NutriPATH

Integrative Pathology Services

The 4-Pillar Gut Profile Code 2208

NutriPATH
Integrative Pathology Services
P: 1300 688 522
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TEST PATIENT

Date of Birth : 10-Aug-1954
Sex : F
Collected : 24/Oct/2019
Received: 24-Oct-2019
1 TEST STREET
MELBOURNE 3004
Lab id : **3639345** UR#: 000000

Dr.TEST DOCTOR

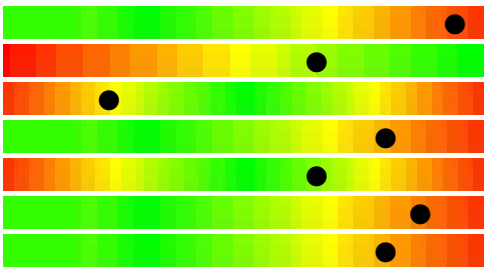
TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

COMPLETE MICROBIOME MAPPING

General Macroscopic Description

	Result	Range	Markers
Stool Colour	Brown		**Colour** - Brown is the colour of normal stool. Other colours may indicate abnormal GIT conditions.
Stool Form	Unformed		**Form** -A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions.
Mucous	+	< +	**Mucous** - Mucous production may indcate the presence of an infection, inflammation or malignancy.
Occult Blood	++	< +	**Blood (Macro)**- The presence of blood in the stool may indicate possible GIT ulcer, and must always be investigated immediately.

GIT Functional Markers	Result	Range	Units
Calprotectin.	60.0 *H	0.0 - 50.0	ug/g
Pancreatic Elastase	>500.0	> 200.0	ug/g
Faecal Secretory IgA	463.0 *L	510.0 - 2010.0	ug/g
Faecal Zonulin	109.0 *H	0.0 - 107.0	ng/g
Faecal B-Glucuronidase	3250.0	337.0 - 4433.0	U/g
Steatocrit	17.0 *H	0.0 - 15.0	%
anti-Gliadin IgA	160.0 *H	0.0 - 157.0	units/L



Microbiome Mapping Summary

Parasites & Worms

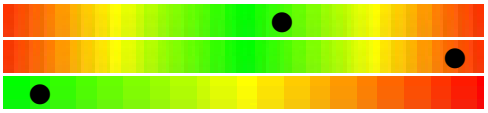
Bacteria & Viruses

Bacillus species.
Pseudomonas aeruginosa.
Streptococcus species
Citrobacter freundii.
Klebsiella pneumoniae.
Helicobacter pylori

Fungi and Yeasts

Key Phyla Microbiota

Bacteroidetes	22.49	8.61 - 33.10	x10^11 org/g
Firmicutes	37.68 *H	5.70 - 30.40	x10^10 org/g
Firmicutes:Bacteroidetes Ratio	0.17	< 1.00	RATIO



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Parasites and Worms.	Result	Range	Units
Parasitic Organisms			
Cryptosporidium.	<dl	< 1.0	x10^6 org/g
Entamoeba histolytica.	<dl	< 1.0	x10^4 org/g
Giardia lamblia.	<dl	< 5.0	x10^3 org/g
Blastocystis hominis.	<dl	< 2.0	x10^3 org/g
Dientamoeba fragilis.	<dl	< 1.0	x10^5 org/g
Endolimax nana	<dl	< 1.0	x10^4 org/g
Entamoeba coli.	<dl	< 5.0	x10^6 org/g
Pentatrichomonas hominis	<dl	< 1.0	x10^2 org/g
Worms			
Ancylostoma duodenale, Roundworm	Not Detected		
Ascaris lumbricoides, Roundworm	Not Detected		
Necator americanus, Hookworm	Not Detected		
Trichuris trichiura, Whipworm	Not Detected		
Taenia species, Tapeworm	Not Detected		
Enterobius vermicularis,Pinworm	Not Detected		

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

Opportunistic Bacteria/Overgr	Result	Range	Units
Bacillus species.	*1.9* *H	< 1.5	x10^5 org/g
Enterococcus faecalis	<dl	< 1.0	x10^4 org/g
Enterococcus faecium	<dl	< 1.0	x10^4 org/g
Morganella species	<dl	< 1.0	x10^3 org/g
Pseudomonas species	<dl	< 1.0	x10^4 org/g
Pseudomonas aeruginosa.	*9.6* *H	< 5.0	x10^2 org/g
Staphylococcus species	<dl	< 1.0	x10^4 org/g
Staphylococcus aureus	<dl	< 5.0	x10^2 org/g
Streptococcus species	*1.9* *H	< 1.0	x10^3 org/g
Methanobacteriaceae	2.30	< 5.00	x10^9 org/g
Potential Autoimmune Triggers			
Citrobacter species.	4.7	< 5.0	x10^5 org/g
Citrobacter freundii.	*80.0* *H	< 5.0	x10^5 org/g
Klebsiella species	4.3	< 5.0	x10^3 org/g
Klebsiella pneumoniae.	*67.0* *H	< 5.0	x10^4 org/g
Prevotella copri	<dl	< 1.0	x10^7 org/g
Proteus species	<dl	< 5.0	x10^4 org/g
Proteus mirabilis.	<dl	< 1.0	x10^3 org/g
Fusobacterium species	5.30	< 10.00	x10^7 org/g

Fungi & Yeast	Result	Range	Units
Candida species.	<dl	< 5.0	x10^3 org/g
Candida albicans.	<dl	< 5.0	x10^2 org/g
Geotrichum species.	<dl	< 3.0	x10^2 org/g
Microsporidium species	<dl	< 5.0	x10^3 org/g
Rhodotorula species.	<dl	< 1.0	x10^3 org/g

