P: 1300 688 522
E: info@nutripath.com.au

-.ALEXANDRA MIDDLETON
6 EDWARDS BAY ROAD
MOSMAN NSW 2088

JAN BENSON-SATTOUT
28-Apr-1962 Female

38 MCMILLIAN CIRCUIT
KELLYVILLE NSW 2155

LAB ID : **3815989**
UR NO. : **6607340**
Collection Date : **17-May-2022**
Received Date:18-May-2022

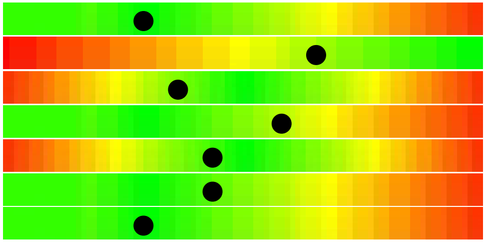
3815989

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	**Semi-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.	**3.9**	0.0 - 50.0	ug/g
Pancreatic Elastase	**>500.0**	> 200.0	ug/g
Faecal Secretory IgA	**860.9**	510.0 - 2010.0	ug/g
Faecal Zonulin	**62.0**	0.0 - 107.0	ng/g
Faecal B-Glucuronidase	**1808.4**	337.0 - 4433.0	U/g
Steatocrit	**5.0**	0.0 - 15.0	%
anti-Gliadin IgA	**<20**	0.0 - 100.0	units/L



Microbiome Mapping Summary

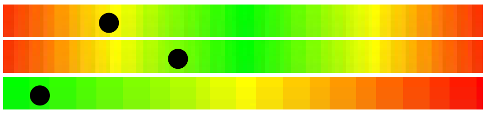
Parasites & Worms

Bacteria & Viruses

Fungi and Yeasts

Key Phyla Microbiota

Bacteroidetes	***6.86* *L**	8.61 - 33.10	x10^11 org/g
Firmicutes	**10.97**	5.70 - 30.40	x10^10 org/g
Firmicutes:Bacteroidetes Ratio	**0.16**	< 1.00	RATIO



NutriPATH
INTEGRATIVE PATHOLOGY SERVICES
P: 1300 688 522
E: info@nutripath.com.au

JAN BENSON-SATTOUT
28-Apr-1962 Female
38 MCMILLIAN CIRCUIT
KELLYVILLE NSW 2155

-.ALEXANDRA MIDDLETON
6 EDWARDS BAY ROAD
MOSMAN NSW 2088

LAB ID : 3815989
UR NO. : 6607340
Collection Date : 17-May-2022
Received Date: 18-May-2022

3815989

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		
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	x10^5 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	0.8	< 1.0	x10^3 org/g
Methanobacteriaceae	0.96	< 5.00	x10^9 org/g
Desulfovibrio piger	<dl	0.0 - 18.0	x10^7 org/g
Oxalobacter formigenes	25.0	> 15.0	x10^7 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.	<dl	< 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	0.46	< 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

NutriPATH
INTEGRATIVE PATHOLOGY SERVICES

P: 1300 688 522
E: info@nutripath.com.au

JAN BENSON-SATTOUT
28-Apr-1962 Female

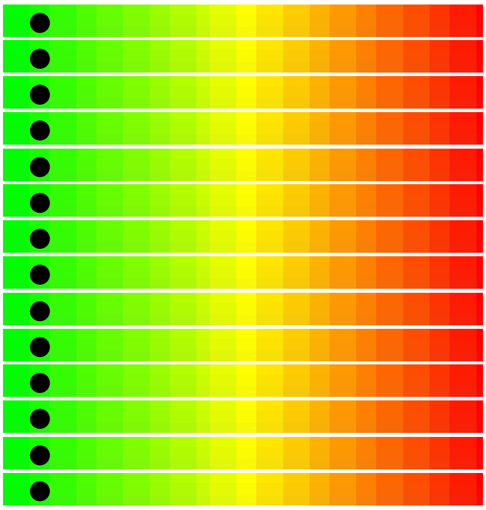
38 MCMILLIAN CIRCUIT
KELLYVILLE NSW 2155

-.ALEXANDRA MIDDLETON
6 EDWARDS BAY ROAD
MOSMAN NSW 2088

LAB ID : 3815989
UR NO. : 6607340
Collection Date : 17-May-2022
Received Date:18-May-2022

3815989

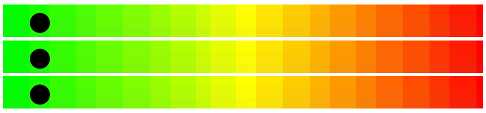
Bacterial Pathogens	Result	Range	Units
Aeromonas species.	<dl	< 1.0	x10^3 CFU/g
Campylobacter.	<dl	< 1.0	x10^3 CFU/g
C. difficile, Toxin A	<dl	< 1.0	x10^3 CFU/g
C. difficile, Toxin B	<dl	< 1.0	x10^3 CFU/g
Enterohemorrhagic E. coli	<dl	< 1.0	x10^3 CFU/g
E. coli O157	<dl	< 1.0	x10^2 CFU/g
Enteroinvasive 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



