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Lab ID
Patient ID PAT-100009
Ext ID 25282-0012

Test Patient
Sex: Female • 45yrs • 01-Jan-80

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GUT IQ
Specimen type - Stool

Collected
05-Oct-25

MACROSCOPIC EXAMINATION

TEST	RESULT
Stool Colour	**Brown**
Stool Form	**Semiformed**
Mucous	**Absent**

OCCULT BLOOD

TEST	INTERPRETATION
Occult Blood	**Negative**

GIT FUNCTIONAL MARKERS

TEST	RESULT	H/L		REF - RANGE	UNITS
Calprotectin	**78.0**	**H**		(<50.0)	ug/g
b-Glucuronidase	4835			(368-6266)	U/g
Pancreatic Elastase 1	550			(>200)	ug/g
pH	6.6			(6.3-7.7)	
Secretory IgA	**428**	**L**		(510-2040)	ng/mL
Steatocrit	1.9			(0.0-10.0)	%
Transglutaminase IgA	15.0			(0.0-100.0)	ug/g
Zonulin	55			(0-107)	ng/mL

SHORT CHAIN FATTY ACIDS, BENEFICIAL

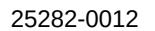| TEST	RESULT	H/L		REF - RANGE	UNITS
Short Chain Fatty Acids, Beneficial	25.1			(>13.6)	umol/g
Acetate	63.30			(44.50-72.40)	%
Butyrate	11.70			(10.80-33.50)	%
Propionate	21.80			(0.00-32.00)	%
Valerate	3.20			(0.50-7.00)	%

Parasites & Worms

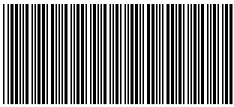Dientamoeba fragilis
Ascaris species, Roundworm

Bacteria and Viruses

Adenovirus 40/41
Helicobacter pylori
Enterobacter cloacae
Enterococcus casseliflavus
Pseudoflavonifractor capillosus
STREPTOCOCCUS TOTAL
Streptococcus salivarius

Mycology

No Yeasts detected

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MICROBIOTA PHYLA

TEST	RESULT	H/L		REF - RANGE	UNITS
● Actinobacteria Phylum	0.094	L		(0.100-5.000)	%
● Bacteroidetes Phylum	61.200			(25.000-65.000)	%
● Euryarchaeota Phylum	0.014			(<0.020)	%
● Firmicutes Phylum	26.300			(22.000-70.000)	%
● Proteobacteria Phylum	2.670			(0.500-5.000)	%
● Verrucomicrobia Phylum	9.720	H		(0.010-4.000)	%

Your Phyla

● 0.014 ● 0.094 L ● 9.720 H ● 2.670

● 26.300

● 61.200

Healthy Phyla

● 1.747 ● 1.751 ● 0.001 ● 1.201

● 42.1

● 53.2

GUT MICROBIAL DIVERSITY

TEST	RESULT	H/L		REF - RANGE	UNITS
Shannon Diversity Index	2.83			(2.74-4.35)	
Simpson Diversity Index	0.90			(0.85-0.97)	

MICROBIOTA RATIOS

TEST	RESULT	H/L		REF - RANGE	UNITS
Firmicutes/Bacteroidetes ratio	0.43			(<2.00)	ratio
Fus. nucleatum/Faec. prausnitzii ratio	N/A			(<1.00)	ratio
Gram-Positive/Gram-Negative ratio	0.41			(0.00-1.50)	ratio
Prevotella/Bacteroides ratio	N/A			(<0.15)	ratio
Proteobacteria/Actinobacteria	28.00	H		(0.00-15.00)	ratio

Note: N/A = Not Applicable. The two results do not contain values that allow a ratio to be calculated.

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IMPORTANT BIOCHEMICAL FUNCTIONS

TEST	RESULT	H/L		REF - RANGE	UNITS
Ageing Factors (Oxidative Stress)	0.7160			(<1.0000)	%
Ammonia/Urease Production	0.2670			(<0.5000)	%
Branched Chain AA Production	2.9200			(<5.5000)	%
Carbohydrate Metabolism	4.9000			(1.0000-7.0000)	%
Histamine Production	0.0000			(<1.0000)	%
Iron/Other Ion Metabolism	4.1200	H		(<3.0000)	%
Indolepropionic Acid (IPA) Production	1.1200			(>1.0000)	%
Lipid Metabolism	5.2000			(1.0000-8.0000)	%
Lipopolysaccharides (LPS) Production	2.5800			(<4.0000)	%
Protein/Other Energy Metabolism	10.500			(5.000-25.000)	%
Sulphate Production	1.0700			(<3.0000)	%
Trimethylamine (TMA) Production	0.0142			(<0.3000)	%

DISEASE RISKS

TEST	RESULT	.
Colon Cancer Risk	Low Risk	
Crohns Disease Risk	Low Risk	
Fatty Liver Risk	Moderate Risk	
Type 2 Diabetes Risk	Moderate Risk	
Ulcerative Colitis Risk	Low Risk	

Disease Risk Disclaimer:

The results from this shotgun microbiome sequencing analysis are for informational and research purposes only. They do not diagnose, treat, or predict any disease or health condition. While certain bacterial compositions may be associated with an increased or decreased risk of specific health outcomes, having a higher risk does not mean you will develop the disease, nor does a lower risk guarantee protection.