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Bacterial Pathogens	Result	Range	Units
Aeromonas species.	<dl	< 1.0	x10^3 CFU/g
Campylobacter.	<dl	< 1.0	x10^3 CFU/g
C. difficile, Toxin A	<dl	< 1.0	x10^3 CFU/g
C. difficile, Toxin B	<dl	< 1.0	x10^3 CFU/g
Enterohemorrhagic E. coli	<dl	< 1.0	x10^3 CFU/g
E. coli O157	<dl	< 1.0	x10^2 CFU/g
Enteroinvasive E. coli/Shigella	<dl	< 1.0	x10^3 CFU/g
Enterotoxigenic E. coli LT/ST	<dl	< 1.0	x10^3 CFU/g
Shiga-like Toxin E. coli stx1	<dl	< 1.0	x10^3 CFU/g
Shiga-like Toxin E. coli stx2	<dl	< 1.0	x10^3 CFU/g
Salmonella.	<dl	< 1.0	x10^4 CFU/g
Vibrio cholerae	<dl	< 1.0	x10^5 CFU/g
Listeria monocytogenes	<dl	< 1.0	x10^3 CFU/g
Yersinia enterocolitica.	<dl	< 1.0	x10^5 CFU/g
Helicobacter pylori	*56.0* *H	< 1.0	x10^3 CFU/g

Comment: Helico Pylori virulence factors will be listed below if detected POSITIVE

H.pylori Virulence Factor, babA	Not Detected
H.pylori Virulence Factor, cagA	Not Detected
H.pylori Virulence Factor, dupA	Not Detected
H.pylori Virulence Factor, iceA	Not Detected
H.pylori Virulence Factor, oipA	Not Detected
H.pylori Virulence Factor, vacA	Not Detected
H.pylori Virulence Factor, virB	Not Detected
H.pylori Virulence Factor, virD	Not Detected

Viral Pathogens	Result	Range	Units
Adenovirus 40/41	<dl	< 1.0	x10^10 CFU/g
Norovirus GI/II	<dl	< 1.0	x10^7 CFU/g
Bocavirus	<dl	< 1.0	x10^10 CFU/g

Normal Bacterial GUT Flora	Result	Range	Units
Bacteroides fragilis	46.0	1.6 - 250.0	x10^9 CFU/g
Bifidobacterium species	650.0	> 6.7	x10^7 CFU/g
Enterococcus species	23.0	1.9 - 2000.0	x10^5 CFU/g
Escherichia species	56.0	3.7 - 3800.0	x10^6 CFU/g
Lactobacillus species	*7.9* *L	8.6 - 6200.0	x10^5 CFU/g
Clostridium species	48.0	5.0 - 50.0	x10^6 CFU/g
Enterobacter species	3.6	1.0 - 50.0	x10^6 CFU/g
Akkermansia muciniphila	27.00	0.01 - 50.00	x10^3 CFU/g
Faecalibacterium prausnitzii	56.0	1.0 - 500000	x10^3 CFU/g

Short Chain Fatty Acids	Result	Range	Units
Short Chain Fatty Acids, Beneficial	14.0	> 13.6	umol/g
Butyrate	*36.8* *H	10.8 - 33.5	%
Acetate	45.0	44.5 - 72.4	%
Propionate	17.0	0.0 - 32.0	%
Valerate	1.2	0.5 - 7.0	%

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Pathogen Summary:

Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

UNFORMED/LIQUID stools may indicate the presence of infection and/or inflammation.
Consider dysbiosis, food sensitivity, high dose vitamin C and magnesium, infection, intestinal permeability, laxative use, malabsorption, maldigestion, stress. Other causes: bacterial, fungal, viral and other parasitic infections.
Treatment:
• Investigate and treat possible underlying cause.
• Assess other CDSA markers such as pH, pancreatic elastase 1 & microbiology markers."

MUCOUS PRESENT:
The presence of mucous (or pus), which are normally absent, can indicate Irritable Bowel Syndrome, intestinal wall inflammation (from infection), diverticulitis or other intestinal abscess.
Treatment:
• Investigate and treat possible underlying cause.
• Assess other CDSA markers such as calprotectin, M2PK & microbiology markers.

BLOOD PRESENT: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.
Treatment:
• Investigate the cause of bleeding using other diagnostic tools such as endoscopy
• Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.

GIT Markers Comment

PANCREATIC ELASTASE: Normal exocrine pancreatic function.
Pancreatic Elastase reflects trypsin, chymotrypsin, amylase and lipase activity.
This test is not affected by supplements of pancreatic enzymes.
Healthy individuals produce on average 500 ug/g of PE-1. Thus, levels below 500 ug/g and above 200 ug/g suggest a deviation from optimal pancreatic function.
The clinician should therefore consider digestive enzyme supplementation if one or more of the following conditions is present: Loose watery stools, Undigested food in the stools, Post-prandial abdominal pain, Nausea or colicky abdominal pain, Gastroesophageal reflux symptoms, Bloating or food intolerance.

CALPROTECTIN MILDLY ELEVATED:
MILD TO MODERATE inflammation of the GIT.
Patients without GIT inflammation and untreated IBS sufferers have levels below 50 ug/g.
The inflammatory response could be due to IBD, infection, polyps, neoplasia, or the use of non-steroidal anti-inflammatory drugs (NSAIDs).
Calprotectin may also be elevated in children with chronic diarrhea secondary to cow's milk allergy or multiple food allergies.

Whether inflammatory or neoplastic, the cause of elevated calprotectin MUST be ascertained by endoscopy or radiography. If these evaluations do not yield signs of overt disease, other tests may be considered to uncover causes of chronic bowel inflammation:
- Intestinal Dysbiosis Assessment - Organic Acids
- IgG/IgA 96 Food Allergy Assessment
- Celiac Antibodies Panel

FAECAL SECRETORY IgA:
Production of sIgA is important to the normal function of the gastrointestinal mucosa as an immune barrier.
It represents the first line immune defense of the GIT.
Elevated levels are associated with an upregulated immune response.

LOW sIgA LEVEL:
The primary function of secretory IgA (sIgA) is an antibody protein secreted into the gastrointestinal tract as a first line of immune defence against pathogenic microorganisms. sIgA binds to invading micro organisms and toxins and entrap them in the mucus layer or within the epithelial cells, so inhibiting microbial motility, agglutinating the organisms and neutralising their exotoxins and then assist in their harmless elimination from the body in the faecal flow. sIgA also 'tags' food as acceptable, so low sIgA leads to increased sensitivity to foods.
Several studies link stress and emotionality with levels of sIgA. Production is adversely affected by stress, which is mediated by cortisol levels.

