SAMPLE REPORT
09-May-1990 Female

P: +1.866.610.1200
E: help@4uhealth.com
PO Box 100083, Pittsburgh, PA 15233
Provider: Kristene C Diggins, FNP, DNP

Accession #: 0000000000

Collection Date : 08-Jul-2023
Received Date: 08-Jul-2023

GI BASIC

Microbiome Mapping Summary

Parasites & Worms

Blastocystis hominis.
Dientamoeba fragilis.

Bacteria & Viruses

Bacillus species.
Streptococcus agalactiae.
Streptococcus anginosus.
Methanobrevibacter smithii
Citrobacter freundii.
Candida parapsilosis.
Candida albicans.
Helicobacter pylori

Fungi and Yeasts

Key Phyla Microbiota

Firmicutes:Bacteroidetes Ratio ***1.84 *H*** < 1.00 RATIO

Relative Commensal Abundance of the 6 Phyla groups can be found on page 5 of this report

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Parasites and Worms.	Result	Range	Units
Parasitic Organisms			
Cryptosporidium species	<dl	< 1.0	x10^5 org/g
Entamoeba histolytica.	<dl	< 1.0	x10^5 org/g
Giardia intestinalis	<dl	< 1.0	x10^5 org/g
Blastocystis hominis.	*66.0* *H	< 1.0	x10^5 org/g
Dientamoeba fragilis.	*12.0* *H	< 1.0	x10^5 org/g
Endolimax nana	<dl	< 1.0	x10^5 org/g
Entamoeba coli.	<dl	< 5.0	x10^5 org/g
Pentatrichomonas hominis	<dl	< 1.0	x10^5 org/g
Worms			
Ancylostoma duodenale, Roundworm	Not Detected		
Ascaris lumbricoides, Roundworm	Not Detected		
Trichuris trichiura, Whipworm	Not Detected		
Enterocytozoon spp	Not Detected		
Strongyloides spp, Roundworm	Not Detected		
Necator americanus, Hookworm	Not Detected		
Enterobius vermicularis,Pinworm	Not Detected		
Hymenolepis spp, Tapeworm	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
Bacillus species.	*1.70* *H	< 1.00	x10^4 CFU/g
Enterococcus faecalis	0.30	< 1.00	x10^5 CFU/g
Enterococcus faecium	0.50	< 1.00	x10^5 CFU/g
Morganella species	<dl	< 1.00	x10^5 CFU/g
Pseudomonas species	0.50	< 1.00	x10^4 CFU/g
Pseudomonas aeruginosa.	<dl	< 3.00	x10^4 CFU/g
Staphylococcus species	<dl	< 1.00	x10^3 CFU/g
Staphylococcus aureus	2.00	< 5.00	x10^3 CFU/g
Streptococcus agalactiae.	*4.20* *H	< 3.00	x10^6 CFU/g
Streptococcus anginosus.	*6.70* *H	< 3.00	x10^6 CFU/g
Streptococcus mutans.	<dl	< 3.00	x10^6 CFU/g
Streptococcus oralis.	<dl	< 3.00	x10^6 CFU/g
Streptococcus salivarius.	<dl	< 3.00	x10^6 CFU/g
Methanobrevibacter smithii	*6.60* *H	< 3.50	x10^5 CFU/g
Desulfovibrio piger	<dl	< 18.00	x10^7 CFU/g
Potential Autoimmune Triggers			
Citrobacter species.	<dl	< 5.00	x10^4 CFU/g
Citrobacter freundii.	*55.00* *H	< 5.00	x10^4 CFU/g
Klebsiella species	<dl	< 5.00	x10^3 CFU/g
Klebsiella pneumoniae.	<dl	< 5.00	x10^5 CFU/g
Prevotella copri	<dl	< 1.00	x10^9 CFU/g
Proteus species	<dl	< 5.00	x10^5 CFU/g
Proteus mirabilis.	<dl	< 1.00	x10^4 CFU/g
Fusobacterium species	1.70	< 10.00	x10^4 CFU/g

