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16 HARKER STREET
BURWOOD VIC 3125

Dr.SAMPLE REPORT
TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

LAB ID : 3814124
UR NO. :
Collection Date : 09-May-2022
Received Date:09-May-2022






3814124

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 indicate 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.	3.0	0.0 - 50.0	ug/g	
Pancreatic Elastase	>500.0	> 200.0	ug/g	
Faecal Secretory IgA	576.3	510.0 - 2010.0	ug/g	
Faecal Zonulin	143.7 *H	0.0 - 107.0	ng/g	
Faecal B-Glucuronidase	4764.8 *H	337.0 - 4433.0	U/g	
Steatocrit	10.0	0.0 - 15.0	%	
anti-Gliadin IgA	<20	0.0 - 100.0	units/L	

Microbiome Mapping Summary

Parasites & Worms

Blastocystis hominis.
Dientamoeba fragilis.




Bacteria & Viruses

Bacillus species.
Enterococcus faecalis
Morganella species
Pseudomonas species
Staphylococcus species
Streptococcus species
Citrobacter freundii.
Klebsiella pneumoniae.
Prevotella copri
Aeromonas species.
Helicobacter pylori

Fungi and Yeasts

Candida species.

Key Phyla Microbiota

Bacteroidetes	15.60	8.61 - 33.10	x10 ¹¹ org/g	
Firmicutes	84.44 *H	5.70 - 30.40	x10 ¹⁰ org/g	
Firmicutes:Bacteroidetes Ratio	0.54	< 1.00	RATIO	



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Parasites and Worms. Result Range Units

Parasitic Organisms

Organism	Result	Range	Units	Visual
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.	2.0 *H	< 2.0	x10 ³ org/g	
Dientamoeba fragilis.	87.0 *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

Bacteria	Result	Range	Units	Visual
Bacillus species.	1.8 *H	< 1.5	x10 ⁵ org/g	
Enterococcus faecalis	2.7 *H	< 1.0	x10 ⁴ org/g	
Enterococcus faecium	<dl	< 1.0	x10 ⁴ org/g	
Morganella species	1.0 *H	< 1.0	x10 ³ org/g	
Pseudomonas species	1.0 *H	< 1.0	x10 ⁴ org/g	
Pseudomonas aeruginosa.	<dl	< 5.0	x10 ² org/g	
Staphylococcus species	1.0 *H	< 1.0	x10 ⁴ org/g	
Staphylococcus aureus	<dl	< 5.0	x10 ² org/g	
Streptococcus species	2.0 *H	< 1.0	x10 ³ org/g	
Methanobacteriaceae	2.85	< 5.00	x10 ⁹ org/g	
Desulfovibrio piger	<dl	0.0 - 18.0	x10 ⁷ org/g	
Oxalobacter formigenes	323.5	> 15.0	x10 ⁷ org/g	

Potential Autoimmune Triggers

Citrobacter species.	<dl	< 5.0	x10 ⁵ org/g	
Citrobacter freundii.	5.0 *H	< 5.0	x10 ⁵ org/g	
Klebsiella species	<dl	< 5.0	x10 ³ org/g	
Klebsiella pneumoniae.	5.0 *H	< 5.0	x10 ⁴ org/g	
Prevotella copri	2.0 *H	< 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	1.90	< 10.00	x10 ⁷ org/g	

Fungi & Yeast Result Range Units

Candida species.	5.0 *H	< 5.0	x10 ³ org/g	
Candida albicans.	1.0	< 5.0	x10 ² org/g	
Geotrichum species.	2.0	< 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.	1.0 *H	< 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	3.0 *H	< 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	16.4	1.6 - 250.0	x10 ⁹ CFU/g	
Bifidobacterium species	50.8	> 6.7	x10 ⁷ CFU/g	
Bifidobacterium longum	25.4	> 5.2	x10 ⁶ CFU/g	
Enterococcus species	21.0	1.9 - 2000.0	x10 ⁵ CFU/g	
Escherichia species	1045.0	3.7 - 3800.0	x10 ⁶ CFU/g	
Lactobacillus species	41.8	8.6 - 6200.0	x10 ⁵ CFU/g	
Lactobacillus Rhamnosus	4.6 *L	8.3 - 885.0	x10 ⁴ CFU/g	
Clostridium species	78.9 *H	5.0 - 50.0	x10 ⁶ CFU/g	
Enterobacter species	3.0	1.0 - 50.0	x10 ⁶ CFU/g	
Akkermansia muciniphila	19.67	0.01 - 50.00	x10 ³ CFU/g	
Faecalibacterium prausnitzii	0.6 *L	1.0 - 500000	x10 ³ CFU/g	

Short Chain Fatty Acids	Result	Range	Units	
Short Chain Fatty Acids, Beneficial	17.0	> 13.6	umol/g	
Butyrate	11.0	10.8 - 33.5	%	
Acetate	58.0	44.5 - 72.4	%	
Propionate	29.0	0.0 - 32.0	%	
Valerate	2.0	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.