The microbiome is a complex and dynamic ecosystem influenced by various factors, including diet, lifestyle, genetics, and environment. These results should be interpreted in conjunction with other clinical assessments and professional medical advice.

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PARASITES

TEST	RESULT	H/L		REF - RANGE	UNITS
Blastocystis hominis	<DL			(<1.00)	x10^5 org/g
Cryptosporidium species	<DL			(<1.00)	x10^5 org/g
Cyclospora cayetanensis	<DL			(<1.00)	x10^5 org/g
Dientamoeba fragilis	1.66	H		(<1.00)	x10^5 org/g
Entamoeba histolytica	<DL			(<1.00)	x10^5 org/g
Enterocytozoon species	<DL			(<1.00)	x10^5 org/g
Giardia intestinalis	<DL			(<1.00)	x10^5 org/g

Blastocystis Subtypes

TEST	RESULT
Subtype 1	Negative
Subtype 2	Negative
Subtype 3	Negative
Subtype 4	Negative
Subtype 5	Negative
Subtype 6	Negative
Subtype 7	Negative
Subtype 8	Negative
Subtype 9	Negative

HELMINTHS

TEST	RESULT
Ancylostoma species Hookworm	Not Detected
Ascaris species, Roundworm	DETECTED
Enterobius vermicularis, Pinworm	Not Detected
Hymenolepis spp, Tapeworm	Not Detected
Necator americanus, Hookworm	Not Detected
Strongyloides spp, Roundworm	Not Detected
Taenia species, Tapeworm	Not Detected
Trichuris trichiura, Whipworm	Not Detected

VIRUSES

TEST	RESULT
Adenovirus 40/41	DETECTED
Astrovirus (hAstro)	Not Detected
Norovirus GI/II	Not Detected
Rotavirus A	Not Detected
Sapovirus (I,II,IV,V)	Not Detected
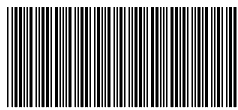
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BACTERIAL PATHOGENS

TEST	RESULT	H/L		REF - RANGE	UNITS
🟠 Aeromonas species	0.20			(<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
🟢 Clostridium difficile, Hypervirulent	<DL			(<1.00)	x10^3 CFU/g
🟠 Enteroaggregative E. coli	<DL			(<1.00)	x10^3 CFU/g
🟠 Enteropathogenic E. coli	<DL			(<1.00)	x10^3 CFU/g
🟠 E. coli O157	<DL			(<1.00)	x10^2 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
🟠 Salmonella species	<DL			(<1.00)	x10^5 CFU/g
🟠 Shiga toxigenic E. coli (stx1/2)	<DL			(<1.00)	x10^3 CFU/g
🟠 Vibrio species	<DL			(<1.00)	x10^4 CFU/g
🟠 Yersinia species	<DL			(<1.00)	x10^5 CFU/g
🟠 Helicobacter pylori	2.16 **H**			(<1.00)	x10^3 CFU/g

HELICOBACTER PYLORI PROFILE

TEST	RESULT
H. pylori Antigen	POSITIVE

H.Pylori Virulence Factors

TEST	RESULT
Virulence Factor, babA	DETECTED
Virulence Factor, cagA	Not Detected
Virulence Factor, dupA	Not Detected
Virulence Factor, iceA	Not Detected
Virulence Factor, oipA	Not Detected
Virulence Factor, vacA	Not Detected
Virulence Factor, virB	Not Detected
Virulence Factor, virD	Not Detected

H.Pylori Resistance Genes

TEST	RESULT
Resistance gene A2142C	DETECTED
Resistance gene A2142G	Not Detected
Resistance gene A2143G	Not Detected

🔴 Actinobacteria Phylum 🔵 Bacteroidetes Phylum ⚫ Euryarchaeota Phylum 🟢 Firmicutes Phylum 🟠 Proteobacteria Phylum 🟣 Verrucomicrobia Phylum
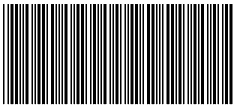
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MYCOLOGY

