



3936088

COMPLETE MICROBIOME MAPPING

General Macroscopic Description

	Result	Markers
Stool Colour	Brown	Colour - Brown is the colour of normal stool. Other colours may indicate abnormal gut health.
Stool Form	Formed	Form - Sample form is categorised using the Bristol stool chart. A comment on stool appearance can be found in the comments section.
Mucous	Not Detected	Mucous - Mucous production may indicate the presence of an infection and/or inflammation.
Occult Blood	Negative	Blood (Macro) - The presence of blood in the stool may be the result of several causes besides colorectal bleeding, including hemorrhoids or gastrointestinal infection.

Short Chain Fatty Acids	Result	Range	Units	
Short Chain Fatty Acids, Beneficial	20.5	> 13.6	umol/g	
Butyrate	17.6	10.8 - 33.5	%	
Acetate	37.3 *L	44.5 - 72.4	%	
Propionate	36.0 *H	0.0 - 32.0	%	
Valerate	9.1 *H	0.5 - 7.0	%	

GIT Functional Markers	Result	Range	Units	
Calprotectin.	11.0	0.0 - 50.0	ug/g	
Pancreatic Elastase	431.0	> 200.0	ug/g	
Secretory (slgA)	104.5 *L	510.0 - 2040.0	ng/mL	
Zonulin	88.1	0.0 - 107.0	ng/mL	
Beta glucuronidase	1014.7	368.0 - 6266.0	U/g	
Steatocrit	4.0	0.0 - 15.0	%	
a-Transglutaminase IgA	<20	0.0 - 100.0	units/L	

Microbiome Mapping Summary

Parasites & Worms	Bacteria & Viruses	Fungi and Yeasts
	Klebsiella species	

Key Phyla Microbiota

Firmicutes:Bacteroidetes Ratio

0.53 < 1.00

RATIO



Relative Commensal Abundance of the 6 Phyla groups can be found on page 4 of this report





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Parasites and Worms.	Result	Range	Units
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Parasitic Organisms

Cryptosporidium species	<dl	< 1.0	x10 ⁵ org/g	<div><div></div></div>
Entamoeba histolytica.	<dl	< 1.0	x10 ⁵ org/g	<div><div></div></div>
Giardia intestinalis	<dl	< 1.0	x10 ⁵ org/g	<div><div></div></div>
Blastocystis hominis.	<dl	< 1.0	x10 ⁵ org/g	<div><div></div></div>
Dientamoeba fragilis.	<dl	< 1.0	x10 ⁵ org/g	<div><div></div></div>
Endolimax nana	<dl	< 1.0	x10 ⁵ org/g	<div><div></div></div>
Entamoeba coli.	<dl	< 5.0	x10 ⁵ org/g	<div><div></div></div>
Pentatrichomonas hominis	<dl	< 1.0	x10 ⁵ org/g	<div><div></div></div>

Worms

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

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

NOTE: Reflex testing is performed on clinically indicated samples

Opportunistic Bacteria/Overgrowth	Result	Range	Units
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Bacillus species.	<dl	< 1.00	x10 ⁴ CFU/g	<div><div></div></div>
Enterococcus faecalis	<dl	< 1.00	x10 ⁵ CFU/g	<div><div></div></div>
Enterococcus faecium	<dl	< 1.00	x10 ⁵ CFU/g	<div><div></div></div>
Morganella species	<dl	< 1.00	x10 ⁵ CFU/g	<div><div></div></div>
Pseudomonas species	<dl	< 1.00	x10 ⁴ CFU/g	<div><div></div></div>
Pseudomonas aeruginosa.	<dl	< 3.00	x10 ⁴ CFU/g	<div><div></div></div>
Staphylococcus species	<dl	< 1.00	x10 ³ CFU/g	<div><div></div></div>
Staphylococcus aureus	<dl	< 5.00	x10 ³ CFU/g	<div><div></div></div>
Streptococcus species	0.92	< 3.00	x10 ⁶ CFU/g	<div><div></div></div>
Methanobrevibacter smithii	0.20	< 3.50	x10 ⁵ CFU/g	<div><div></div></div>
Desulfovibrio piger	<dl	< 18.00	x10 ⁷ CFU/g	<div><div></div></div>
Enterobacter cloacae complex.	<dl	< 5.00	x10 ⁵ CFU/g	<div><div></div></div>