**Reduced sIgA levels may be associated with sub optimal adrenal output. Consider an Adrenocortex Stress profile.

Treatment: Investigate the root cause of inflammation. Consider the use of probiotics (saccharomyces boulardii), choline, essential

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fatty acids, glutathione, glycine, glutamine, phosphatidylcholine, Vitamin C and Zinc which are all required for efficient production of sIgA.

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

Identify the possible cause/s (Gut microorganism imbalance or the presence of dietary Gluten/gliadin) and remove to reduce further damage.
If it's gluten for gluten sensitivity or celiac disease, remove gluten.
If bacterial overgrowth or dysbiosis, treat the bacterial overgrowth.

Treatment:
Firstly, fix the gut. Treat/repair the gut before before proceeding with other protocols; nutrients and other supplements can be damaging to the system if they get out of the gut
Follow a grain - free diet for at least 12 months.
Eliminate gluten, sugar, processed food, artificial flavorings, colors, trans fats.

Supplementation:
Caprylic acid, Probiotics, acidophylis and B complex, fish oil, Magnesium D3, CoQ10, Mg Citrate, Boswellia & Curcumin, Milk Thistle, Selenium
For patients with chronic digestive issue: Vitamin A, L-Glutamine, Probiotics

Further investigations to consider:
- SIBO Breath Test,
- IgG or IgA 96 Food Sensitivity

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
o Review markers such as pancreatic elastase 1 and calprotectin

ELEVATED FAECAL anti-GLIADIN IgA LEVEL:
Gliadin is a component of gluten, the protein found in wheat and other field grass grains such as barley, malt, and rye. The presence of faecal anti-gliadin antibodies can indicate an immune response (in the gut) to gluten in the diet. Faecal anti-gliadin antibodies do not necessarily correlate with blood levels.
When levels are elevated it is suggested to investigate underlying causes, such as chronic dysbiosis, acute infections, acute stress, or food sensitivities. Review Zonulin levels in conjunction with anti-gliadin IgA.
Treatment:
Consider a gluten elimination diet for a trial period. If patients have been gluten-free, consider hidden sources of gluten and gliadin cross-reactive food such as dairy, corn, oats, millet, rice and yeast. A food sensitivity panel may benefit the patient in this case to identify hidden food sensitivities. Other intestinal barrier support may include supplements such as L-glutamine, zinc carnosine, and colostrum.

Opportunistic Bacteria Comment

ELEVATED BACILLUS SPECIES LEVEL:
Bacillus species are spore forming, gram-positive rods belonging to the Bacillaceae family. There are currently 50 valid species within the genus.
It has been noted that some strains are used as probiotics.

Sources:
Meat dishes are a common source of infection in other species of Bacillus such as B. subtilis and B. licheniformis.
B. cereus food poisoning includes meats, pasta, vegetable dishes, desserts, cakes, sauces and milk.

Pathogenicity:
As yet, no toxins or other virulence factors have been identified in association with the symptoms that accompany

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non-B. cereus species.

Symptoms:
B. licheniformis and B. subtilis are associated with food-borne diarrheal illness.

Treatment:
It should be noted that the level of Bacillus spp should be considered in context of clinical symptoms. The level may be neither beneficial nor pathogenic. Where present, often inadequate levels of beneficial bacteria are also noted. These organisms may become dysbiotic at high levels where treatment may become necessary.
Natural Microbials:
In high levels of Bacillus spp, a combination of berberine and plant tannins have shown a high susceptibility success for treatment.
Antibiotics:
B. species is almost always susceptible to clindamycin, erythromycin and vancomycin.

ELEVATED PSEUDOMONAS AERUGINOSA LEVEL:
Pseudomonas is found in water and soil as well as fruits and vegetables.
Bottled water can be a common source of infection.
Because the organism is able to survive aqueous environments, it is an important nosocomial pathogen. Pseudomonas can also be found on a number of surfaces and in aqueous solutions.

Pathogenicity:
Pseudomonas is considered an opportunistic pathogen.

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

Treatment:
Ciprofloxacin is recommended for the treatment of Pseudomonas induced antibiotic-associated colitis. Pseudomonas is usually susceptible to antipseudomonal penicillins, aminoglycosides, carbapenems, 3rd generation cephalosporins and gentamycin.

Other Herbal antimicrobials include:
Pseudomonas aeruginosa shows a high susceptibility rate using a combination of berberine, plant-tannins and oregano.

STREPTOCOCCUS SPECIES:
Description:
Streptococcus is a gram-positive bacteria in the Firmicutes phylum. Streptococcus is generally a common isolate from gut flora. However, emerging research suggests that high levels in the intestine may result from low stomach acid, PPI use, reduced digestive capacity, SIBO or constipation; Elevated levels may also be indicative of intestinal inflammatory activity, and may cause loose stools.

Sources:
Recent infections with streptococcus pyogenes or scarlet fever can be linked to the presence of this species in faeces.

Treatment:
Treatment of streptococcus in gut flora is not always recommended. A practitioner may take into consideration a range of patient factors and symptoms to determine if treatment is necessary. In this case please refer to the 4R treatment protocol located at the end of this report.

METHANOBACTERIACEAE:
Family of bacteria-like microbes that produce methane. Facilitates carbohydrate fermentation and short-chain fatty acid production by beneficial bacteria.
LOW levels may indicate reduced production of short-chain fatty acids and may be associated with inflammation.
HIGH levels linked to chronic constipation, as well as some types of SIBO and IBS.

Potential Autoimmune Comments

ELEVATED CITROBACTER FREUNDII LEVEL:
Sources:
Citrobacter is a gram-negative bacteria in the Enterobacteriaceae family. Common in the environment and may be spread by person-to person contact. Several outbreaks have occurred in babies in hospital units. Isolated from water, fish, animals and food.

Pathogenicity:
Citrobacter is considered an opportunistic pathogen and therefore can be found in the gut as part of the normal flora.

Symptoms:

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Citrobacter has occasionally been implicated in diarrheal disease, particularly C. freundii and C. diversus and C. koseri

Treatment:
Treatment is not generally required in low amounts. However, where high levels are present and patients are symptomatic. A combination of oregano, plant tannins and oregano has shown high susceptibility.
For further information, refer to the 4R treatment protocol located at the end of this report.