TEST	RESULT	H/L		REF - RANGE	UNITS
Candida albicans	<DL			(<1.00)	x10^5 CFU/g
Candida dubliniensis	<DL			(<1.00)	x10^5 CFU/g
Candida famata	<DL			(<1.00)	x10^5 CFU/g
Candida glabrata	<DL			(<1.00)	x10^5 CFU/g
Candida guilliermondii	<DL			(<1.00)	x10^5 CFU/g
Candida intermedia	<DL			(<1.00)	x10^5 CFU/g
Candida kefyr	<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 lipolytica	<DL			(<1.00)	x10^5 CFU/g
Candida lusitaniae	<DL			(<1.00)	x10^5 CFU/g
Candida parapsilosis	<DL			(<1.00)	x10^5 CFU/g
Candida tropicalis	<DL			(<1.00)	x10^5 CFU/g
Geotrichum species	0.20			(<1.00)	x10^5 CFU/g
Rhodotorula species	<DL			(<1.00)	x10^5 CFU/g
Saccharomyces cerevisiae	<DL			(<1.00)	x10^5 CFU/g

PATHOGENS / OPPORTUNISTIC PATHOGENS

TEST	RESULT	H/L		REF - RANGE	UNITS
Abiotrophia defectiva	<DL			(<0.010)	%
Acinetobacter baumannii	<DL			(<0.010)	%
Acinetobacter haemolyticus	<DL			(<0.010)	%
Acinetobacter junii	<DL			(<0.010)	%
Bacteroides caccae	1.990			(<3.000)	%
Bacteroides fragilis	<DL			(<2.000)	%
Phocaeicola vulgatus	1.470			(<7.500)	%
Bilophila wadsworthia	<DL			(<0.300)	%
Citrobacter freundii	<DL			(<0.200)	%
Citrobacter koseri	<DL			(<0.010)	%
Citrobacter youngae	<DL			(<0.010)	%
Corynebacterium urealyticum	<DL			(<0.010)	%
Desulfovibrio piger	<DL			(<0.120)	%
Enterobacter cloacae	1.240	H		(<0.010)	%
Enterococcus casseliflavus	0.042	H		(<0.010)	%
Enterococcus faecalis	0.007			(<0.250)	%
Enterococcus faecium	<DL			(<0.010)	%

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TEST	RESULT	H/L		REF - RANGE	UNITS
🟢 Enterococcus gallinarum	<DL			(<0.010)	%
🟠 Escherichia coli	<DL			(<3.000)	%
🔵 Fusobacterium nucleatum	<DL			(<0.010)	%
🔵 Fusobacterium ulcerans	<DL			(<0.010)	%
🟠 Klebsiella oxytoca	<DL			(<0.010)	%
🟠 Klebsiella pneumoniae	<DL			(<0.080)	%
⚫ Methanobrevibacter smithii	0.014			(<0.020)	%
🟠 Morganella morganii	<DL			(<0.010)	%
🟢 Mycoplasma hominis	<DL			(<0.010)	%
🔵 Prevotella amnii	<DL			(<0.010)	%
🔵 Prevotella bivia	<DL			(<0.010)	%
🔵 Prevotella melaninogenica	<DL			(<0.010)	%
🟠 Proteus mirabilis	<DL			(<0.010)	%
🟠 Providencia rettgeri	<DL			(<0.010)	%
🟢 Pseudoflavonifractor capillosus	0.047	H		(<0.030)	%
🟠 Pseudomonas aeruginosa	<DL			(<0.080)	%
🟢 Staphylococcus aureus	<DL			(<0.200)	%
STREPTOCOCCUS TOTAL	0.157	H		(<0.030)	%
🟢 Streptococcus agalactiae	<DL			(<0.010)	%
🟢 Streptococcus anginosus	<DL			(<0.010)	%
🟢 Streptococcus dysgalactiae	<DL			(<0.010)	%
🟢 Streptococcus mutans	<DL			(<0.010)	%
🟢 Streptococcus pyogenes	<DL			(<0.010)	%
🟢 Streptococcus salivarius	0.157	H		(<0.050)	%
🟢 Streptococcus suis	<DL			(<0.010)	%
🟢 Veillonella parvula	0.019			(<0.030)	%

🔴 Actinobacteria Phylum 🔵 Bacteroidetes Phylum ⚫ Euryarchaeota Phylum 🟢 Firmicutes Phylum 🟠 Proteobacteria Phylum 🟣 Verrucomicrobia Phylum

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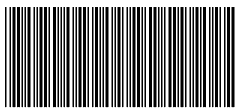
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BENEFICIAL BACTERIA / PROBIOTICS