Potential Autoimmune Triggers

Citrobacter species.	<dl	< 5.00	x10 ⁴ CFU/g	<div><div></div></div>
Citrobacter freundii.	3.38	< 5.00	x10 ⁴ CFU/g	<div><div></div></div>
Klebsiella species	8.46 *H	< 5.00	x10 ³ CFU/g	<div><div></div></div>
Klebsiella pneumoniae.	<dl	< 5.00	x10 ⁵ CFU/g	<div><div></div></div>
Prevotella copri	<dl	< 1.00	x10 ⁹ CFU/g	<div><div></div></div>
Proteus species	<dl	< 5.00	x10 ⁵ CFU/g	<div><div></div></div>
Proteus mirabilis.	<dl	< 1.00	x10 ⁴ CFU/g	<div><div></div></div>
Fusobacterium species	<dl	< 10.00	x10 ⁴ CFU/g	<div><div></div></div>

Fungi & Yeast	Result	Range	Units
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Candida species.	<dl	< 5.00	x10 ⁵ CFU/g	<div><div></div></div>
Candida albicans.	<dl	< 5.00	x10 ⁴ CFU/g	<div><div></div></div>
Geotrichum species.	<dl	< 3.00	x10 ² CFU/g	<div><div></div></div>
Saccharomyces cerevisiae.	<dl	< 3.00	x10 ³ CFU/g	<div><div></div></div>
Rhodotorula species.	<dl	< 1.00	x10 ³ CFU/g	<div><div></div></div>



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Bacterial Pathogens	Result	Range	Units	
Aeromonas hydrophila.	<dl	< 1.00	x10 ³ CFU/g	
Campylobacter species.	<dl	< 1.00	x10 ⁵ CFU/g	
C. difficile, Toxin A	<dl	< 1.00	x10 ⁴ CFU/g	
C. difficile, Toxin B	<dl	< 1.00	x10 ⁴ CFU/g	
Enterohemorrhagic E. coli	<dl	< 1.00	x10 ⁵ CFU/g	
Enteroinvasive E. coli/Shigella	<dl	< 1.00	x10 ³ CFU/g	
Enterotoxigenic E. coli LT/ST	<dl	< 1.00	x10 ⁵ CFU/g	
Shiga-like Toxin E. coli stx1	<dl	< 1.00	x10 ⁴ CFU/g	
Shiga-like Toxin E. coli stx2	<dl	< 1.00	x10 ⁴ CFU/g	
Salmonella species.	<dl	< 1.00	x10 ⁵ CFU/g	
Vibrio species.	<dl	< 1.00	x10 ⁴ CFU/g	
Yersinia species.	<dl	< 1.00	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	Not Detected		
Norovirus GI/II	Not Detected		
Rotavirus A	Not Detected		
Sapovirus (I,II,IV,V)	Not Detected		
Astrovirus (hAstro)	Not Detected		

