



  **RCPA**
The Royal College of Pathologists of Australasia

NATA Accreditation: #20770



Lab ID
Patient ID PAT-100009
Ext ID 25272-0002

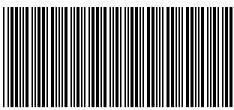
Sex: Female • 45yrs • 01-Jan-80
123 Home Street, Test Suburb Vic 3125

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29-Sep-25

Collected
27-Sep-25

Parasites & Worms	Bacteria and Viruses	Mycology
<p>Cryptosporidium species</p> <p>Blastocystis hominis</p> <p>Ascaris species, Roundworm</p>	<p>Pseudomonas aeruginosa</p> <p>Methanobrevibacter smithii</p> <p>Desulfovibrio piger</p> <p>Klebsiella pneumoniae complex</p> <p>Fusobacterium species</p> <p>Campylobacter species</p> <p>Helicobacter pylori</p> <p>Rotavirus A</p>	<p>Candida parapsilosis</p> <p>Candida albicans</p>

TEST	RESULT	H/L		REFERENCE	UNITS
Firmicutes/Bacteroidetes Ratio	1.91	H	<div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	ratio



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Test Patient

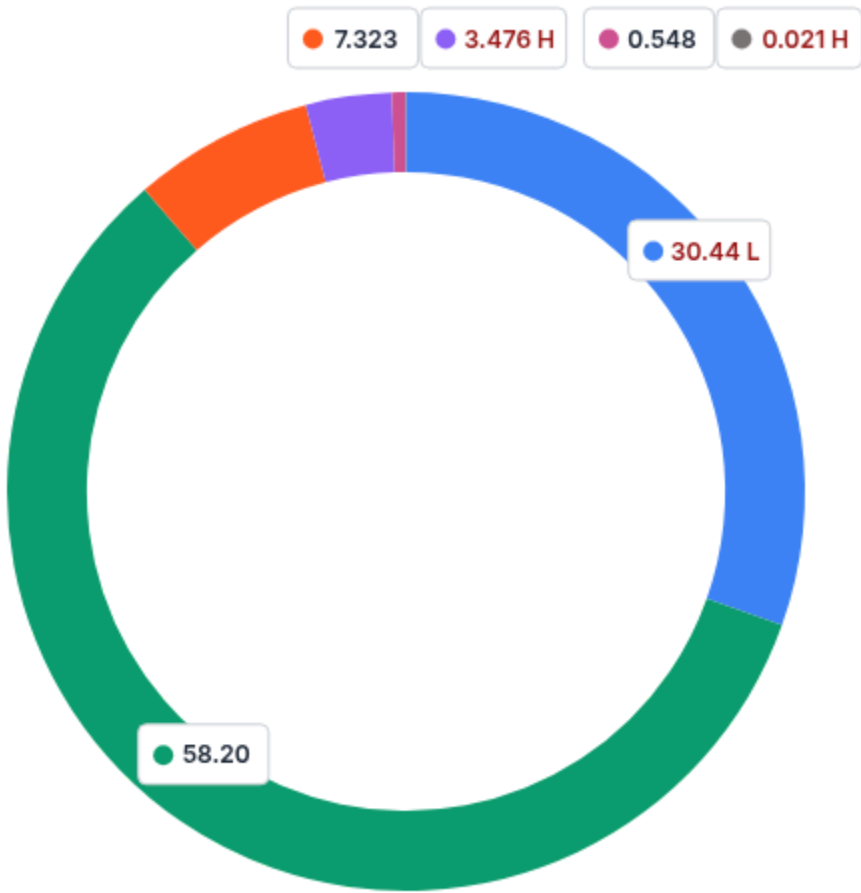
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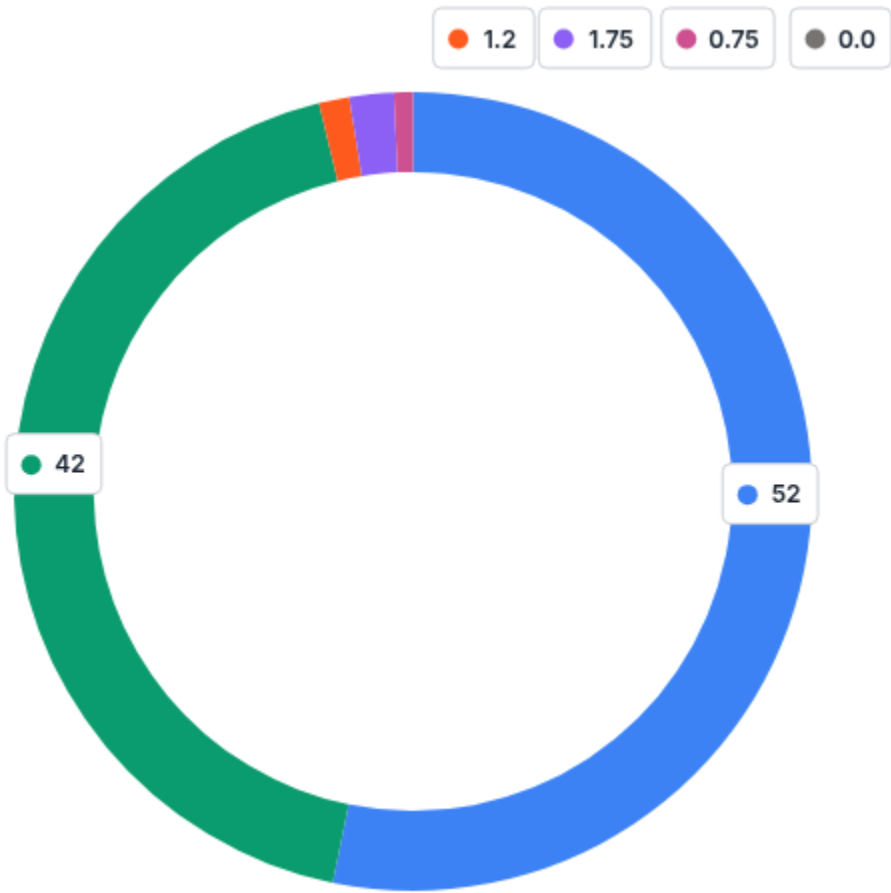
COMMENSAL RELATIVE ABUNDANCE