TEST	RESULT	H/L		REF - RANGE	UNITS
Akkermansia muciniphila	9.720	H		(0.010-4.000)	%
Bacteroides thetaiotaomicron	0.445			(0.100-3.000)	%
Bacteroides uniformis	16.700	H		(1.000-8.000)	%
BIFIDOBACTERIUM TOTAL	0.000	L		(0.001-5.000)	%
Bifidobacterium adolescentis	<DL			(<5.000)	%
Bifidobacterium animalis	<DL			(<0.200)	%
Bifidobacterium bifidum	<DL			(<1.000)	%
Bifidobacterium breve	<DL			(<5.000)	%
Bifidobacterium longum	<DL			(<5.000)	%
Bifidobacterium pseudolongum	<DL			(<0.500)	%
Clostridium butyricum	<DL			(<0.001)	%
Faecalibacterium prausnitzii	5.230			(2.000-12.000)	%
LACTOBACILLUS TOTAL	0.0000	L		(0.0001-1.0000)	%
Lactobacillus acidophilus	<DL			(<0.050)	%
Lactobacillus casei paracasei	<DL			(<0.050)	%
Lactobacillus crispatus	<DL			(<0.020)	%
Lactobacillus delbrueckii	<DL			(<0.020)	%
Lactobacillus fermentum	<DL			(<0.350)	%
Lactobacillus gasseri	<DL			(<0.100)	%
Lactobacillus helveticus	<DL			(<0.050)	%
Lactobacillus johnsonii	<DL			(<0.050)	%
Lactobacillus plantarum	<DL			(<0.050)	%
Lactobacillus reuteri	<DL			(<0.050)	%
Lactobacillus rhamnosus	<DL			(<0.050)	%
Lactobacillus salivarius	<DL			(<0.050)	%
Lactococcus lactis.	0.027	H		(<0.010)	%
Oxalobacter formigenes	0.006			(<0.200)	%
Pediococcus acidilactici	<DL			(<0.030)	%
Pediococcus pentosaceus	<DL			(<0.020)	%
Roseburia hominis	0.003	L		(0.010-0.900)	%
Roseburia intestinalis	0.024			(<3.730)	%
Roseburia inulinivorans	<DL	L		(0.010-3.560)	%
Streptococcus thermophilus	0.015			(<0.300)	%

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Macroscopy Comment

SEMI-FORMED STOOL:

A SEMI-FORMED stool specimen classified as Type 4 on the Bristol Stool Chart is generally considered optimal, indicating balanced gut motility, adequate hydration, and sufficient dietary fibre intake. This stool consistency is often associated with efficient digestion, proper colonic function, and microbial stability. However, while Type 4 stools typically suggest gastrointestinal homeostasis, they do not always correlate with a healthy gut microbiome. Pathogenic bacteria, viral infections, parasitic infestations, or gut dysbiosis may still be present, even in well-formed stools. Clinical recommendations include maintaining a fiber-rich diet with prebiotic and probiotic sources, ensuring consistent hydration, and promoting gut microbial diversity through fermented foods or supplementation.

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.

GIT Markers Comment

PANCREATIC ELASTASE NORMAL (>200 ug/g):

A faecal pancreatic elastase level >200 ug/g indicates normal exocrine pancreatic function.

beta-GLUCORONIDASE NORMAL:

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

ACCREDITATION SCOPE: Please note that the above test is currently not under the laboratory's scope of accreditation.

CALPROTECTIN BORDERLINE (51-100 ug/g):

A borderline faecal calprotectin level (51–100 ug/g) may reflect mild inflammation or a non-specific increase and is not diagnostic of IBD.

Borderline elevations may be seen in a range of conditions including early or quiescent IBD, gastrointestinal infections, colorectal neoplasia, or as a pharmacological effect of medications such as NSAIDs, aspirin, and proton pump inhibitors (PPIs).

Repeat testing in 4–6 weeks is recommended if clinical suspicion of IBD remains or if symptoms persist. Correlation with history, medication use, and other diagnostic investigations (e.g., colonoscopy, imaging) is essential.

This result may warrant further monitoring.

FAECAL TRANSGLUTAMINASE IgA: Negative

Tissue Transglutaminase is the most specific test for Coeliac Disease. Levels less than 100 are considered NEGATIVE.
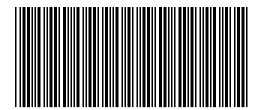
Treatment:

No treatment required. However, If there is clinical suspicion of Coeliac disease consider testing serum Coeliac markers. Also assess IgG/IgA Food sensitivity tests to identify specific food intolerances.

ACCREDITATION SCOPE: Please note that the above test is currently not under the laboratory's scope of accreditation.