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Mycology	Result	Range	Units
Candida dubliniensis.	<dl	< 1.00	x10^5 CFU/g
Candida glabrata.	<dl	< 1.00	x10^5 CFU/g
Candida intermedia.	<dl	< 1.00	x10^5 CFU/g
Candida krusei.	<dl	< 1.00	x10^5 CFU/g
Candida lambica.	<dl	< 1.00	x10^5 CFU/g
Candida lusitaniae.	<dl	< 1.00	x10^5 CFU/g
Candida parapsilosis.	*8.00* *H	< 1.00	x10^5 CFU/g
Candida albicans.	*15.00* *H	< 1.00	x10^5 CFU/g
Candida famata.	<dl	< 1.00	x10^5 CFU/g
Candida kefyr.	<dl	< 1.00	x10^5 CFU/g
Candida lipolytica.	<dl	< 1.00	x10^5 CFU/g
Geotrichum species.	<dl	< 1.00	x10^5 CFU/g
Rhodotorula species.	<dl	< 1.00	x10^5 CFU/g
Saccharomyces cerevisiae:	<dl	< 1.00	x10^5 CFU/g

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	*55.0* *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	Not Detected		
Norovirus GI/II	Not Detected		
Rotavirus A	Not Detected		
Sapovirus (I,II,IV,V)	Not Detected		
Astrovirus (hAstro)	Not Detected		

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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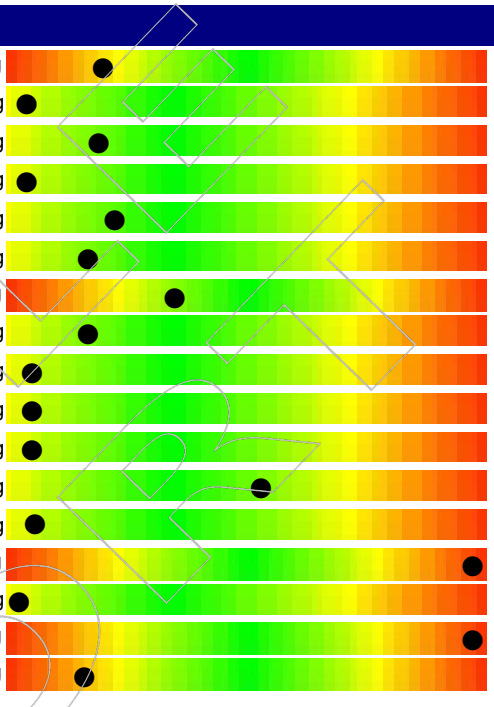
Normal Bacterial GUT Flora	Result	Range	Units
Bacteroides fragilis	1.7	1.6 - 250.0	x10^5 CFU/g
Bifidobacterium adolescentis	<dl *L	4.6 - 1000.0	x10^5 CFU/g
Bifidobacterium bifidum.	27.0	4.6 - 1000.0	x10^6 CFU/g
Bifidobacterium breve.	<dl *L	4.6 - 1000.0	x10^5 CFU/g
Bifidobacterium longum	122.0	4.6 - 1000.0	x10^5 CFU/g
Enterococcus species	2.0	1.9 - 2000.0	x10^3 CFU/g
Escherichia species	1098.0	3.7 - 3800.0	x10^4 CFU/g
Lactobacillus acidophilus.	11.0	1.7 - 500.0	x10^3 CFU/g
Lactobacillus casei.	<dl *L	1.7 - 500.0	x10^3 CFU/g
Lactobacillus delbrueckii	<dl *L	1.7 - 500.0	x10^3 CFU/g
Lactobacillus plantarum.	<dl *L	1.7 - 500.0	x10^3 CFU/g
Lactobacillus rhamnosus	344.0	1.7 - 500.0	x10^3 CFU/g
Lactobacillus salivarius	<dl *L	1.7 - 500.0	x10^3 CFU/g
Clostridium species	66.0 *H	5.0 - 50.0	x10^7 CFU/g
Oxalobacter formigenes	<dl *L	> 5.00	x10^6 CFU/g
Akkermansia muciniphila	71.00 *H	1.00 - 50.00	x10^7 CFU/g
Faecalibacterium prausnitzii	187.0 *L	200.0 - 3500.0	x10^6 CFU/g