TEST	RESULT	H/L	REFERENCE	UNITS
Actinobacteria Phylum	0.548		(0.001-1.500)	%
Bacteroidetes Phylum	30.44	L	(40.00-87.00)	%
Euryarchaeota Phylum	0.021	H	(0.000-0.010)	%
Firmicutes Phylum	58.20		(10.00-60.00)	%
Proteobacteria Phylum	7.323		(0.500-5.000)	%
Verrucomicrobia Phylum	3.476	H	(0.000-2.400)	%

Your Phyla



Healthy Phyla



MICROBIOTA RATIO

TEST	RESULT	H/L	REFERENCE	UNITS
Firmicutes/Bacteroidetes Ratio	1.91	H	(<1.00)	ratio



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[illegible]

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

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



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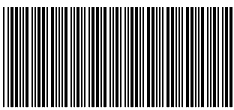


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TEST	RESULT	H/L		REFERENCE	UNITS
Candida albicans	6.00	H	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida dubliniensis	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida famata	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida glabrata	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida guilliermondii	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida intermedia	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida kefyr	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida krusei	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida lambica	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida lipolytica	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida lusitanae	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida parapsilosis	2.20	H	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida tropicalis	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Candida species	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Geotrichum species	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Rhodotorula species	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g
Saccharomyces cerevisiae	<DL		<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	(<1.00)	x10^5 CFU/g