SECRETORY IGA LOW:

Secretory IgA is the predominant immunoglobulin in mucosal secretions, including the gastrointestinal tract, where it plays a critical role in maintaining mucosal immunity by neutralising pathogens and preventing microbial adhesion to the intestinal epithelium. Low levels of secretory IgA in stool may indicate impaired mucosal immune function or compromised gut barrier integrity. This reduction can result from chronic stress, malnutrition, immunodeficiency, certain infections, or prolonged use of immunosuppressive medications.

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Clinically, low sIgA may predispose individuals to increased susceptibility to gastrointestinal infections, dysbiosis, and inflammation. It can also reflect a weakened first line of defense in the gut-associated lymphoid tissue, potentially contributing to increased antigen exposure and systemic immune activation.

ACCREDITATION SCOPE: Please note that the above test is currently not under the laboratory's scope of accreditation.

ZONULIN NORMAL:

Zonulin is a protein that modulates intestinal barrier function. This result is considered normal.

ACCREDITATION SCOPE: Please note that the above test is currently not under the laboratory's scope of accreditation.

Important Biochemical Functions Comment

IRON & ION METABOLISM ELEVATED:

High levels of iron metabolism, particularly those influenced by gut microbiota, play a significant role in regulating iron homeostasis in the body. The gut microbiota modulates iron absorption and utilization, with specific bacterial species being capable of either facilitating or inhibiting iron uptake. Chronic high levels of iron metabolism, often associated with long-term red meat consumption, can lead to iron overload, which has been implicated in the pathogenesis of several diseases. Excessive iron can promote the generation of reactive oxygen species (ROS), leading to oxidative stress and subsequent cellular damage, contributing to the development of conditions such as obesity and colorectal cancer. Additionally, the dysregulation of iron metabolism in the gut microbiome may disrupt the balance of microbial populations, favoring the growth of pathogenic bacteria that further exacerbate inflammation and gut dysbiosis. Increased iron levels, combined with the inflammatory effects of high-fat, red meat-rich diets, may create an environment conducive to tumorigenesis in the colon, while also contributing to metabolic disruptions, including insulin resistance and adiposity. This highlights the importance of maintaining balanced iron levels for gut and systemic health.
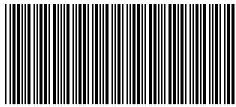
Disease Risks Comment

FATTY LIVER RISK SCORE ELEVATED:

The gut microbiota plays a crucial role in liver metabolism, with particular relevance to the development of non-alcoholic fatty liver disease (NAFLD). A reduction in beneficial microbes, such as Faecalibacterium prausnitzii and Akkermansia muciniphila, has been linked to liver inflammation and the accumulation of fat in the liver. These beneficial bacteria help regulate systemic inflammation and maintain gut barrier integrity, both of which are essential for preventing hepatic fat deposition. When these bacteria are reduced, dysbiosis can disrupt the gut-liver axis, which in turn contributes to the development of fatty liver disease. Additionally, an imbalanced microbiome can lead to increased lipogenesis and insulin resistance, both of which are associated with the progression of NAFLD. To support gut health and prevent liver damage, supplementation with Lactobacillus rhamnosus and Bifidobacterium longum may help improve gut barrier function and reduce systemic inflammation. Avoiding excessive fat intake, particularly from processed foods, and focusing on a balanced, nutrient-dense diet is essential for promoting liver health. For further evaluation of liver function, consider measuring serum liver function tests (LFTs).

TYPE 2 DIABETES RISK SCORE ELEVATED:

A balanced gut microbiota is essential for metabolic regulation, including insulin sensitivity and glucose metabolism. In individuals with or at high risk of Type 2 Diabetes (T2D), the gut microbiota is often dysregulated, with a reduction in beneficial bacteria that support metabolic health, such as Akkermansia muciniphila, Faecalibacterium prausnitzii, and Bifidobacterium longum. Low levels of these bacteria can compromise gut barrier integrity, increase systemic inflammation, and contribute to insulin resistance.

The microbiome's role in T2D is complex, impacting inflammatory pathways, lipid metabolism, and energy balance. A decrease in microbial diversity or the depletion of specific strains can exacerbate metabolic dysfunction, leading to glucose intolerance and the onset of Type 2 Diabetes. Furthermore, an overabundance of dysbiotic bacteria such as Bacteroides thetaiotaomicron and Prevotella species can worsen insulin resistance and inflammation. While some strains of Lactobacillus, like Lactobacillus rhamnosus, are beneficial for gut health, others

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may play a role in metabolic disruption. Additionally, opportunistic bacteria like Enterococcus faecalis can promote inflammation and insulin resistance.