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

Pathogenicity:
Part of the normal gut flora in small numbers, but can be an opportunistic pathogen.
Klebsiella is capable of translocating from the gut when in high numbers.
Certain strains of K. oxytoca have demonstrated cytotoxin production.

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

Treatment:
Avoiding carbohydrates such as rice, potatoes, flour products and sugary foods reduces the amount of Klebsiella in the gut
Other Herbal antimicrobials include:
Lemon and clove, Burr marigold, Thyme, Licorice, euphobia, cordyceps. For further treatment options, refer to the 4R treatment protocol located at the end of this report.

FUSOBACTERIUM SPECIES:
Fusobacterium species is a gram-negative bacteria in the Fusobacteria phylum. The bacteria is a common member of the human oral microbiome, this pro-inflammatory bacterium can also be found in the human gut. In the mouth, high levels are strongly linked to oral hygiene. In the gut, high levels have been observed in individuals with colon cancer and appendicitis.
Sources:
It primarily uses protein as its main source. However, research also shows that it can thrive from sugar.

Treatment:
Antimicrobial botanicals such as berberine, oregano, quercetin, curcumin, green and black tea extracts, blueberry extract, cinnamon and rosemary have shown to decrease levels.

Bacterial Pathogens Comment

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

If the patient has diagnosed gastritis or a peptic ulcer consider:
- Standard triple therapy: e.g. PPI, clarithromycin and amoxicillin/or metronidazole, 7-14 days
- Lactobacillus Probiotics

If the patient is asymptomatic consider natural products including:
- Black currant seed oil and fish oil
- Lactobacillus Probiotics
- Vitamin C
- Mastic gum.

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

Phyla Microbiota Comment

ELEVATED FIRMICUTES LEVEL:
Gram-positive Firmicutes are bacterial phyla that make up a large proportion of the entire human digestive tract, including the mouth, nose, throat, and colon. An elevated result of firmicutes are considered an unfavourable outcome as they make your body thrive for sugar in order for firmicutes to survive in the gut. Elevated Firmicutes may generate inflammation, dysbiosis, maldigestion or hypochlorhydria.
Firmicutes also compete and kill off surrounding microorganisms for their sugar supply. When there is an over consumption of all that extra sugar consumed, unfortunately it will only have one pathway and that is to be converted into fat increasing insulin levels. Studies have shown that when there is a higher ratio of Firmicutes within the gastrointestinal tract, that there is a link to obesity.

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Therefore, levels of firmicutes within reference range are preferred.
Treatment:
Polyphenols are recommended to lower levels of firmicutes and raise the level of bacteroidetes. An abnormal result in one or both of these phylum suggest imbalanced normal microbes in the GI tract.

Normal Bacterial Flora Comment

LOW LACTOBACILLUS SPECIES LEVEL:
Lactate-producing bacteria in the Firmicutes phylum.
Low levels may be due to low carbohydrate intake or high salt intake, and may also indicate reduced mucosal health.

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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 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

NutriPATH
Integrative Pathology Services
P: 1300 688 522
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TEST PATIENT

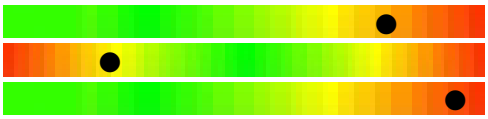
Sample Test Name
Sex : F
Date Collected : 00-00-0000
111 TEST ROAD TEST SUBURB
LAB ID: 00000000 UR#:0000000

TEST PHYSICIAN

DR JOHN DOE
111 CLINIC STREET
CLINIC SUBURB VIC 3000

INTEGRATIVE MEDICINE

URINE, 6 HOUR	Result	Range	Units
INTESTINAL PERMEABILITY			
Urine Volume, 6 hrs	**1050**		mL
Lactulose Recovery	**0.29**	0.00 - 0.30	%
Mannitol Recovery	***6.79* *L**	9.50 - 25.00	%
Lactulose/Mannitol Ratio	***0.043* *H**	0.000 - 0.035	RATIO
Int. Perm. Comment			



Mannitol LOW
Result suggestive of malabsorption. Mannitol is absorbed through transcellular absorption (through the mucosal cells) and serves as a marker of transcellular uptake. Reduced transcellular absorption may indicate malabsoption. Suggest treating with glutamine, probiotics, aloe vera, glucosamine, FOS, glucosamine, MSN, pectin, zinc.

HIGH LACT/MAN RATIO
Increased paracellular permeability (between mucosal cells) allows macromolecules, toxins and antigens to cross the intestinal barrier and is associated with the following clinical conditions: Inflam. Bowel Disease, Irritable bowel, malabsorption, malnutrition, ulcerative colitis, Crohn's Disease, Autism, Coeliac Disease, dysbiosis, Inflam. joint disease, Rheumatoid arthritis, Inflammatory bowel disease, Ankylosing spondylitis, Reiter's syndrome, Chronic dermatological conditions, Schizophrenia, Allergic disorders, food allergies, trauma, alcoholism, anti-inflammatory drugs / corticosteroids and chemotherapy.

Tests ordered: INTPERM

(*) Result outside normal reference range (H) Result is above upper limit of reference rang (L) Result is below lower limit of reference range