Normal Bacterial GUT Flora	Result	Range	Units	
Bacteroides fragilis	129.1	1.6 - 250.0	x10 ⁵ CFU/g	
Bifidobacterium species	3018.9	> 6.7	x10 ⁵ CFU/g	
Bifidobacterium longum	7.4	> 5.2	x10 ⁵ CFU/g	
Enterococcus species	4.0	1.9 - 2000.0	x10 ³ CFU/g	
Escherichia species	1266.5	3.7 - 3800.0	x10 ⁴ CFU/g	
Lactobacillus species	7.5 *L	8.6 - 6200.0	x10 ³ CFU/g	
Lactobacillus rhamnosus	1.2 *L	8.3 - 885.0	x10 ³ CFU/g	
Clostridium species	45.3	5.0 - 50.0	x10 ⁷ CFU/g	
Oxalobacter formigenes	24.53	> 5.00	x10 ⁶ CFU/g	
Akkermansia muciniphila	16.91	1.00 - 50.00	x10 ⁷ CFU/g	
Faecalibacterium prausnitzii	356.9	200.0 - 3500.0	x10 ⁶ CFU/g	

Methodology:

GIT Functional markers performed by GCMS,EIA,FEIA.

Bacteriology,Virology,Fungi,Parasites & Worms performed by PCR,qPCR.







<dl = result below detectable limit. *H = Result greater than the reference range. *L = Result less than the reference range



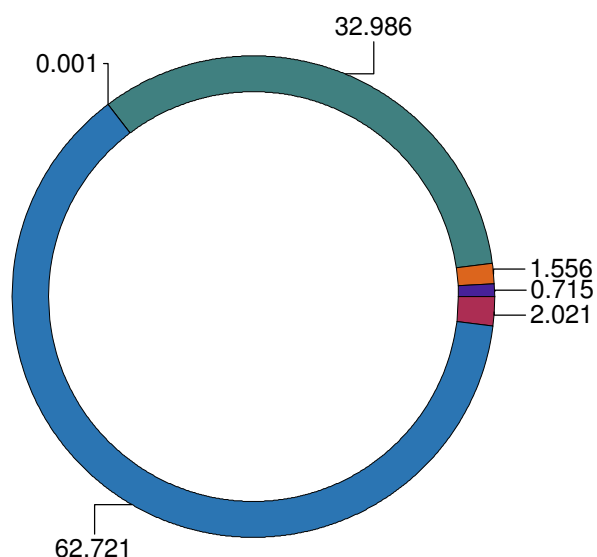
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Introduction:

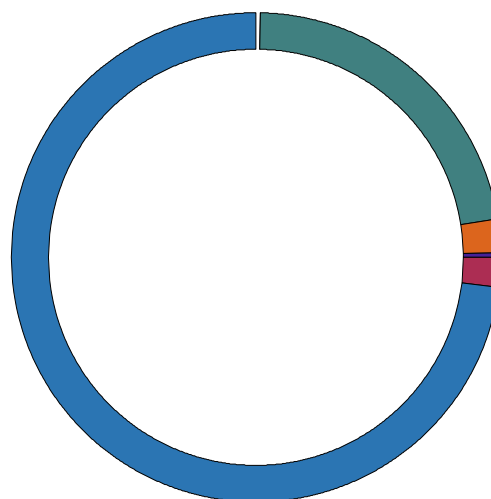
Your gut microbiome is a collective name for the 40 trillion cells and up to 1000 microbial species that include bacteria, viruses, fungi, parasites, and archaea and reside in our gut. The number of gut bacterial cells is approximately equal to the total number of human cells in our body, so if we consider only cell counts, we are only about half human. In terms of gene counts, the microbiome contains about 200 times more genes than the human genome, making bacterial genes responsible for over 99% of our body's gene content! Of all the microbial communities in the human body, the gut microbiome is by far the most dense, diverse, and physiologically important ecosystem to our overall health.

Relative Commensal Abundance	Result	Range	Units
 Bacteroidetes Phylum	62.721	50.000 - 95.000	%
 Firmicutes Phylum	32.986	3.500 - 40.000	%
 Actinobacteria Phylum	2.021	0.001 - 4.818	%
 Proteobacteria Phylum	1.556	0.500 - 12.500	%
 Verrucomicrobia Phylum	0.715	0.000 - 2.400	%
 Euryarchaeota Phylum	0.001	0.000 - 0.017	%

Your Phyla:



Healthy Phyla:



References:

NOTE: Relative abundance reference ranges have been based on a healthy population study.