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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 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.

ELEVATED ZONULIN LEVELS:

Zonulin is a protein that modulates intestinal barrier function. Zonulin release facilitates the opening of tight junctions between the cells of the intestinal lining to allow for passage of nutrients and fluids into the body. However, Zonulin release can be "overstimulated" by certain external factors to cause excessive opening of tight junctions, leading to intestinal hyperpermeability or "leaky gut", inflammation, liver overload, nutrient deficiencies, rheumatoid arthritis and autoimmune disorders.

Identify the possible cause/s (Gut microorganism imbalance or the presence of dietary Gluten/gliadin) and remove to reduce further damage.

If it's gluten for gluten sensitivity or celiac disease, remove gluten.

If bacterial overgrowth or dysbiosis, treat the bacterial overgrowth.

Treatment:

Firstly, fix the gut. Treat/repair the gut before proceeding with other protocols; nutrients and other supplements can be damaging to the system if they get out of the gut

Follow a grain - free diet for at least 12 months.

Eliminate gluten, sugar, processed food, artificial flavorings, colors, trans fats.

Supplementation:

Caprylic acid, Probiotics, acidophylis and B complex, fish oil, Magnesium D3, CoQ10, Mg Citrate, Boswellia & Curcumin, Milk Thistle, Selenium

For patients with chronic digestive issue: Vitamin A, L-Glutamine, Probiotics

Further investigations to consider:

- SIBO Breath Test,
- IgG or IgA 96 Food Sensitivity

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.

Parasites/Worms Comment

ELEVATED BLASTOCYSTIS HOMINIS LEVEL:

Significant copies per gene of Blastocystis hominis have been detected in this stool sample. The role of B. hominis in terms of colonisation and disease is still considered controversial. When this organism is present in the absence of any other parasites, enteric organisms or viruses, it may be considered the etiological agent of disease. Symptoms can include diarrhoea, cramps, nausea, fever, vomiting and abdominal pain. B. hominis has been associated with irritable bowel syndrome, infective arthritis and intestinal obstruction.



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Treatment:

Metronidazole (Flagyl) is considered the most effective drug. Iodoquinol and paromomycin are also effective medications. Recommended therapy can also eliminate *G. lamblia*, *E. histolytica* and *D. fragilis*, all of which may be concomitant undetected pathogens and part of patient symptomology.

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.

ELEVATED DIENTAMOEBIA 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.



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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.

ELEVATED ENTEROCOCCUS FAECALIS LEVEL:

Enterococcus faecalis is a gram-positive bacterium that can cause a variety of infections of which urinary tract infections are the most common. These infections can be exceptionally difficult to treat because of drug resistance of many *E. faecalis* isolates.

Sources:

E. faecalis infections spread from person to person through poor hygiene. Because these bacteria are found in faeces, people can transmit the infection if they don't wash their hands after using the bathroom. The bacteria can get into food or onto common touched surfaces.

Treatment:

Enterococcus faecalis is challenging to treat due to its drug-resistant mechanisms. However, Ampicillin is the preferred antibiotic used to treat *E. faecalis* infections. For further treatment information, refer to the 4R treatment protocol located at the end of this report.

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.

ELEVATED PSEUDOMONAS SPECIES LEVEL:

Sources:

Pseudomonas is found in water and soil as well as fruits and vegetables.

Bottled water can be a common source of infection.

Because the organism is able to survive aqueous environments, it is an important nosocomial pathogen. *Pseudomonas* can



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also be found on a number of surfaces and in aqueous solutions.

Pathogenicity:
Pseudomonas is considered an opportunistic pathogen.

Symptoms:
In the gastrointestinal tract it can cause inflammation, epithelial barrier dysfunction, tight cell junction interruption, and intestinal permeability.

Treatment:
Ciprofloxacin is recommended for the treatment of Pseudomonas induced antibiotic-associated colitis. Pseudomonas is usually susceptible to antipseudomonal penicillins, aminoglycosides, carbapenems, 3rd generation cephalosporins and gentamycin. For further treatment suggestions, refer to the 4R protocol at the end of this report.

ELEVATED STAPHYLOCOCCUS SPECIES LEVEL:

Source:
Staphylococcus is a genus of gram-positive bacteria in the phylum Firmicutes. Staphylococcus includes at least 40 species. Most are harmless and reside normally on the skin and mucous membranes of humans.

Pathogenicity:
Staphylococcus spp. is considered non-pathogenic and is a member of the normal flora of the body.

Symptoms:
Feeling generally unwell, high fever, uncontrollable shakes, and/or shortness of breath.

Treatment:
In most cases, treatment for Staphylococcus species infection is not necessary and complete recovery usually occurs after cessation of symptoms.

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).



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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 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.

ELEVATED KLEBSIELLA PNEUMONIAE LEVEL:

Sources:

Klebsiella is part of the Enterobacteriaceae family and as such is a gram-negative bacteria. Klebsiella is Isolated from foods and environmental sources. Klebsiella appears to thrive in individuals on a high starch diet.