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NORMAL BACTERIAL GUT FLORA

TEST	RESULT	H/L		REFERENCE	UNITS
Akkermansia muciniphila	118.00	H		(1.00-50.00)	x10^7 CFU/g
TOTAL BIFIDOBACTERIA	20.00			(<2000.00)	x10^6 CFU/g
Bifidobacterium adolescentis	2.00			(<1000.00)	x10^6 CFU/g
Bifidobacterium bifidum	10.00			(<1000.00)	x10^6 CFU/g
Bifidobacterium breve	5.00			(<1000.00)	x10^6 CFU/g
Bifidobacterium longum	3.00			(<1000.00)	x10^6 CFU/g
Clostridium species	114.70	H		(5.00-50.00)	x10^7 CFU/g
Enterococcus species	56.50			(1.90-2000.00)	x10^3 CFU/g
Escherichia species	5385.00	H		(3.70-3800.00)	x10^4 CFU/g
Faecalibacterium prausnitzii	890.00			(100.00-3500.00)	x10^6 CFU/g
TOTAL LACTOBACILLI	4.90			(<3000.00)	x10^3 CFU/g
Lactobacillus acidophilus	3.00			(<500.00)	x10^3 CFU/g
Lactobacillus casei	<DL			(<500.00)	x10^3 CFU/g
Lactobacillus delbrueckii	<DL			(<500.00)	x10^3 CFU/g
Lactobacillus plantarum	<DL			(<500.00)	x10^3 CFU/g
Lactobacillus rhamnosus	1.90			(<500.00)	x10^3 CFU/g
Lactobacillus salivarius	0.00			(<500.00)	x10^3 CFU/g
Oxalobacter formigenes	5.69			(<50.00)	x10^6 CFU/g

Actinobacteria Phylum Bacteroidetes Phylum Euryarchaeota Phylum Firmicutes Phylum Proteobacteria Phylum Verrucomicrobia Phylum



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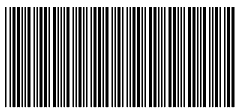
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The Four “R” Treatment Protocol

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 lactose, lactobacillus acidophilus, lactobacillus plantarum, lactobacillus casei, bifidobacterium breve, bifidobacterium bifidum, bifidobacterium longum, lactobacillus salivarius sup 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



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Macroscopy Comment

UNFORMED STOOL:

An UNFORMED stool specimen classified as Type 5 or 6 on the Bristol Stool Chart suggests rapid colonic transit, leading to inadequate water reabsorption and a looser stool consistency. This may result from mild digestive disturbances, dietary changes (such as high fibre or fat intake), stress, or gut microbiota imbalances (dysbiosis). Type 6, in particular, may indicate early-stage diarrhea, commonly linked to irritable bowel syndrome with Diarrhea (IBS-D), food intolerances (e.g., lactose, gluten, FODMAPs), gastrointestinal infections, or inflammatory responses. Clinical recommendations include identifying dietary triggers, ensuring adequate but not excessive fibre intake, and considering probiotic therapy (especially strains like Lactobacillus and Bifidobacterium) to help restore microbial balance. Persistent symptoms may warrant further evaluation for malabsorption syndromes (e.g., celiac disease, pancreatic insufficiency), small intestinal bacterial overgrowth (SIBO), or inflammatory markers to assess for underlying pathology.

FAECAL OCCULT BLOOD POSITIVE:

Faecal occult blood has been detected in this specimen. The presence of blood in the stool may be the result of several causes besides colorectal bleeding, including hemorrhoids or gastrointestinal infection. Results should be considered with other clinical information available to the physician. Please note: A positive result indicates that the sample likely contains a human haemoglobin concentration >20ng/ml (Limit of detection). Review this result with other inflammation markers such as calprotectin.

Short Chain Fatty Acids Comment

LOW BENEFICIAL SCFAs:

Low Short chain Fatty Acid, Beneficial levels may be indicated by reduced beneficial flora such as Lactobacillus, Bifidobacterium, Escherichia and other normal bacterial gut flora levels. Suspect increased susceptibility to pathogenic bacterial infection, increased toxic enzyme exposure, increased risk for mucosal barrier defects and immune dysregulation.