King CH, et., al. (2019) Baseline human gut microbiota profile in healthy people and standard reporting template. PLoS One. 2019 Sep 11;14(9):e0206484.



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Pathogen Summary:

Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

Faecal Occult Blood Negative:

Faecal occult blood has not been detected in this specimen. If the test result is negative and clinical symptoms persist, additional follow-up testing using other clinical methods is recommended.

Metabolism Comment

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

The primary SCFAs butyrate, propionate and acetate are produced by predominant commensal bacteria via fermentation of soluble dietary fibre and intestinal mucus glycans.

Key producers of SCFAs include *Faecalibacterium prausnitzii*, *Akkermansia muciniphila*, *Bacteroides fragilis*, *Bifidobacterium*, *Clostridium* and *Lactobacillus* Spp.

The SCFAs provide energy for intestinal cells and regulate the actions of specialised mucosal cells that produce anti-inflammatory and antimicrobial factors, mucins that constitute the mucus barriers, and gut active peptides that facilitate appetite regulation and euglycemia. Abnormal SCFAs may be associated with dysbiosis, intestinal barrier dysfunction and inflammatory conditions.

ELEVATED PROPIONATE LEVEL:

Propionate is a short chain fatty acid that is important for gut health. It helps maintain blood glucose levels, can reduce inflammation, and helps control appetite. The consumption of fibre from foods such as fruits, vegetables, legumes and grains are associated with increased short chain fatty acids including propionate.

SCFA PRODUCTION TABLE

BACTERIA	BUTYRATE	PROPIONATE	ACETATE
<i>Akkermansia muciniphila</i>		▲▲▲	▲▲
<i>Anaerostipes caccae</i>	▲▲▲		
<i>Bacteroides</i> spp.		▲▲▲	
<i>Bifidobacterium</i> spp.		▲	▲▲▲
<i>Blautia obeum</i>		▲▲	▲▲▲
<i>Coprococcus eutactus</i>	▲		
<i>Escherichia coli</i>			▲
<i>Eubacterium rectale</i>	▲▲		
<i>Faecalibacterium prausnitzii</i>	▲▲▲		
<i>Lactobacillus</i> spp.	▲	▲	▲
<i>Roseburia homini</i>	▲▲		
<i>Ruminococcus bromii</i>	▲		▲
<i>Subdoligranulum variabile</i>	▲		

KEY

▲ Low Producers

▲▲ Moderate Producers

▲▲▲ High Producers



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ASHLEIGH TAYLOR
10-Sep-1991 **Female**

30 WARRINGA DRIVE
BILAMBIL HEIGHTS NSW 2486

LAB ID : 3936088
UR NO. : 6225618
Collection Date : 11-Nov-2023
Received Date: 22-Nov-2023



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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 should be producing >500 ug/g of PE-1 under normal/healthy conditions.

PE-1 levels between 200 - 500 ug/g may indicate suboptimal production.

PE-1 levels <200 ug/g indicate clear inadequate production.

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.

Testing performed by chemiluminescence immunoassay (CLIA).

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. In patients with strong clinical indications of intestinal inflammation, repeat testing may be useful.

Test performed by Phadia ELiA Fluorescence enzyme immunoassay (FEIA).

LOW SECRETORY IGA:

Secretory IgA represents the first line of defence of the gastrointestinal mucosa and is central to the normal function of the gastrointestinal tract as an immune barrier.

Secretory IgA binds to invading microorganisms 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.

Often low levels of Secretory IgA correlates with low beneficial flora levels and an increase in pathogenic and parasitic organism being present.

Treatment: Investigate the root cause and rule out parasitic organisms or pathogenic bacteria. 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 Secretory IgA.