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TEST PATIENT

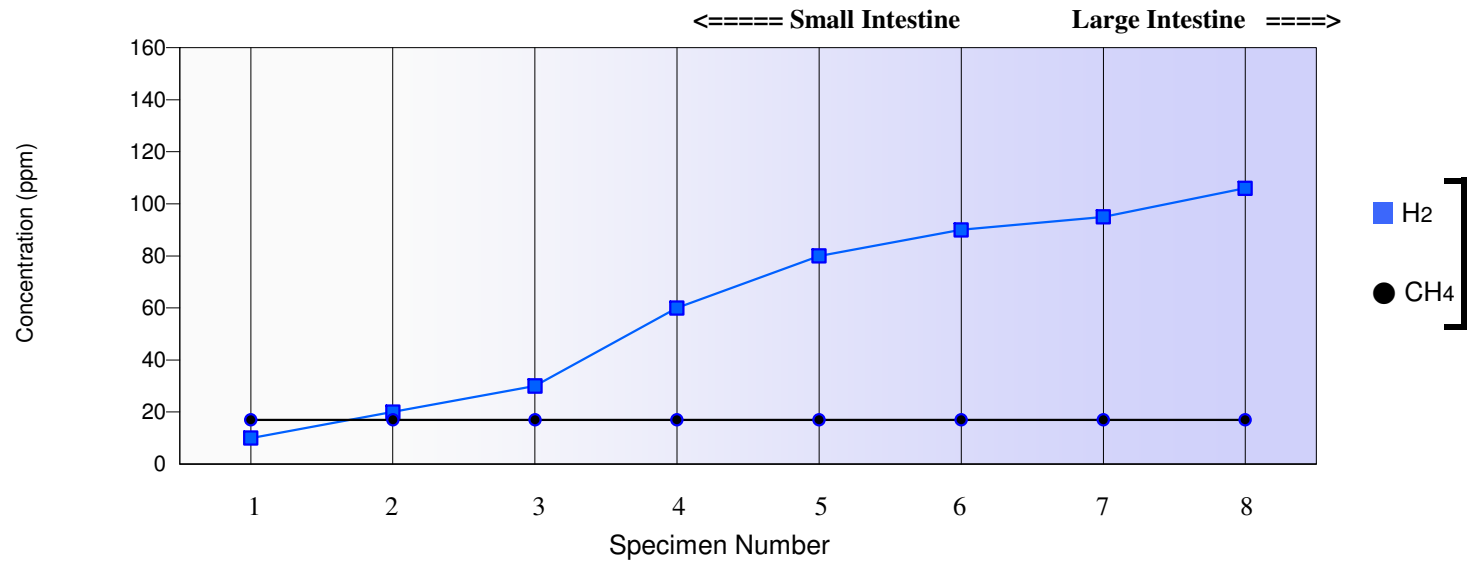
Date of Birth : DD/MM/YYYY
Sex : F
Collected : 5/Oct/2018
Received: 06-Oct-2018
123 EXAMPLE STREET
MELBOURNE VIC 3000
Lab id : **0000000** UR#: 123

Dr.TEST DOCTOR

TEST CLINIC
ADDRESS DETAILS

SMALL INTESTINAL BACTERIAL OVERGROWTH (SIBO) - 3 HOUR Breath Test

Hydrogen (H_2) and Methane (CH_4) Breath Gases



Hydrogen (H_2), Methane (CH_4) and Carbon Dioxide (CO_2) (ppm)

	S1 0 mins	S2 20 mins	S3 40 mins	S4 60 mins	S5 90 mins	S6 120 mins	S7 150 mins	S8 180 mins
H_2	10	20	30	60	80	90	95	106
CH_4	17	17	17	17	17	17	17	17
$H_2 + CH_4$	27	37	47	77	97	107	112	123
CO_2 **	✓	✓	✓	✓	✓	✓	✓	✓
Actual Collection Times								
Actual Time	7:00	7:00	7:00	7:00	7:00	7:00	7:00	7:00
Actual Interval	0	0	0	0	0	0	0	0

** CO2 is measured for quality assurance: ✓indicates the CO_2 level is acceptable × indicates room air contaminiation exceeding acceptable limits

Evaluation for Hydrogen (H_2)

Hydrogen increase over baseline by 90 minutes

	Result	Expected Value
Change in H_2	70	< 20 ppm

A rise of >= 20ppm from baseline in hydrogen by 90 min should be considered a positive test to suggest the presence of SIBO

Evaluation for Methane (CH_4)

Peak methane level at any point

	Result	Expected Value
CH_4 Peak	17	< 10 ppm

A peak methane level >= 10 ppm at any point is indicative of a methane-positive rise

Printed: 8/Oct/2018

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TEST PATIENT
Date of Birth : 01-Jan-1956
Sex : F
Collected : 6/Oct/2018
Received: 06-Oct-2018
123 EXAMPLE STREET
MELBOURNE VIC 3000
Lab id : **3563418** UR#:

Dr.TEST DOCTOR
TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

Laboratory Comments

GENERAL CONSIDERATIONS FOR BREATH TESTING
Small Intestinal Bacterial Overgrowth (SIBO) is a heterogeneous syndrome characterised by an increase in the number and/or the presence of atypical microbiota in the small intestine. The SIBO breath test relies on measurement of gases (Hydrogen and Methane) produced by microbiota in the intestine following ingestion of lactulose in a fasting state.

The test also measures Carbon Dioxide as an indicator of correct collection procedure. Carbon Dioxide levels exceeding acceptable limits indicate room air contamination likely at the time of sample collection. The integrity of these samples is questionable and results are designated as " X " (NR-Non-Reportable).

The transit time of lactulose in healthy fasting patients is approximately 90 minutes, but is found to vary in other patients. As such, transit time should be taken into consideration when interpreting breath testing results.

FALSE POSITIVES:
Falsely elevated findings may result from incorrect preparation for performing the SIBO test, incomplete avoidance of high-fibre foods, residual fibre in the intestine due to delayed transit time, residual oropharyngeal (mouth and throat) bacteria, and exposure to tobacco smoke, or napping during collection.

REPORT INTERPRETATION:
SIBO Test results need to be viewed in terms of Hydrogen production, Methane production and Total Hydrogen and Methane production.

A rise in Hydrogen of >20 ppm over baseline in the first 90 minutes of testing, is considered SIBO-Positive.

A peak methane level >10 ppm at any point indicates a methane-positive result, and is considered SIBO-Positive.

A rise in the combined gases (Hydrogen and Methane) level over baseline of 12 - 32 ppm is indicative of a mild SIBO condition, whilst a level of 33 ppm or greater is indicative of a severe SIBO condition.

YOUR SUMMARY:
This report indicates an elevated rise in Hydrogen levels **(70ppm)** and elevated Methane levels **(17ppm)** which is indicative of a SIBO-POSITIVE result, and often closely associated with diarrhoea.

If a patient who has been suffering from SIBO associated symptoms, it is likely that they have tried a low-FODMAP diet which has shown significant improvements in their symptoms. It should be noted that this will not address the root cause.

TREATMENT CONSIDERATIONS:
During treatment, the patient should focus on eating a predominantly balanced whole food diet with a wide range of animal and plant based foods. Alcohol should be avoided.