Dietary interventions that promote microbial diversity, such as increasing prebiotic fiber (e.g., inulin) and polyphenol-rich foods (e.g., berries, green tea), can support gut health. Supplementation with beneficial strains like Lactobacillus rhamnosus and Bifidobacterium longum may help restore a balanced microbiome and improve insulin sensitivity. A fiber-rich diet, low in processed sugars and refined carbohydrates, can help reduce inflammation and promote gut health.

It is also recommended to assess metabolic status through biochemical markers like Insulin, Glucose, Lipids, and HbA1c.

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.

H. Pylori Virulence Factor,babA DETECTED:

Blood Group Antigen Binding Adhesion (BabA) promotes DNA breakage in host cell, Improves H. pylori adherence ("stickiness") to epithelial cells and can promote other virulence factors, especially CagA.

Treatment: More aggressive treatment may be warranted; consider the use of adhesion inhibitions.

Pathogens/Opportunistic Pathogens Comment

ENTEROBACTER CLOACAE ELEVATED: PHYLUM: Proteobacteria

DESCRIPTION: Enterobacter cloacae is a Gram-negative facultative anaerobic bacterium commonly found in the human gut and the environment. While it plays a role in normal gut microbiota, elevated levels can signal dysbiosis and may result in opportunistic infections, especially in immunocompromised individuals. E. cloacae has been implicated in urinary tract infections, respiratory tract infections, and sepsis. Its overgrowth can also contribute to inflammation and disrupt the balance of beneficial microbiota in the gut.

Suggested Treatment:

Natural support: Use garlic, berberine, and oregano oil as natural antimicrobials.

Probiotics: Include strains like Lactobacillus rhamnosus and Saccharomyces boulardii to support gut health.

Dietary changes: Emphasize a fiber-rich diet with foods such as leafy greens, flaxseeds, and whole grains.

Lifestyle: Reduce stress and incorporate regular physical activity to enhance gut resilience.

TOTAL STREPTOCOCCUS LEVELS ELEVATED: PHYLUM: Firmicutes

DESCRIPTION:

Streptococcus is a genus of bacteria that includes both beneficial and pathogenic species. Some species, like S. mutans and S. pyogenes, are associated with dental caries, throat infections, and systemic diseases. An elevated total Streptococcus count can indicate an imbalance in the oral or gut microbiota, often due to poor diet, stress, or antibiotic overuse. An overgrowth of certain Streptococcus species can contribute to oral health issues or other infections.
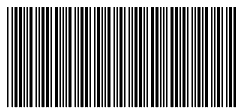
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ENTEROCOCCUS CASSELIFLAVUS ELEVATED: PHYLUM: Firmicutes

DESCRIPTION: Enterococcus casseliflavus is a Gram-positive facultative anaerobe often found in the gastrointestinal tract. Although it is typically non-pathogenic, elevated levels may indicate gut dysbiosis. In rare cases, E. casseliflavus has been associated with infections such as endocarditis or urinary tract infections, particularly in immunocompromised individuals. Overgrowth may disrupt the balance of the gut microbiome and contribute to mild inflammation.

Suggested Treatment:

Natural support: Consider natural antimicrobials such as cranberry extract and garlic to manage overgrowth.

Probiotics: Supplement with Lactobacillus acidophilus and Bifidobacterium lactis to restore balance.

Dietary focus: Increase consumption of fermented foods like yogurt, kefir, and sauerkraut.

Lifestyle changes: Ensure proper hydration and adequate sleep to support immune function and gut health.

PSEUDOFLAVONIFRACTOR CAPILLOSUS ELEVATED: PHYLUM: Firmicutes

DESCRIPTION: Pseudoflavonifractor capillosus is a Gram-positive, anaerobic bacterium that is part of the normal gut microbiota. However, elevated levels can be linked to dysbiosis and gastrointestinal disorders such as inflammatory bowel disease (IBD) or irritable bowel syndrome (IBS). Dysbiosis, often induced by stress, poor diet, or antibiotic overuse, can cause an imbalance in the microbiome, contributing to gut inflammation and discomfort.

Suggested Treatment:

Natural support: Use antimicrobial herbs like turmeric, berberine, and oregano oil to help reduce overgrowth.

Probiotics: Supplement with Bifidobacterium longum and Lactobacillus acidophilus to support gut microbial balance.

Dietary changes: Focus on high-fiber, anti-inflammatory foods, and incorporate fermented foods like kefir and sauerkraut to promote healthy gut flora.

Lifestyle: Engage in regular exercise, stay hydrated, and manage stress to improve gut health and immune function.