PLEASE NOTE: A low Secretory IgA should be reviewed in conjunction with the stool formation. An artefactually low level may be due to fluid dilution effects in a watery or unformed/loose stool sample.

ZONULIN HIGH NORMAL:

Zonulin is a protein that modulates intestinal barrier function and can also be considered as a potential inflammatory marker.

Although this result is within range, the result should be interpreted with patient clinical symptoms as well as reviewing the presence of other proteobacteria that may be the result of increased Zonulin.

BETA-GLUCORONIDASE NORMAL:

B-Glucuronidase is considered normal and is within reference range.

Potential Autoimmune Comments

KLEBSIELLA SPECIES ELEVATED:

PHYLUM: Proteobacteria

DESCRIPTION:

Klebsiella is a genus of Gram-negative, oxidase-negative, rod-shaped bacteria that is ubiquitous in the environment and part of the normal intestinal flora. However, they can also behave as opportunistic human pathogens. Overgrowth may cause diarrhea, gas, abdominal pain, and bloating. Klebsiella may cause histamine release and increased intestinal inflammatory activity. It also may be associated with antibiotic-associated haemorrhagic colitis.

TREATMENT SUGGESTIONS:

A practitioner may take into consideration a range of patient factors and symptoms to determine if treatment is necessary. Klebsiella appears to thrive in individuals on a high starch diet. Avoiding carbohydrates such as rice, potatoes, flour products and sugary foods may reduce the amount of Klebsiella in the gut. Resistance to common antibiotics is common and the use of herbal antimicrobials oregano (Origanum vulgare), sage (Salvia officinalis) or thyme (Thymus vulgaris) may be effective.



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Normal Bacterial Flora Comment

LACTOBACILLUS SPECIES LOW:

PHYLUM: Firmicutes

DESCRIPTION:

Lactobacillus species low. Lactobacillus is a genus of Gram-positive rod-shaped, non-spore-forming bacteria which constitute a significantly important component of the human gastrointestinal system.

Lactobacillus exhibits a mutualistic relationship with the human body, as it protects the host against potential invasions by pathogens, and in turn, the host provides a source of nutrients. Lactobacilli are among the most common probiotic found in food such as yogurt, and it is diverse in its application to maintain gut health and to help treat ailments clinically such as diarrhea and obesity.

Lactobacillus species promote the anti-inflammatory response, thereby supporting the improvement of symptoms pertaining to asthma, chronic obstructive pulmonary disease, neuroinflammatory diseases, cardiovascular diseases, inflammatory bowel disease (IBD) and chronic infections in patients. Reduced levels increase the risk of infections and inflammation. Studies have also revealed that chronic psychological stress and alcohol use may be associated with a decrease in Lactobacillus species, as well as antibiotic / medication use.

TREATMENT SUGGESTIONS: Treatment may involve the use of Lactobacillus containing probiotics and treatment of any intestinal infections.

LACTOBACILLUS RHAMNOSUS LOW:

PHYLUM: Firmicutes

DESCRIPTION:

Lactobacillus Rhamnosus is a Gram-positive anaerobic bacterium and is one of the most widely used probiotic strains, of which various health effects are well documented including the prevention and treatment of gastro-intestinal infections and diarrhea and even preventing certain allergic symptoms.

Decreased Lactobacillus rhamnosus colonisation has been shown to decrease gastro-intestinal health, increasing the risk of gastro-intestinal infections and diarrhea as well as extra-intestinal infections including oral and respiratory health. Studies have also revealed that chronic psychological stress and alcohol use may be associated with a decrease in Lactobacillus species, as well as antibiotic / medication use.

TREATMENT SUGGESTIONS: Treatment may involve the use of Lactobacillus containing probiotics and treatment of any intestinal infections.



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 subsp. lactis, lactobacillus acidophilus, lactobacillus plantarum, lactobacillus casei, bifidobacterium breve, bifidobacterium bifidum, bifidobacterium longum, lactobacillus 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