Actions

Actions	L. plantarum HEAL9	L. paracasei 8700:2	L. plantarum HEAL19	L. plantarum 6595	L. plantarum 299v	L. rhamnosus GG	L. acidophilus LA02	B. animalis subsp. lactis BS01	L. casei LC03	B. breve BR03	L. fermentum LF08	L. crispatus strains	B. animalis subsp. lactis BA05	L. plantarum LP01	L. rhamnosus LR06	B. longum 04	L. fermentum LF16	L. salivarius LS01	B. breve B632	L. fermentum LF10	L. salivarius LS03	L. helveticus Rosell-52	L. rhamnosus Rosell-11	B. longum Rosell-75	S. boulardii CNCM I-1079	S. thermophilus FP4
Intestinal epithelial barrier health				•	•	•			•	•								•				•	•		•	
Mucous membrane health				•		•																	•		•	
Normalisation of bowel movements					•	•	•	•		•				•								•				
Normalisation of bloating					•	•	•	•		•				•												
Normalisation of peristalsis					•	•	•	•		•				•											•	
Autoimmune immunomodulation	•	•	•		•	•																				
Inhibition of pathogenic overgrowth				•	•	•				•									•		•	•	•	•	•	
Inactivate microbial toxins																									•	
Increase infection resistance	•	•		•		•		•														•		•	•	
Th1/Th2 immune cell modulation						•				•								•	•			•	•			
Staphylococci inhibition										•								•								
Gut-brain axis support					•									•	•	•	•					•		•		
GABA production						•			•																	
Bone resorption inhibition	•	•	•																							
E. coli inhibition										•				•	•				•			•	•	•	•	
Oxalate degradation						•	•							•												

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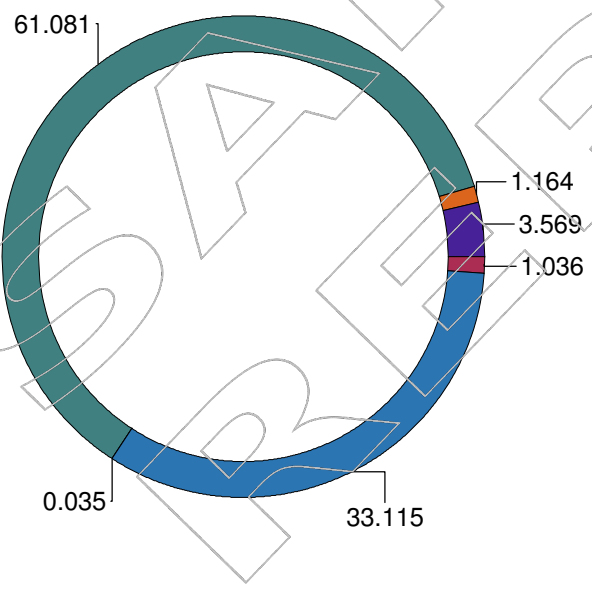
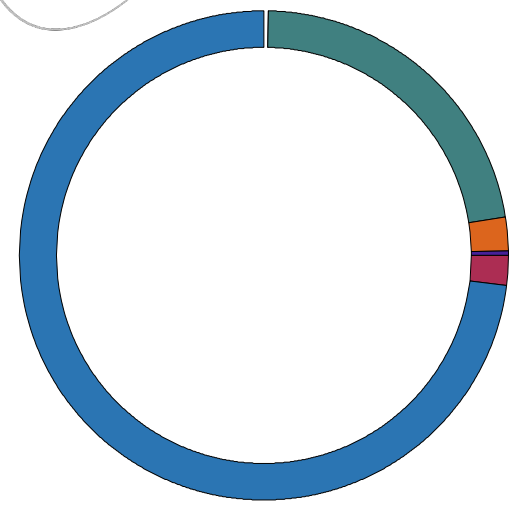
Introduction:
Your gut microbiome is a collective name for the 40 trillion cells and up to 1000 microbial species that include bacteria, viruses, fungi, parasites, and archaea and reside in our gut. The number of gut bacterial cells is approximately equal to the total number of human cells in our body, 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
Firmicutes Phylum	*61.081* *H	3.500 - 40.000	%
Bacteroidetes Phylum	*33.115* *L	50.000 - 95.000	%
Verrucomicrobia Phylum	*3.569* *H	0.000 - 2.400	%
Proteobacteria Phylum	1.164	0.500 - 12.500	%
Actinobacteria Phylum	1.036	0.001 - 4.818	%
Euryarchaeota Phylum	*0.035* *H	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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LAB ID : 4003094
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Pathogen Summary:

Parasites/Worms Comment

ELEVATED BLASTOCYSTIS HOMINIS LEVEL:
Blastocystis hominis may be the cause of persistent, mild diarrhoea. Although considered endemic, it may also be associated with recent overseas travel. Detection suggests the ingestion of contaminated material or contact with farm animals. Continued symptoms may require further testing for the detection of bacterial, viral and/or parasitic co-pathogens.