STREPTOCOCCUS SALIVARIUS ELEVATED: PHYLUM: Firmicutes

DESCRIPTION: Streptococcus salivarius is a Gram-positive bacterium that is commonly found in the human oral cavity and upper respiratory tract. It is generally considered beneficial, as it helps to maintain a healthy oral microbiota by preventing the overgrowth of pathogenic bacteria. However, elevated levels can sometimes be associated with oral infections or gum disease, particularly when the microbiota is out of balance due to poor oral hygiene, stress, or antibiotic use.

Suggested Treatment:

Natural support: Use antimicrobial agents like oregano oil and garlic to manage the overgrowth of S. salivarius.

Probiotics: Supplement with Lactobacillus reuteri and Streptococcus thermophilus to support a healthy oral microbiome.
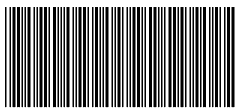
Dietary changes: Prioritize fiber-rich and anti-inflammatory foods, and include fermented foods like kefir, yogurt, and kimchi to support overall gut and oral health.

Lifestyle: Maintain good oral hygiene, manage stress, and stay hydrated to promote a balanced microbiome.

Probiotics/Beneficial Bacteria Comment

AKKERMANSIA MUCINIPHILA ELEVATED: PHYLUM: Verrucomicrobiota

DESCRIPTION: Akkermansia muciniphila is a Gram-negative, anaerobic bacterium that primarily resides in the intestinal mucus layer. It plays an important role in maintaining gut barrier integrity, regulating immune responses, and supporting metabolic health by degrading mucin. Elevated levels of A. muciniphila have been associated with enhanced gut barrier function and improved metabolic outcomes, including better insulin sensitivity and reduced inflammation. While the bacterium is generally considered beneficial, abnormally high levels may indicate an overgrowth, often as a result of specific interventions such as prebiotic supplementation, high-fiber diets, or probiotic use. Excessive numbers could potentially contribute to gut dysbiosis or a shift in the microbiota composition, disrupting microbial balance. Elevated levels may also reflect an underlying metabolic or inflammatory condition, where A. muciniphila is responding to an altered environment in the gut. In some cases, an overabundance could have adverse effects, particularly when there is an imbalance with other gut microbiota species, suggesting the need for careful management of diet and lifestyle interventions.

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Suggested Treatment:

Natural support: Reduce intake of excessive prebiotics or fiber-rich foods that could contribute to overgrowth.

Probiotics: Consider a balanced probiotic regimen to restore diversity and ensure a healthy microbiome.

Dietary changes: Ensure a well-rounded diet with moderate fiber intake to prevent A. muciniphila overgrowth.

Lifestyle: Engage in balanced physical activity and manage stress levels to maintain a healthy gut environment.

BACTEROIDES UNIFORMIS ELEVATED: PHYLUM: Bacteroidetes

DESCRIPTION: Bacteroides uniformis is a Gram-negative, anaerobic bacterium commonly found in the human gut microbiome, where it plays a key role in the breakdown of complex carbohydrates, fiber fermentation, and production of short-chain fatty acids (SCFAs). It is beneficial in maintaining gut health, modulating the immune system, and supporting overall metabolic processes. Elevated levels of B. uniformis are generally associated with a healthy, fiber-rich diet, as it thrives on complex polysaccharides and is involved in their fermentation to produce beneficial SCFAs like butyrate and acetate. While elevated B. uniformis levels can be indicative of a positive microbial profile and a diet rich in plant-based foods, an overgrowth may indicate dysbiosis, especially when accompanied by other shifts in gut microbiota composition. Excessive levels could be linked to conditions such as irritable bowel syndrome (IBS), metabolic disorders, or an imbalance in the gut microbiota caused by prolonged antibiotic use or prebiotic supplementation. In some cases, an overabundance may also indicate an excess of SCFAs, which could lead to gut discomfort or inflammation, suggesting the need for a more balanced approach to diet and microbiome management.

TOTAL BIFIDOBACTERIUM LEVELS LOW: PHYLUM: Actinobacteria

DESCRIPTION: The total count of Bifidobacterium provides a comprehensive view of the collective abundance of species in this genus within the microbiome. These Gram-positive, anaerobic bacteria are key contributors to fermenting dietary fibers into short-chain fatty acids (SCFAs) like acetate and butyrate, which support gut health, immune function, and microbial diversity. They also inhibit pathogenic bacteria and modulate inflammation.

In Western populations, only 30–40% of individuals are estimated to have optimal levels of Bifidobacterium, reflecting common dietary patterns that are low in fiber and high in refined carbohydrates. Depleted levels have been linked to inflammatory conditions, metabolic disorders, and reduced gut barrier integrity.

A total count of Bifidobacterium has been included to offer a broad overview of the species present in the microbiome, which may assist in guiding clinical treatment decisions.