Conventional approach:
Antibiotics for SIBO suggests that Riflaximin is the most commonly used antibiotic for treatment of SIBO.
However, if hydrogen and methane are both elevated, rifaximin may be administered with neomycin showing an 85% treatment rate.
Dosage:
Rifaxamin 400mg t.i.d if hydrogen dominant.
Rifaxamin 400mg t.d.s and neomycin 400mg b.d.s for methane.
The treatment should last 14 days.

Naturopathic approach:
A combination of herbal antimicrobials is suggested. It should be noted that a rotation of herbal antimicrobials is important to avoid the bacteria from building up resistance to the same herbs administered.

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Date of Birth : 01-Jan-1956
Sex : F
Collected : 6/Oct/2018
Received: 06-Oct-2018
123 EXAMPLE STREET
MELBOURNE VIC 3000
Lab id : **3563418** UR#:

TEST HEALTH CENTRE
123 TEST STREET
BURWOOD VIC 3125

Below is a suggestive rotation treatment plan:

Week 1-4:
Antimicrobials - rotate at two week intervals using a combination of:
Garlic, Wormwood, Oregano oil, Lavender oil and Phellodendron Black walnut, Wormwood, Barberry, Garlic, Citrus Xparadisi, Thyme oil, Rosemary oil, Oregano oil.

PLEASE NOTE:
Try to incorporate berberine herbs, essential oils and garlic.

-Exercise regularly - 20-30 minutes a day
-Avoid alcohol
-Introduce foods rich in fibre as they act as a prebiotic to help support healthy gut flora
-Partially hydrolysed guar gum 5g/day
-Ibrogast 20 drops TDS
-Saccharomyces boulardii probiotic (250mg-1g per day)
-Digestive enzymes - 1 tablet 20 minutes before main meals
-N-acetylcysteine 600mg - 1200mg per day

NOTE: Herbal anti-microbial and antibiotics may be used together to increase therapeutic outcomes, or can be used intermittently together.

If no symptoms have improved at the end of 4 weeks, it is suggested to investigate with further testing.
Recommended follow up testing to be considered:
-CDSA 3+ Code 2006
-IgG96 Foods-General Code 3206
-Organix-Organic Acids Code 4041

96 General Food Panel: IgG

Complete Report

Patient: TEST PATIENT **Sex:** M/F **Date of Birth:** YYYY-DD-MM **Age:** #
Accession #: 00000000 **Sample Type:** DBS

IgG

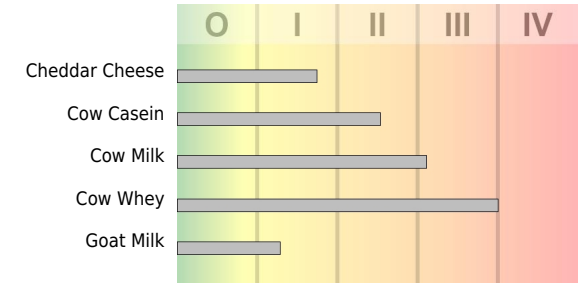
Collected: YYYY-DD-MM **Received:** YYYY-DD-MM **Completed:** YYYY-DD-MM