Pathogenicity:

Part of the normal gut flora in small numbers, but can be an opportunistic pathogen.

Klebsiella is capable of translocating from the gut when in high numbers.

Certain strains of *K. oxytoca* have demonstrated cytotoxin production.

Symptoms:

When Klebsiella is found in considerable amounts, symptoms may include abdominal pain, bloating, loose stools, anxiety, insomnia, food allergies.

Treatment:

Avoiding carbohydrates such as rice, potatoes, flour products and sugary foods reduces the amount of Klebsiella in the gut

Other Herbal antimicrobials include:

Lemon and clove, Burr marigold, Thyme, Licorice, euphobia, cordyceps. For further treatment options, refer to the 4R treatment protocol located at the end of this report.

ELEVATED PREVOTELLA COPRI LEVEL:

Sources:

Prevotella is a beneficial bacteria as it is associated with a plant-rich diet, however it is also linked to chronic inflammatory conditions, such as arthritis.

Prevotella is a Gram-negative bacteria. Studies indicate that long-term diet is strongly associated with the gut microbiome composition. Those who eat plenty of protein and animal fats typical of Western diet have predominantly Bacteroidetes bacteria, while those who consume more carbohydrates, especially fibre, the Prevotella species dominate.

Symptoms:

Chronic inflammatory conditions, such as arthritis.

Further investigations to consider are: Cytokine panel code 4004.

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.



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Fungi/Yeasts Comment

ELEVATED CANDIDA SPECIES LEVEL:

Sources:

Most sources of Candida infection are thought to be of endogenous origin. While yeast are ubiquitous in the environment and are found on fruits, vegetables and other plant materials, contamination from external sources is linked to patients and health care workers.

Pathogenicity:

A normal inhabitant of the GI tract. May become an opportunistic pathogen after disruption of the mucosal barrier, imbalance of the normal intestinal flora and/or impaired immunity.

Risk factors for colonization include: Antibiotics, corticosteroids, antacids, H2 blockers, oral contraceptives, irradiation, GI surgery, Diabetes mellitus, burns, T cell dysfunction, chronic stress and chronic renal disease.

Symptoms:

The most common symptom attributable to non-invasive yeast overgrowth is diarrhoea. Symptoms of chronic candidiasis affect four main areas of the body.

1. Intestinal system - symptoms include: diarrhoea, constipation, abdominal discomfort, distention, flatulence and rectal itching.
2. Genital Urinary system - symptoms include: menstrual complaints, vaginitis, cystitis and urethritis.
3. Nervous system - symptoms include: severe depression, extreme irritability, inability to concentrate, memory lapses and headaches.
4. Immune system - symptoms include urticaria, hay fever, asthma, and external otitis.

Sensitivities to tobacco, perfumes, diesel fumes and other chemicals.

Treatment:

Currently, standard texts provide no specific antifungal guidelines for GI overgrowth of Candida.

Oral azoles have been recommended for extra intestinal infections.

Susceptibility testing is advised due to increasing drug resistance.

Bacterial Pathogens Comment

ELEVATED HELICOBACTER PYLORI LEVEL:

Helicobacter Pylori has been detected in this sample. This indicates the presence of a current infection and is not affected by the presence of other organisms, antacids, barium sulphate, blood or fat.

If the patient has diagnosed gastritis or a peptic ulcer consider:

- Standard triple therapy: e.g. PPI, clarithromycin and amoxicillin/or metronidazole, 7-14 days
- Lactobacillus Probiotics

If the patient is asymptomatic consider natural products including:

- Black currant seed oil and fish oil
- Lactobacillus Probiotics
- Vitamin C
- Mastic gum.

Virulence factors of H. pylori, such as cagA, vacA, dupA, iceA, oipA and babA, have been demonstrated to be predictors of severe clinical outcomes. Positive virulence genes represent the potential for an H. pylori strain to create pathology. Information about the potential for virulence may help you as the clinician determine if H. pylori treatment is necessary.

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. Elevated Firmicutes may suggest microbial imbalance which may be related to increased caloric extraction from food, fat deposition and lipogenesis, impaired insulin sensitivity, and increased inflammation.

Treatment:

Consider using Bifidobacteria probiotics and Saccharomyces boulardii primarily. It may also be suggested to optimise the patient diet.



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Dr.SAMPLE REPORT
TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

SAMPLE REPORT

09-May-1990 **Female**

16 HARKER STREET
BURWOOD VIC 3125

LAB ID : **3814124**
UR NO. :
Collection Date : **09-May-2022**
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3814124

A lower fat diet may help to normalize Firmicutes levels.



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Normal Bacterial Flora Comment

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.

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	Sippery elm, pectin, larch arabinogalactans
		PROBIOTICS	Bifidobacterium animalis ssp 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	Seep, diet, exercise, and stress management