	< 5.0	x10^3 org/g
Candida albicans.	<dl	< 5.0	x10^2 org/g
Geotrichum species.	<dl	< 3.0	x10^2 org/g
Microsporidium species	<dl	< 5.0	x10^3 org/g
Rhodotorula species.	<dl	< 1.0	x10^3 org/g

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Bacterial Pathogens	Result	Range	Units
Campylobacter.	<dl	< 1.0	x10^3 CFU/g
C. difficile, Toxin A	<dl	< 1.0	x10^3 CFU/g
C. difficile, Toxin B	<dl	< 1.0	x10^3 CFU/g
Enterohemorrhagic E. coli	<dl	< 1.0	x10^3 CFU/g
E. coli O157	<dl	< 1.0	x10^2 CFU/g
Enteroinvasive E. coli/Shigella	<dl	< 1.0	x10^3 CFU/g
Enterotoxigenic E. coli LT/ST	<dl	< 1.0	x10^3 CFU/g
Shiga-like Toxin E. coli stx1	<dl	< 1.0	x10^3 CFU/g
Shiga-like Toxin E. coli stx2	<dl	< 1.0	x10^3 CFU/g
Salmonella.	<dl	< 1.0	x10^4 CFU/g
Vibrio cholerae	<dl	< 1.0	x10^5 CFU/g
Yersinia enterocolitica.	0.2	< 1.0	x10^5 CFU/g
Helicobacter pylori	<dl	< 1.0	x10^3 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	x10^10 CFU/g
Norovirus GI/II	<dl	< 1.0	x10^7 CFU/g

Normal Bacterial GUT Flora	Result	Range	Units
Bacteroides fragilis	18.0	1.6 - 250.0	x10^9 CFU/g
Bifidobacterium species	*6.2* *L	> 6.7	x10^7 CFU/g
Enterococcus species	4.7	1.9 - 2000.0	x10^5 CFU/g
Escherichia species	*3850.0* *H	3.7 - 3800.0	x10^6 CFU/g
Lactobacillus species	*3.5* *L	8.6 - 6200.0	x10^5 CFU/g
Clostridium species	*60.8* *H	5.0 - 50.0	x10^6 CFU/g
Enterobacter species	24.3	1.0 - 50.0	x10^6 CFU/g
Akkermansia muciniphila	11.20	0.01 - 50.00	x10^3 CFU/g
Faecalibacterium prausnitzii	*0.9* *L	1.0 - 500000	x10^3 CFU/g

Pathogen Summary:

Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

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.

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.

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.
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

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. 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 BIFIDOBACTERIUM LEVEL:
Organism of the Actinobacteria phylum.
Low levels may result from low fiber intake or reduced mucosal health. Thrives on a wide variety of prebiotic fibers.

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.

ELEVATED CLOSTRIDIUM SPECIES LEVEL:
Organism of the Firmicutes phylum. The Clostridium genus is diverse and consists of both pathogens and normal commensals that perform a wide variety of functions (beneficial and potentially harmful).
High levels may result from reduced digestive capacity or constipation.

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.

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. 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	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
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	Saccaromyces boulardii, lauric acid
		INTESTINAL BARRIER REPAIR	L-Glutamine, aloe vera, liquorice, marshmallow root, okra, quercetin, slippery elm, zinc carnosine, Saccaromyces boulardii, omega 3 essential fatty acids, B vitamins
		SUPPORT CONSIDERATION	Sleep, diet, exercise, and stress management