Physician: TEST DOCTOR

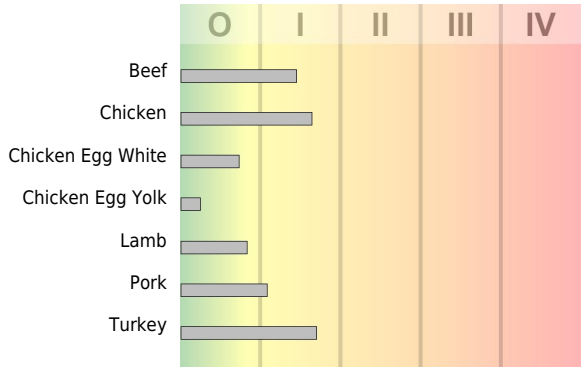
CLIA #: 50D0965661
COLA accredited

Dairy

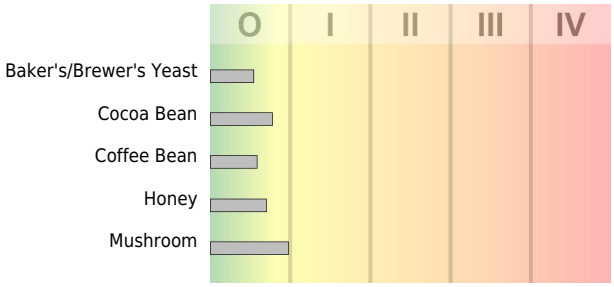
Bovine-derived unless specified



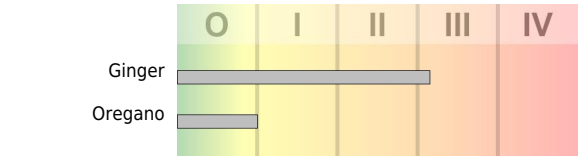
Meat/Poultry



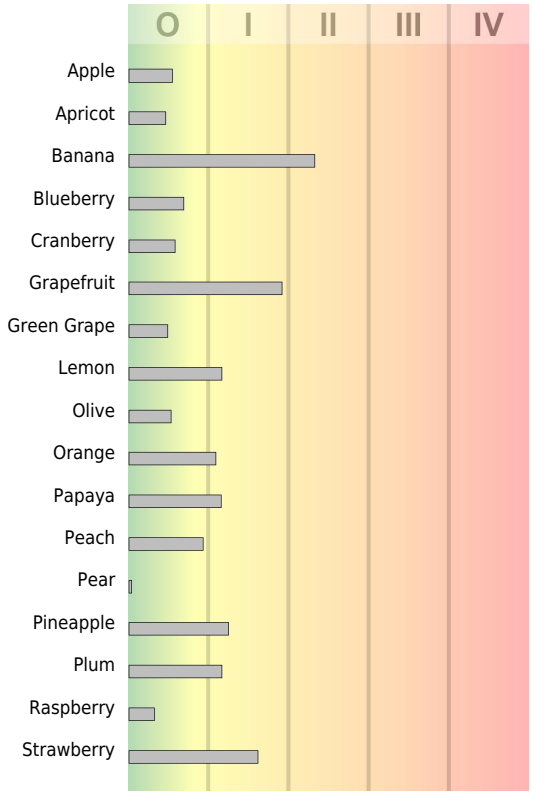
Misc



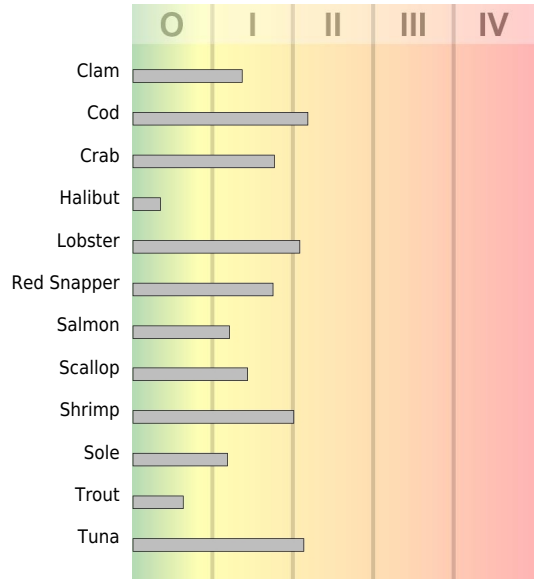
Spices



Fruits



Fish/Crustacea/Mollusk



Reaction Class

Director: Stephen Markus, MD

	O	I	II	III	IV
IgA (mg/L)	<1.95	≥1.95-3.90	>3.90-15.60	>15.60-29.90	>29.90
IgG (mg/L)	<2.50	≥2.50-5.00	>5.00-20.30	>20.30-47.10	>47.10
IgG4 (mg/L)	<1.20	≥1.20-4.70	>4.70-18.80	>18.80-37.50	>37.50
	Undetected	Low	Moderate	High	Very High

This test was performed by US-BIOTEK

CLIA #: 50D0965661 COLA accredited

96 General Food Panel: IgG

Complete Report

Patient: TEST PATIENT **Sex:** M/F **Date of Birth:** YYYY-DD-MM **Age:** #
Accession #: 00000000 **Sample Type:** DBS

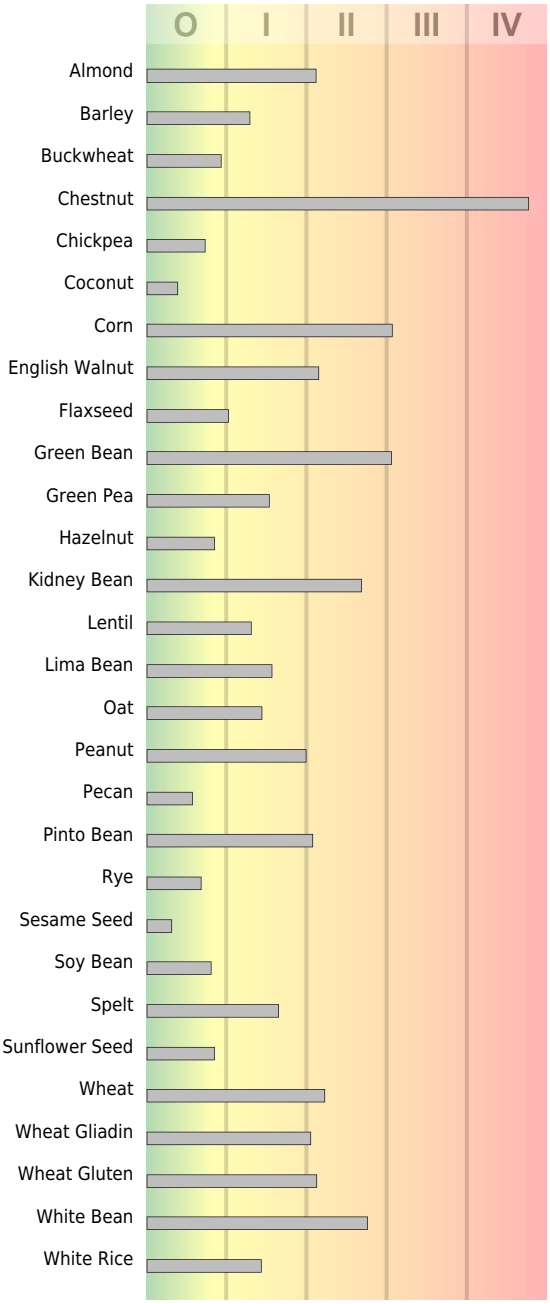
IgG

Collected: YYYY-DD-MM **Received:** YYYY-DD-MM **Completed:** YYYY-DD-MM

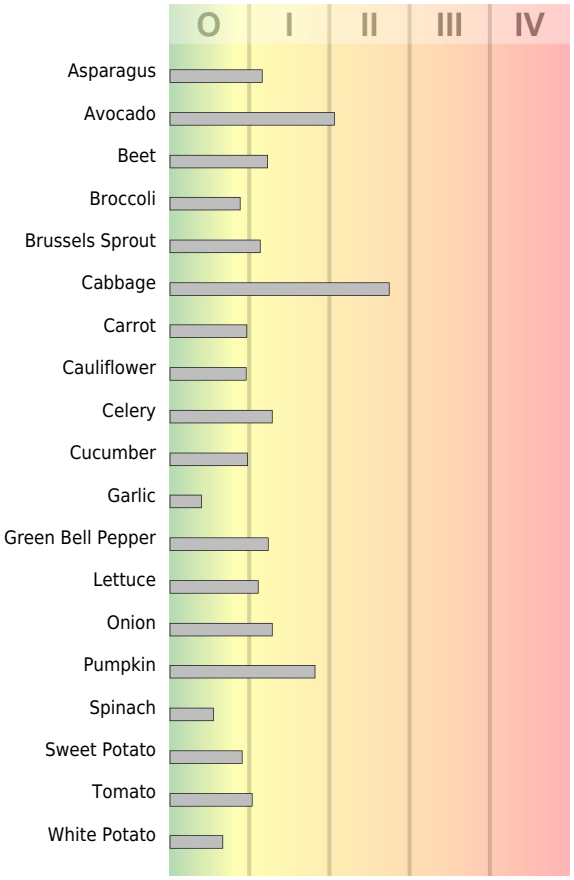
Physician: TEST DOCTOR

CLIA #: 50D0965661
COLA accredited

Grains/Legumes/Nuts



Vegetables



Reaction Class

Director: Stephen Markus, MD

	O	I	II	III	IV
IgA (mg/L)	<1.95	≥1.95-3.90	>3.90-15.60	>15.60-29.90	>29.90
IgG (mg/L)	<2.50	≥2.50-5.00	>5.00-20.30	>20.30-47.10	>47.10
IgG4 (mg/L)	<1.20	≥1.20-4.70	>4.70-18.80	>18.80-37.50	>37.50
	Undetected	Low	Moderate	High	Very High