TREATMENT SUGGESTIONS:
Mild symptoms are self-limiting.
If treatment is warranted, metronidazole 400 - 750mg (child 12-17mg/kg up to 750mg) three times daily for at least 10 days. Lower dosages are usually associated with treatment failure.
Paromomycin has also shown to be effective as an alternative treatment option.
Rule out allergy to above medication before prescribing/taking. Consult ID specialist if patient is showing severe symptoms or immunocompromised.

ELEVATED DIENTAMOEBA FRAGILIS LEVEL:
Dientamoeba fragilis appears to be extremely common and may have a cosmopolitan distribution, although there are large variations in prevalence. Dientamoeba fragilis has been linked to intestinal symptoms, especially in children. The most common symptoms associated with this organism are abdominal pain, intermittent diarrhoea, bloating and anorexia.

TREATMENT SUGGESTIONS:
Mild symptoms are self-limiting.
If treatment is warranted, metronidazole for 10 days or a single 2g dose of Tinidazole may be used. Tetracycline has also proven effective in adults.
Rule out allergy to above medication before prescribing/taking. Consult ID specialist if patient is showing severe symptoms or immunocompromised.

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Opportunistic Bacteria Comment

BACILLUS SPECIES ELEVATED:

PHYLUM: Firmicutes

DESCRIPTION:
Bacillus species are spore forming, gram-positive rods belonging to the Bacillaceae family. The majority of Bacillus species have little or no pathogenicity. However, some species, particularly Bacillus cereus and licheniformis, have been implicated in food poisoning and opportunistic infections, which may be characterised by abdominal pain with diarrhea or nausea and vomiting and transmitted via ingestion of contaminated food.

TREATMENT SUGGESTIONS:
Infection is usually self-limited and does not require any targeted therapy. In severe cases or immunocompromised, treatment with vancomycin, gentamicin, chloramphenicol, or carbapenems should be considered. Rule out allergy to above medication before prescribing/taking.

METHANOBREVIBACTER SMITHII ELEVATED:

PHYLUM: Euryarchaeota

DESCRIPTION:
Methanobrevibacter smithii is a methane-producing microbe that plays an important role in the gut ecosystem by facilitating carbohydrate fermentation and production of short-chain fatty acids by commensal bacteria. Elevated levels may be associated with abdominal bloating, constipation, flatulence, inflammatory bowel disease (IBD), irritable bowel syndrome (IBS), colorectal cancer, diverticulosis or obesity and often correlate with a positive SIBO test.
Methanobrevibacter smithii has also been closely correlated with the presence of Blastocystis hominis.

TREATMENT SUGGESTIONS:
Elimination of methanogenic flora using antibiotic treatment may contribute to therapeutic benefits and include neomycin or rifaximin. Antimicrobial herbs may also be beneficial in treatment (including garlic and oregano). Rule out allergy to above medication before prescribing/taking.

Potential Autoimmune Comments

CITROBACTER FREUNDII ELEVATED:

PHYLUM: Proteobacteria

DESCRIPTION:
Citrobacter freundii is a species of facultative anaerobic Gram-negative predominantly soil-dwelling bacteria, but can also be found in water, sewage, food, and the intestinal tract. Citrobacter freundii is an emerging opportunistic pathogen and elevation may be a cause of nosocomial infections, diarrheal infections and has increasingly become multidrug resistant (MDR).

TREATMENT SUGGESTIONS:
A practitioner may take into consideration a range of patient factors and symptoms to determine if treatment is necessary. Citrobacter freundii infection is usually treated with antibiotics like fluoroquinolones, carbapenems and cephalosporins. The treatment plan depends up on the vulnerability of the microbe to the antibiotics and the degree of infection. Treatments may also include herbal antimicrobials and/or probiotics. Rule out allergy to above medication before prescribing/taking.