GIT Markers Comment

PANCREATIC ELASTASE NORMAL (>200 ug/g):

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

BETA GLUCURONIDASE ELEVATED:

Beta-glucuronidase is a bacterial enzyme that may limit the body's ability to excrete compounds such as drugs, hormones, and environmental toxins. Certain bacteria may also increase Beta-glucuronidase such as elevated levels of E.coli.

Treatment:

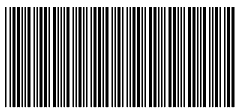
Consider Calcium-D-glucarate which may assist with lowering B-glucuronidase levels. It is also suggested to introduce a low-calorie/vegetarian diet for 4 weeks which may also be beneficial with lowering faecal B-glucuronidase levels. Additionally, one human study has suggested that consuming glucomannan can reduce fecal beta-glucuronidase activity. Glucomannan is a type of prebiotic fiber found in konjac root which is commonly used to make low calorie pasta and noodles.

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).



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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.

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.

ELEVATED ZONULIN:

Zonulin is a regulatory protein that modulates the permeability of the intestinal barrier by controlling the opening and closing of tight junctions between intestinal epithelial cells. While physiologically important for nutrient and fluid absorption, excessive zonulin release can lead to increased intestinal permeability, often referred to as “leaky gut.” This condition may contribute to systemic inflammation, liver stress, nutrient malabsorption, and has been associated with autoimmune diseases such as rheumatoid arthritis.

Elevated zonulin levels may indicate disruption of gut barrier integrity and should be interpreted alongside other inflammatory markers, such as faecal calprotectin, to assess intestinal inflammation. Potential triggers for increased zonulin release include imbalances in gut microbiota and exposure to dietary factors like gluten or gliadin.

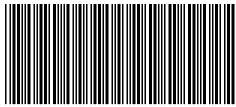
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ELEVATED STEATOCRIT:

The presence of steatorrhea is an indirect indicator of incomplete fat digestion. Consider high dietary fat intake, cholestasis, malabsorption and digestion (diarrhoea, pancreatic or bile salt insufficiency), intestinal dysbiosis, parasites, NSAIDs use, short bowel syndrome, whipple disease, crohn's disease, food allergies & sensitivities.

Treatment:

- o Prebiotic and probiotic supplementation
- o Supplement hydrochloride, digestive enzymes or other digestive aids
- o Investigate underlying causes
- o Investigate food sensitivities and allergies
- o Remove potential irritants



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o Review markers such as pancreatic elastase 1 and calprotectin

pH LOW:

A lower-than-normal stool pH suggests increased fermentation of carbohydrates, often due to gut dysbiosis, excessive short-chain fatty acid (SCFA) production, or malabsorption of sugars. This is commonly seen in lactose intolerance, SIBO, high-fibre diets, or imbalanced gut flora. Excessive acidity may contribute to gut irritation and barrier dysfunction.

Key Phyla Comment

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.

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.

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 Firmicutes tested divided by the sum of abundance Bacteroidetes. Reference ranges are based off internal cohort studies.

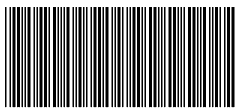
TREATMENT SUGGESTIONS: Balance commensal bacteria using the 4R Protocol which is located at the end of this test report. When firmicutes are high, consider using *Bifidobacterium* probiotics and *Saccharomyces boulardii* primarily. *Lactobacillus* spp. and *Bacillus* spp. (found in probiotics) can elevate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

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



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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 CRYPTOSPORIDIUM LEVEL:

Cryptosporidium infection is thought to occur by environmentally resistant oocysts, zoonotic transmission, nosocomial transmission and direct person-to-person contact. Contamination of public water supply has been associated with outbreaks. Raw foods such as unpasteurized milk and raw meat can also harbor the organism. Cryptosporidium can cause an asymptomatic infection, a mild diarrhoeal illness, or severe enteritis. Symptoms may also include abdominal pain, malaise, nausea and fever.