This test was performed by US-BIOTEK

CLIA #: 50D0965661 COLA accredited

FoodStats Antibody Assessment

Test Results & Personalized Elimination/Rotation Diet Guideline

Prepared for:	**TEST PATIENT** **LAB ID:000000**
Accession:	0000000000
Practitioner:	JOHN DOE
Guideline Prepared:	DD/MM/YYYY

NutriPATH
Integrative Pathology Services

TEST PATIENT LAB ID 00000000000

Prepared MM/DD/YYYY

Dear Dr JOHN DOE:

Thank you for allowing NutriPATH to assist you in helping your patients towards a healthier lifestyle.

The enclosed report consists of information regarding your patient's immune system's response to certain foods. Depending on which test(s) you ordered, three antibody types: IgA, IgE, and IgG may have been measured in our laboratory utilizing an Enzyme-linked Immunosorbent Assay (ELISA) and Chemiluminescent Assay.

Also attached is a rotation diet guideline. The concept behind rotation-style eating is to eliminate foods that scored high for reactivity and to rotate consumption of foods that scored mild - moderate reactivity. The rotation diet guideline is designed so the patient does not consume the same food more than once every four days and no foods of the same family more than once every two days. Rotation-style eating is designed to encourage diversification of the diet.

The guideline excludes all tested foods on which your patients scored Class III or greater for IgA and/or IgG antibody analysis and/or Class 0/I and greater for IgE antibody analysis.

The guideline includes all IgA and/or IgG tested foods on which your patient scored Class 0 to Class III. These foods are rotated throughout a 4-day cycle by their food families (groups of foods that are biologically or botanically related). The 4-day rotation plan alternates the food families based on a day 1 and 3, or day 2 and 4 cycle. Patients may move any food through days 1 to 4 as long as members of the same family are not consumed on consecutive days, and any particular food is not consumed more than once every four days.

Health care practitioners are responsible for interpreting the profile of test results provided by NutriPATH, applying those results to your patient and recommending dietary changes based on these and other data available to you. NutriPATH provides this rotation diet guideline for your consideration only. This is just one suggested rotation schedule. You may prefer a different, but similar, diet guideline for your patients, such as a 7-day plan. Also, you may want to modify the guideline by limiting a particular food family to one day of the rotation cycle vs. two days. If you have any questions about the attached guideline, please let us know.

We wish you and your patient all the best,

NutriPATH Pathology

TEST PATIENT LAB ID 00000000000

Prepared MM/DD/YYYY

Report Summary

The following classifications correspond to the Reaction Class noted on your Food Antibody Assessment report. The classification of 0 to IV identifies the level of food-specific-antibodies measured from your blood sample via US BioTek Laboratories' semi-quantitative ELISA (Enzyme-linked Immunosorbent Assay) and quantitative Chemiluminescent Assay. Not all antibody tests (i.e.: IgA, IgE and IgG) may have been ordered by your practitioner.

These foods are **omitted** from the 4-day rotation guideline:

IgE: Class 0/I and greater
(not tested)

If IgE was tested along with IgA and/or IgG, any food that scored Class 0/I and greater for IgE is *listed above* irrespective of IgA or IgG antibody levels.

Class III/IV (High to Very High antibody levels)		
IgA:	**IgA & IgG:**	**IgG:**
(none)	*(none)*	Peach

These foods are **included** in the 4-day rotation guideline. Consult with your practitioner on the exclusion of these foods from your diet:

Class II (Moderate antibody levels)		
IgA:	**IgA & IgG:**	**IgG:**
(none)	*(none)*	Example text

Class I (Low antibody levels)		
IgA:	**IgA & IgG:**	**IgG:**
Green Bean	*(none)*	Example text

This report does not identify anaphylaxis. Avoid all foods to which you have had an anaphylactic reaction (consult your practitioner).

IgE antibody testing is not available through the Dried Blood Spot Collection Kit.

TEST PATIENT LAB ID 00000000000

Prepared MM/DD/YYYY

Your Personal Rotation Diet Guideline

All of the tested foods are listed excluding Class III and greater for IgA and/or IgG antibody analysis and Class 0/I and greater for IgE antibody analysis, as identified on your Food-Specific Antibody Assessment graph.

The 4-day rotation plan alternates the food families based on a day 1 and 3, or day 2 and 4 cycle, where no particular food item is eaten more than once every 4 days. This is not a mandatory food menu. Pick, choose and improvise as you like for a nutritionally balanced and varied diet.

	Day 1	Day 2	Day 3	Day 4
Dairy	Example Text		Example Text	
Fish, Crustacea, Mollusk	Example Text	Example Text	Example Text	Example Text
Fruits	Example Text	Example Text	Example Text	Example Text
Grains, Legumes, Nuts	Example Text	Example Text	Example Text	Example Text
Meat, Fowl	Example Text	Example Text	Example Text	
Miscellaneous	Example Text		Example Text	
Spices		Example Text	Example Text	
Vegetables	Example Text	Example Text	Example Text	Example Text

This report does not identify anaphylaxis. Avoid all foods to which you have had an anaphylactic reaction (consult your practitioner).

For Your Convenience

Patient: **TEST PATIENT**
Practitioner: **JOHN DOE**

Food Antibody Assessment

IgE: Class 0/I and greater – *(not tested)*

IgA/IgG: Class III and greater – Peach

IgA/IgG: Class II – Banana, Chestnut, Coconut, Ginger, Lemon