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Fungi/Yeasts Comment

CANDIDA ELEVATED:

PHYLUM: Ascomycota

DESCRIPTION:
Candida is a genus of yeasts found in the environment and present in healthy persons colonizing the oropharyngeal, oesophageal, and gastrointestinal mucosa. Considered an opportunistic pathogen, C. albicans can cause superficial but also more severe systemic infections. Candidiasis is an opportunistic infection due to Candida, which can affect the oral cavity, vagina, penis, or gastrointestinal tract. Elevated Candida gastrointestinal colonization is associated with several diseases including Crohn's and inflammatory bowel disease as well as with antibiotic usage.

Other common symptoms include: Gas, bloating, constipation, nausea and skin conditions such as Eczema.

TREATMENT SUGGESTIONS: Dietary: Reduce intake of sugars, starches, and fungi.
Candida infections may be treated if warranted with antifungal medications such as nystatin, clotrimazole, amphotericin B or miconazole. Probiotic Lactobacillus treatment may also be effective. Rule out allergy to above medication before prescribing/taking.

Bacterial Pathogens Comment

HELICOBACTER PYLORI ELEVATED:

PHYLUM: Proteobacteria

DESCRIPTION:
Helicobacter pylori is a gram-negative bacterium found on the luminal surface of the gastric epithelium.
An elevated result indicates a current infection and is not affected by the presence of other organisms, antacids, barium sulphate, blood or fat. Please correlate infection clinically with signs and symptoms.
Treatment:
Triple therapy: PPI, clarithromycin and amoxicillin or metronidazole, 7-14 days.
If penicillin allergic: PPI, clarithromycin and clindamycin or metronidazole, 7-14 days.

If the patient is asymptomatic consider other alternative therapies including:
o Black currant seed oil and fish oil
o Lactobacillus Probiotics
o Vitamin C
o Mastic gum.

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Phyla Microbiota Comment

FIRMICUTES (PHYLUM) ELEVATED:

DESCRIPTION:
Firmicutes are a phylum of diverse bacteria which are primarily grouped into classes, Bacilli, Clostridia, Erysipelotrichia and Negativicutes. They are found in various environments, including the intestinal tract, and the group includes some notable pathogens. Firmicutes are involved in energy resorption in the gut microbiome and levels may be affected by diet. Elevated levels and disturbance of gastrointestinal microbiome balance, particularly Firmicutes/Bacteroidetes ratio, have been associated with inflammation, obesity, diabetes and with a high sugar/ fat diet.

TREATMENT SUGGESTIONS: Consider using Bifidobacterium or Saccharomyces containing probiotics. It may also be suggested to optimise the patient diet. A lower fat diet may help to normalize Firmicutes levels.

FIRMICUTES/BACTEROIDETES RATIO ELEVATED:
Elevated Firmicutes/Bacteroidetes ratio is frequently cited in the scientific literature as a hallmark of obesity, metabolic syndrome, irritable bowel syndrome or diabetes risk. The ratio may also be used to evaluate commensal microbial balance.

The calculation provided in this report is made by the sum of abundance of Firmucutes tested divided by the sum of abundance Bacteroidetes. Reference ranges are based off internal cohort studies.

Treatment:
Balance commensal bacteria using the 4R Protocol which is located at the end of this test report. When firmicutes are high, consider using Bifidobacterium probiotics and Saccharomyces boulardii primarily. Lactobacillus spp. and Bacillus spp. (found in probiotics) can elevate firmicutes. It is further suggested to optimize the patient diet. A lower fat diet may assist to normalize the F/B ratio.

VERRUCOMICROBIA (PHYLUM) ELEVATED:

DESCRIPTION:
Verrucomicrobia is a phylum of Gram-negative bacteria that contains only a few described species, found in the environment and gastrointestinal tract.
Akkermansia spp. is involved in gut membrane integrity and may be increased with polyphenols and prebiotics.

Verrucomicrobia aid in glucose homeostasis of the human gut and have anti-inflammatory properties that further aid in intestinal health.