TREATMENT SUGGESTIONS: Cryptosporidiosis is generally self-limiting in immunocompetent patients, lasting approximately 2 weeks. In severe cases or immunocompromised treatment options include: Nitoxanamide 500 mg (child 1 to 3 years: 100 mg; 4 to 11 years: 200 mg) orally, 12 hourly for 3 days Rule out allergy to above medication before prescribing/taking. Consult ID specialist if patient is showing severe symptoms or immunocompromised.

PLEASE NOTE:

This organism may be classified as a notifiable pathogen. Confirmation has been performed through repeat testing and/or verification on a secondary platform, where required. The result will be reported to the relevant Department of Health in accordance with statutory requirements. For specific state-based notification obligations, please refer to your local public health authority.

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.

Opportunistic Bacteria Comment

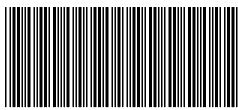
PSEUDOMONAS AERUGINOSA ELEVATED: PHYLUM: Proteobacteria

DESCRIPTION: Pseudomonas aeruginosa is a gram-negative, aerobic, non-spore forming bacteria that can cause a variety of infections in both immunocompetent and immunocompromised hosts. It is commonly found in the environment, particularly in freshwater, hot tubs, and swimming pools. Chronic gastrointestinal colonization is acknowledged to be an important component of P. aeruginosa diarrheal disease and systemic infections. Since disruption of the normal flora by antibiotics can reduce colonization resistance and promote pathologic colonization with P. aeruginosa, enterocolitis due to P. aeruginosa may also be considered to be an antibiotic-associated gastroenteritis. Pseudomonas aeruginosa in the gastrointestinal tract can cause inflammation, epithelial barrier dysfunction, tight cell junction interruption, and intestinal permeability.

TREATMENT SUGGESTIONS: If treatment is warranted, Pseudomonas is usually susceptible to antipseudomonal penicillins, aminoglycosides, carbapenems, 3rd generation cephalosporins and gentamycin. Plant-derived anti-biofilm products identified against P. aeruginosa include alkaloids, organosulfur compounds, flavonoids, phenolic compounds and terpenoids. Rule out allergy to above medication before prescribing/taking.

STREPTOCOCCUS ORALIS ELEVATED: PHYLUM: Firmicutes

DESCRIPTION: Streptococcus oralis is a Gram-positive bacterium in the gut and oral microbiome, part of the Streptococcus mitis group. In the gut, S. oralis is part of the complex microbial community that supports digestive health. However, in immunocompromised individuals or those with disrupted microbiomes, S. oralis can become an opportunistic pathogen.



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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.

DESULFOVIBRIO PIGER ELEVATED: PHYLUM: Proteobacterium

DESCRIPTION: Desulfovibrio piger is part of a group called sulfate-reducing bacteria (SRB) and are normal inhabitants of the intestine. Sulfate is present in different concentrations in the intestine dependent on diet. Remnants not absorbed, alongside the presence of lactate, promote the growth of SRB. Desulfovibrio Piger has been implicated in gastrointestinal disorders such as ulcerative colitis via the reduction of sulfate to hydrogen sulfide in the gut. High Delsulfovibrio piger levels may be associated with diarrhea or inflammatory bowel disease.

TREATMENT SUGGESTIONS: Treatment options include lowering the intake of sulfate rich foods such as some breads, dried fruits, beers, ciders and wines. It is also suggested to avoid foods high in fat.

Bacterial Pathogens Comment

CAMPYLOBACTER SPECIES ELEVATED: PHYLUM: Proteobacteria

DESCRIPTION: Campylobacter species are a common cause of acute self-limiting diarrhoea. Antibiotic therapy is recommended in severe or prolonged cases or high-risk patients, like: Food handlers/Health-care workers/Child-care workers/Pregnancy/Immunocompromised. Poultry is a key source of infection, in particular chicken. Red meat and shellfish can also harbor the organism. Other sources include unpasteurized milk, and water contaminated by wild birds. Symptoms can include fever, abdominal cramping, diarrhea (often bloody) abdominal pain and fever. Relapses may occur in 5%-10% of untreated cases.

