KATIE BARGET **-.NICOLA PRICE**

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Date of Birth : 03-Jul-1977
Sex : F
Collected : 23/Feb/2021
Received: 25-Feb-2021
301/32 ENFIELD STREET
MARRICKVILLE NSW 2204
Lab id : **3723512** UR#: 6066686

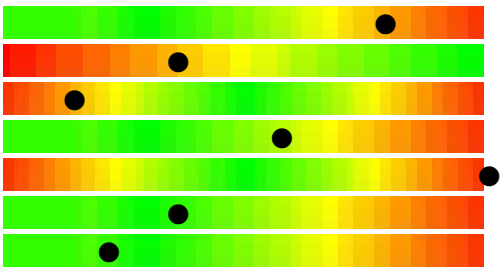
THE BALANCED WAY
19 MYRTLE STREET
STANMORE NSW 2048

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.	47.0	0.0 - 50.0	ug/g
Pancreatic Elastase	*102.0* *L	> 200.0	ug/g
Faecal Secretory IgA	*63.5* *L	510.0 - 2010.0	ug/g
Faecal Zonulin	71.0	0.0 - 107.0	ng/g
Faecal B-Glucuronidase	*6574.5* *H	337.0 - 4433.0	U/g
Steatocrit	4.0	0.0 - 15.0	%
anti-Gliadin IgA	<20	0.0 - 157.0	units/L



Microbiome Mapping Summary

Parasites & Worms

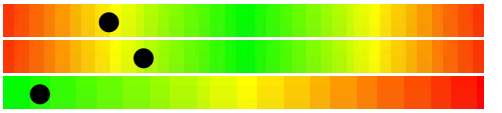
Dientamoeba fragilis.

Bacteria & Viruses

Fungi and Yeasts

Key Phyla Microbiota

Bacteroidetes	*4.70* *L	8.61 - 33.10	x10^11 org/g
Firmicutes	8.30	5.70 - 30.40	x10^10 org/g
Firmicutes:Bacteroidetes Ratio	0.18	< 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.	*1.0* *H	< 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		
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.	0.6	< 1.5	x10^5 org/g
Enterococcus faecalis	<dl	< 1.0	x10^4 org/g
Enterococcus faecium	0.3	< 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.	1.8	< 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	<dl	< 1.0	x10^3 org/g
Methanobacteriaceae	0.40	< 5.00	x10^9 org/g
Potential Autoimmune Triggers			
Citrobacter species.	<dl	< 5.0	x10^5 org/g
Citrobacter freundii.	<dl	< 5.0	x10^5 org/g
Klebsiella species	<dl	< 5.0	x10^3 org/g
Klebsiella pneumoniae.	2.6	< 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	0.10	< 10.00	x10^7 org/g

Fungi & Yeast	Result	Range	Units
Candida species.	3.0	< 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
Aeromonas species.	<dl	< 1.0	x10^3 CFU/g
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.	<dl	< 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
Bocavirus	<dl	< 1.0	x10^10 CFU/g

Normal Bacterial GUT Flora	Result	Range	Units
Bacteroides fragilis	*1.2* *L	1.6 - 250.0	x10^9 CFU/g
Bifidobacterium species	12.4	> 6.7	x10^7 CFU/g
Enterococcus species	*1.8* *L	1.9 - 2000.0	x10^5 CFU/g
Escherichia species	122.9	3.7 - 3800.0	x10^6 CFU/g
Lactobacillus species	*4.5* *L	8.6 - 6200.0	x10^5 CFU/g
Clostridium species	10.1	5.0 - 50.0	x10^6 CFU/g
Enterobacter species	*115.3* *H	1.0 - 50.0	x10^6 CFU/g
Akkermansia muciniphila	0.62	0.01 - 50.00	x10^3 CFU/g
Faecalibacterium prausnitzii	679.7	1.0 - 500000	x10^3 CFU/g

Short Chain Fatty Acids	Result	Range	Units
Short Chain Fatty Acids, Beneficial	29.4	> 13.6	umol/g
Butyrate	11.6	10.8 - 33.5	%
Acetate	70.0	44.5 - 72.4	%
Propionate	15.1	0.0 - 32.0	%
Valerate	3.3	0.5 - 7.0	%

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Pathogen Summary:

Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

Metabolism Comment

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

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.

GIT Markers Comment

PANCREATIC ELASTASE: MILD TO MODERATE INSUFFICIENCY.
Pancreatic insufficiency reflects trypsin, chymotrypsin, amylase and lipase activity.
PE1 is also useful in monitoring exocrine pancreatic function caused by: Chronic pancreatitis, Autoimmunopathies & connective tissue diseases, Chronic inflammatory bowel disease, Intestinal malabsorption with mucosal atrophy.
Treatment:
• Digestive enzyme supplementation
• A low-fat diet to control steatorrhea (excess fat in stools)
• Vitamin and mineral supplementation
• Investigate underlying causes for reduced pancreatic function (for eg. Coeliac disease, duodenal enteropathy, pancreatitis).

CALPROTECTIN Normal:
Faecal calprotectin values <50 ug/g are not indicative of inflammation in the gastrointestinal tract. Subjects with low faecal calprotectin levels normally do not need to be further investigated by invasive procedures.

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.

beta GLUCURONIDASE ELEVATED:
Suspect increased activation and enterohepatic recirculation of toxins, hormones, and various drugs within the body. Increased burden on glucuronidation pathway is associated with increased risk of colorectal, prostate and breast cancers.

Treatment:
Consider Calcium-D-glucarate which may assist with lowering B-glucuronidase levels. It is also suggested to introduce a low-calorie/vegetarian diet for 4 weeks which may also be beneficial with lowering faecal B-glucuronidase levels.

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Parasites/Worms Comment

ELEVATED DIENTAMOEBA FRAGILIS LEVEL:
Significant copies per gene of Dientamoeba fragilis have been detected in this stool sample. Dientamoeba fragilis is closely related to Histomonas and Trichomonas species. D. fragilis is known to cause non-invasive diarrheal illness in humans. 90% of children are symptomatic, whereas only 15-20% of adults are. The most common symptoms associated with D. fragilis are intermittent diarrhoea, fatigue, abdominal pain, fatigue, nausea, anorexia, malaise and unexplained eosinophilia. Diarrhea is predominately seen during the first 1-2 weeks of infection and abdominal pain may persist for 1-2 months.

Treatment:
Iodoquinol, tetracycline or metronidazole have been used to treat D. fragilis. Another alternative is paromomycin.
Using a combination of herbs that contain berberine (e.g. Golden seal, Coptis chinensis, Barberry, Oregon grape and Phellodendron) is desirable for the treatment of certain organisms. It is important to investigate the percentage of berberine contained in the dry weight extract of the berberine containing herb and then dose accordingly for the therapeutic dose of berberine.
Total therapeutic dose of berberine: 200mg four times daily.

Further Investigation:
PCR stool analysis should be considered in 4 weeks' time to ensure infection has cleared.

Opportunistic Bacteria Comment

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

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.

LOW ENTEROCOCCUS SPECIES LEVEL:

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Organism of the Firmicutes phylum.
Low levels may indicate insufficiency of beneficial bacteria.

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 ENTEROBACTER SPECIES LEVEL:
Organism of the Proteobacteria phylum. Closely related to E. coli (in the same taxonomic family).
High levels may indicate increased intestinal inflammatory activity.

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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. 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