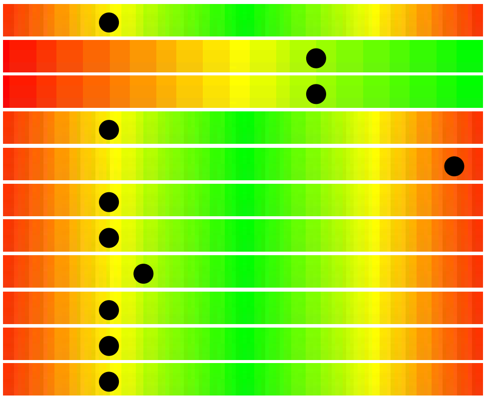
Comment: Helico Pylori virulence factors will be listed below if detected POSITIVE

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

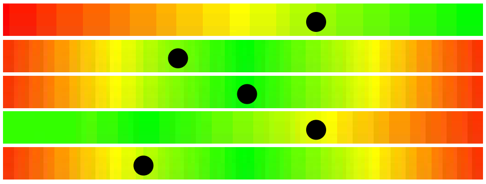
Viral Pathogens	Result	Range	Units
Adenovirus 40/41	<dl	< 1.0	x10^10 CFU/g
Norovirus GI/II	<dl	< 1.0	x10^7 CFU/g
Bocavirus	<dl	< 1.0	x10^10 CFU/g



Normal Bacterial GUT Flora	Result	Range	Units
Bacteroides fragilis	1.7	1.6 - 250.0	x10^9 CFU/g
Bifidobacterium species	1749.5	> 6.7	x10^7 CFU/g
Bifidobacterium longum	1590.5	> 5.2	x10^6 CFU/g
Enterococcus species	5.4	1.9 - 2000.0	x10^5 CFU/g
Escherichia species	*4801.0* *H	3.7 - 3800.0	x10^6 CFU/g
Lactobacillus species	*5.0* *L	8.6 - 6200.0	x10^5 CFU/g
Lactobacillus Rhamnosus	*2.0* *L	8.3 - 885.0	x10^4 CFU/g
Clostridium species	10.0	5.0 - 50.0	x10^6 CFU/g
Enterobacter species	1.0	1.0 - 50.0	x10^6 CFU/g
Akkermansia muciniphila	*<dl* *L	0.01 - 50.00	x10^3 CFU/g
Faecalibacterium prausnitzii	1035.4	1.0 - 500000	x10^3 CFU/g



Short Chain Fatty Acids	Result	Range	Units
Short Chain Fatty Acids, Beneficial	37.9	> 13.6	umol/g
Butyrate	15.4	10.8 - 33.5	%
Acetate	59.4	44.5 - 72.4	%
Propionate	23.6	0.0 - 32.0	%
Valerate	1.6	0.5 - 7.0	%



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: 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 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.

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.

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 Delsulfovibrio 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:
Oxolate 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. Oxolobacter 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

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

ELEVATED ESCHERICHIA SPECIES LEVEL:
The Gram-negative genus in the Proteobacteria phylum, which are considered normal gut flora. Escherichia coli (E. coli) is the primary species in this genus. Most E. coli are non-pathogenic. Elevated levels may be indicative of increased intestinal inflammatory activity.

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.

LOW LACTOBACILLUS RHAMNOSUS LEVEL:
Lactobacullus 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 responsesL. Low levels may be linked to poor digestive health, diarrhea and IBS symptoms.

LOW AKKERMANSIA MUCINIPHILA LEVEL:
Akkermansia muciniphila is an organism that lives in the mucus lining of your gut and uses mucus as its primary energy source. This species plays an important role in regulating mucus turnover in the gut so that there is a good balance between mucus breakdown and mucus production. Akkermansia muciniphila promotes healthy intestinal barrier and modulates immune responses.

Low levels of Akkermansia muciniphila has been observed in individuals with IBS, high fat diets, obesity, and type 2 diabetes. Reducing intake of high fat foods may help increase levels of this bacteria.

NutriPATH
INTEGRATIVE PATHOLOGY SERVICES

P: 1300 688 522
E: info@nutripath.com.au

JAN BENSON-SATTOUT
28-Apr-1962 Female

38 MCMILLIAN CIRCUIT
KELLYVILLE NSW 2155

-.ALEXANDRA MIDDLETON
6 EDWARDS BAY ROAD
MOSMAN NSW 2088

LAB ID : 3815989
UR NO. : 6607340
Collection Date : 17-May-2022
Received Date: 18-May-2022

3815989

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