TREATMENT SUGGESTIONS: Mild cases can be self-limiting. For severe/high risk patients, treatments include: Azithromycin 500mg orally, daily for 3 days. (Child: 10 mg/kg up to 500mg) Or Ciprofloxacin 500mg orally, 12 hourly for 3 days. (Child: 12.5 mg/kg up to 500mg) Or Rule out allergy to above medication before prescribing/taking. Consult ID specialist if patient is showing severe symptoms or immunocompromised.

PLEASE NOTE: Detection has been confirmed through a secondary PCR test. Campylobacter is a Notifiable Disease. This result has been notified to the Department of Health.

NOTIFICATION BY THE REFERRING PRACTITIONER may also be required under the Public Health and Wellbeing Act 2009.

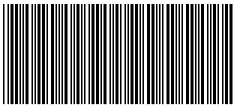
HELICOBACTER PYLORI ELEVATED: PHYLUM: Proteobacteria

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:



Dr Test Doctor Test Clinic. 123 Test Street, Test Suburb Victoria 3125

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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.

Mycology Comment

CANDIDA ALBICANS ELEVATED: PHYLUM: Ascomycota

DESCRIPTION: Candida albicans 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.

CANDIDA PARAPSILOSIS ELEVATED:

Candida parapsilosis is a yeast species that is part of the normal human microbiota but can become opportunistic under certain conditions. Overgrowth of C. parapsilosis in the gut can disrupt the microbial balance and lead to symptoms such as bloating, gas, and diarrhea. In immunocompromised individuals, C. parapsilosis is a potential pathogen and has been linked to invasive infections, though gastrointestinal symptoms are more common in cases of mild dysbiosis. When elevated guided susceptibility testing should be considered.

Normal Bacterial Flora Comment

BACTEROIDES FRAGILIS LOW: PHYLUM: Bacteroidetes

DESCRIPTION: Bacteroides fragilis is an anaerobic, Gram-negative bacterium. It is part of the normal microbiota of the human colon and is generally commensal. Bacteroides fragilis plays an intricate role in the human colon and usually has a beneficial relationship with the host. Low Bacteroides fragilis levels have been associated with inflammatory bowel disease and Crohn's.

TREATMENT SUGGESTIONS: Treatment may involve the use of probiotics and dietary modification.

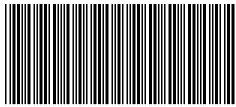
BIFIDOBACTERIUM ADOLESCENTIS LOW: PHYLUM: Actinobacteria

DESCRIPTION: Bifidobacterium adolescentis is an anaerobic species of bacteria found in the gastrointestinal tracts of humans. It is one of the most abundant and prevalent Bifidobacterium species commonly found in adults. It contributes to the production of GABA, a neurotransmitter that plays a role in reducing stress and anxiety. Some strains can synthesise B vitamins, such as folic acid. B. adolescentis enhances the growth of all bifidobacteria.

TREATMENT SUGGESTIONS: Consider a probiotic supplement containing B. adolescentis and consuming prebiotic-rich foods like garlic, onions, and whole grains. Increase dietary fibre from fruits, vegetables, and legumes, and incorporate fermented foods such as yogurt and kefir.

BIFIDOBACTERIUM LONGUM LOW: PHYLUM: Actinobacteria

DESCRIPTION: Bifidobacterium longum is a Gram-positive, catalase-negative, rod-shaped bacterium present in the human gastrointestinal tract and one of the Bifidobacterium species. It can induce and regulate immune responses, reduce the expression of inflammatory cytokines, and maintain the normal intestinal barrier function. Bifidobacterium longum is a clinically effective, well-established, multifunctional probiotic that has a long history of human use in alleviating gastrointestinal, immunological, and infectious diseases such as constipation, antibiotic associated diarrhoea, irritable bowel syndrome and ulcerative colitis. Low levels may be associated with irritable bowel syndrome, asthma, autism, depressive disorder and with pathogenic bacteria infection.