TREATMENT SUGGESTIONS: Probiotic use and dietary modification use may assist in the rebalancing of microbial flora.

EURYARCHAEOTA (PHYLUM) ELEVATED:

DESCRIPTION:
Euryarchaeota are a phylum of a diverse range of bacteria, including methanogens, halophiles and sulfate-reducers. Three distinct species within the group of Euryarchaeota have been regularly detected within the human body. Among these is the primary colonizer of the human gut system Methanobrevibacter smithii and the less frequently found species Methanosphaera stadtmanae, while in the oral cavity M. oralis is the predominating methanogenic species. Methanogens support the growth of fermenting bacteria, which themselves could be either true pathogens or at least opportunistic pathogens but also members of the commensal flora.

They may also transform heavy metals or metalloids into volatile methylated derivatives which are known to be more toxic than the original compounds. Elevated Euryarchaeota may be associated with inflammatory bowel disease, Crohn's, irritable bowel syndrome, colorectal cancer, diverticulosis, and obesity. It may also affect short chain fatty acid production and absorption.

TREATMENT SUGGESTIONS: If treatment is warranted, Statins may be used to inhibit methanogenic archaea growth without affecting bacterial numbers. Symptoms may also be treated with dietary modification (low FODMAP) and probiotics.

A lactulose SIBO test may be considered to assess Methanogen levels.

Normal Bacterial Flora Comment

CLOSTRIDIUM SPECIES ELEVATED:

PHYLUM: Firmicutes

DESCRIPTION:

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Clostridium is a genus of anaerobic, Gram-positive bacteria found in the environment and the intestinal tract. This genus includes several species and can utilize large amounts of nutrients that cannot be digested by host and produce short-chain fatty acids (SCFAs), which play a noticeable role in intestinal homeostasis. Colonisation of Clostridium species may be affected by diet (carbohydrate and protein in diet) and general health and may be protective against inflammation and infection. However, some species may act as potential pathogens. Elevated Clostridium species may indirectly damage the intestinal epithelial cells. Another symptom may include constipation.

TREATMENT SUGGESTIONS: Treatment may involve the use of probiotics, treatment of any intestinal infections and dietary modification (reduce consumption of different fibres, such as inulin, oligofructose, arabinoxylan, guar gum and starch).

OXOLOBACTER FORMIGENES LOW:

PHYLUM: Proteobacterium

DESCRIPTION:
Oxalobacter formigenes is a Gram negative oxalate-degrading anaerobic bacterium. 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 and maintains oxalate homeostasis. Levels of O. Formigenes tends to decrease with age as well as with the use of antibiotics or other drugs. Low levels may be associated with calcium oxide stone formation, inflammatory bowel disease or Crohn's.

TREATMENT SUGGESTIONS:
Treatment options include probiotic treatment and low oxalate diet modification. Urinary oxalate levels may also need to be investigated.

AKKERMANSIA MUCINIPHILA ELEVATED:

PHYLUM: Verrucomicrobia

DESCRIPTION:
Akkermansia muciniphila is a Gram-negative, strictly anaerobic, non-motile bacterium, often considered a human intestinal symbiont. There is growing evidence to suggest that the prevalence of this bacteria is associated with intestinal homeostasis, immunity, and a healthy gut. However, elevated colonisation may be associated with intestinal inflammation.

TREATMENT SUGGESTIONS: Treatment may involve the use of probiotics, treatment of any intestinal infections and dietary modification.

FAECALIBACTERIUM PRAUSNITZII LOW:

PHYLUM: Firmicutes

DESCRIPTION:
Faecalibacterium prausnitzii is gram-positive, rod-shaped, anaerobic and is one of the most abundant and important commensal bacteria of the human gut microbiota. It is a key producer of Short Chain Fatty acids, has anti-inflammatory properties and may improve the imbalance in intestinal bacteria that leads to dysbiosis. Decreased colonisation of F. prausnitzii in the intestines have been associated with Crohn's disease, obesity, asthma, and major depressive disorders.

TREATMENT SUGGESTIONS: Treatment may involve the use of probiotics, treatment of any intestinal infections and dietary modification.

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SAMPLE REPORT
09-May-1990 Female

Accession #: 0000000000

Collection Date : 08-Jul-2023
Received Date: 08-Jul-2023

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