TOTAL LACTOBACILLUS LEVELS LOW: PHYLUM: Firmicutes

DESCRIPTION: The total count of Lactobacillus provides a broad overview of the abundance of various Lactobacillus species within the microbiome. These Gram-positive, facultative anaerobic bacteria are critical for gut health, producing lactic acid to regulate pH levels, inhibit pathogens, and promote the growth of beneficial microbes. They contribute to immune modulation, gut barrier integrity, and the digestion of complex carbohydrates.
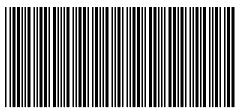
In Western populations, studies suggest that only about 40–50% of individuals maintain adequate levels of Lactobacillus, likely due to diets high in processed foods and low in fermented products. Low levels are associated with gut dysbiosis, increased inflammation, and conditions like irritable bowel syndrome (IBS) or recurrent infections. A total count of Lactobacillus has been included to offer a broad overview of the species present in the microbiome, which may assist in guiding clinical treatment decisions.

Parasites/Helminths Comment

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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ASCARIS SPECIES (Roundworm) DETECTED:

Ascaris species (including A. lumbricoides and A. suum) are the most common parasitic roundworm in humans. Hosts may be asymptomatic, causing only malnutrition and growth retardation or present with severe gastrointestinal (abdominal pain, nausea, vomiting, bloating or diarrhoea) or lung symptoms (fever, cough or wheezing). Adult worms can also migrate causing cholecystitis, cholangitis, pancreatitis, small bowel obstruction or appendicitis. Infection occurs via ingestion of eggs, usually found in stool-contaminated soil.

TREATMENT SUGGESTIONS:

Effective treatments include Albendazole or Mebendazole single oral dose. Rule out allergy to above medication before prescribing/taking. Can repeat dose after 4-6 weeks. Whole family to be treated simultaneously. Hand hygiene and washing bedding /clothes in hot water cycle is recommended to prevent recurrence. A repeat test should be suggested post therapy.

Viral Pathogens Comment

ADENOVIRUS 40/41 DETECTED:

DESCRIPTION: Adenovirus 40/41 is also known as Enteric adenovirus and transmission is via the faecal-oral route. Common cause of watery diarrhoea/gastroenteritis in infants and children but can also affect adults. Adenovirus is usually self-limiting by 1 week. A repeat test for Enteric Viral Pathogens should be requested to ensure that the virus has cleared.

TREATMENT SUGGESTIONS:

Conservative hygiene measures such as handwashing, Hydration and strict isolation is recommended for cases as such.

Dominant Phyla Comment

ACTINOBACTERIA PHYLUM LOW:

Actinobacteria are a phylum of gram-positive bacteria and although representing a small percentage of gastrointestinal flora, are pivotal in the maintenance of gut homeostasis. Bifidobacterium is the most common species found in the gastrointestinal tract and are widely used as a probiotics, demonstrating beneficial effects in many pathological conditions and helps maintain the mucosal barrier and reduce lipopolysaccharide in the intestine. Decreased actinobacteria colonisation is usually seen with ageing, with antibiotic use or with pathogenic infection.

VERRUCOMICROBIA PHYLUM ELEVATED:

Verrucomicrobiota is a phylum of Gram-negative bacteria that contains only a few described species, found in the environment and gastrointestinal tract. Verrucomicrobia aid in glucose homeostasis of the human gut and have anti-inflammatory properties that further aid in intestinal health. Elevated colonisation of Verrucomicrobia phylum may be seen following broad-spectrum antibiotic regimen or with pathogenic infection.

Microbiota Ratios Comment

PROTEOBACTERIA/ACTINOBACTERIA RATIO:

In general, the P/A ratio could serve as a potential indicator of gut microbiota balance or dysbiosis. Actinobacteria, particularly members like Bifidobacterium, are known for their health-promoting properties, including the production of short-chain fatty acids (SCFAs) and modulation of the immune system. In contrast, an overrepresentation of Proteobacteria is often associated with a state of dysbiosis and has been linked to various inflammatory and metabolic diseases. A higher P/A ratio might indicate a shift towards a less favorable gut microbiota composition, potentially signifying an increased risk of inflammation or disease.
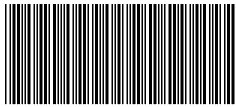
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Methodology

Automated Chemistry/Immunochemistry, Chemiluminescence Immunoassay (CLIA), Enzyme-Linked Immunosorbent Assay (ELISA), Microscopy, Fluorescence Enzyme Immunoassay (FEIA), pH Electrode, Gas Chromatography-MS (GC/MS), Metagenomic Next Generation Sequencing (mNGS), Quantitative PCR (qPCR), Polymerase Chain Reaction (PCR)