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

ESCHERICHIA SPECIES ELEVATED: PHYLUM: Proteobacteria

DESCRIPTION: Escherichia is a genus of Gram-negative, non-spore-forming, facultatively anaerobic, rod-shaped bacteria and normal inhabitants of the gastrointestinal tract. Species include E. albertii, E. fergusonii, E. hermannii, E. marmotae and most notably E. coli. High levels may be indicative of increased intestinal inflammatory activity and be associated with irritable bowel syndrome, Crohn's, ulcerative colitis and diarrhea. Studies have also revealed that chronic psychological stress may be associated with an increase in E.Coli colonisation.

TREATMENT SUGGESTIONS: Commensal probiotic cocktails are suggested to prevent and reverse gut elevated colonization.

LACTOBACILLUS CASEI LOW: PHYLUM: Firmicutes

DESCRIPTION: Lactobacillus casei is a Gram-positive, rod-shaped, non-spore-forming, anaerobic probiotic bacterium involved in the fermentation of foods like cheese and yogurt. It produces antimicrobial substances, enhances gut barrier function, reduces pathogenic bacteria, and modulates the immune system. This bacterium is used to prevent and may assist various forms of diarrhea, including infectious diarrhea, traveller's diarrhea, and antibiotic-associated diarrhea.

TREATMENT SUGGESTIONS: Consider probiotic supplementation containing L. casei and consuming fermented foods such as cheese and yogurt.

LACTOBACILLUS DELBRUECKII LOW: PHYLUM: Firmicutes

DESCRIPTION:

Lactobacillus delbrueckii is a beneficial Gram-positive bacterium commonly found in the gut microbiome and known for its role in maintaining gastrointestinal health. It produces lactic acid through the fermentation of carbohydrates, contributing to a lower gut pH, which inhibits the growth of pathogenic microorganisms such as Clostridium and Candida species. Additionally, L. delbrueckii can enhance the intestinal barrier function and modulate the host immune response by promoting the production of anti-inflammatory cytokines. Its presence in the gut is associated with improved digestion and nutrient absorption, making it an important component in supporting overall gut health and microbial balance.

LACTOBACILLUS PLANTARUM LOW: PHYLUM: Firmicutes

DESCRIPTION: Lactobacillus plantarum is a Gram-positive, non-spore-forming, rod-shaped bacterium. L. plantarum plays a crucial role in gut health by enhancing intestinal barrier function, modulating the immune system, and inhibiting pathogenic bacteria. Additionally, it is beneficial for conditions such as irritable bowel syndrome, ulcerative colitis, and high cholesterol.

TREATMENT SUGGESTIONS: Consider probiotic supplementation containing L. plantarum.

LACTOBACILLUS SALIVARIUS LOW: PHYLUM: Firmicutes

DESCRIPTION: Lactobacillus salivarius is a Gram-positive, rod-shaped, non-spore-forming bacterium predominantly found in the human oral cavity, gastrointestinal tract, and vagina. It plays a significant role in maintaining oral and gut health by producing lactic acid and bacteriocins, which inhibit the growth of pathogenic bacteria. L. salivarius enhances gut barrier function, modulates the immune system, and helps in the digestion of proteins and complex carbohydrates. It has been studied for its potential benefits in managing conditions such as irritable bowel syndrome (IBS), periodontal disease, and atopic dermatitis, highlighting its importance in promoting overall health and preventing infections.

TREATMENT SUGGESTIONS: Consider L. salivarius as a probiotic strain which may improve intestinal permeability and immune response.

CLOSTRIDIUM SPECIES ELEVATED: PHYLUM: Firmicutes

DESCRIPTION: 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



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(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).

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.

Methodology

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