



P: 1300 688 522
 E: info@nutripath.com.au
 A: PO Box 442 Ashburton VIC 3142

TEST PATIENT

GUa d`Y `HYghBUa Y
 Sex : :
 DUH` Collected : 00-00-0000
 111 H9GH`ROAD`TEST SUBURB
 @AB =8: 00000000 UR#:0000000

TEST PHYSICIAN

DR JOHN DOE
 111 CLINIC STF 99H
 7@-B=7 `GI 6I F 6`J =7 `` \$\$\$

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. | 8.8 *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. | <dl | < 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 | 1.0 *H | < 1.0 | x10^3 org/g | |
| Methanobacteriaceae | 4.10 | < 5.00 | x10^9 org/g | |
| HV OIRYLE LR SL H | . | | x10^9 org/g | |
| 2 D OREDFWH IR PL H HV | 10 | | x10^9 org/g | |

Potential Autoimmune Triggers

| | | | | |
|------------------------|----------|---------|-------------|--|
| Citrobacter species. | <dl | < 5.0 | x10^5 org/g | |
| Citrobacter freundii. | 167.5 *H | < 5.0 | x10^5 org/g | |
| Klebsiella species | <dl | < 5.0 | x10^3 org/g | |
| Klebsiella pneumoniae. | 2.9 | < 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 | 7.43 | < 10.00 | x10^7 org/g | |

Fungi & Yeast Result Range Units

| | | | | |
|------------------------|---------|-------|-------------|--|
| Candida species. | 62.4 *H | < 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 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 | 57.0 | 1.6 - 250.0 | x10 ⁹ CFU/g | |
| Bifidobacterium species | 5.5 *L | > 6.7 | x10 ⁷ CFU/g | |
| Bifidobacterium longum | 2.2 *L | > 5.2 | x10 ⁶ CFU/g | |
| Enterococcus species | 24.0 | 1.9 - 2000.0 | x10 ⁵ CFU/g | |
| Escherichia species | 1065.0 | 3.7 - 3800.0 | x10 ⁶ CFU/g | |
| Lactobacillus species | 19.8 | 8.6 - 6200.0 | x10 ⁵ CFU/g | |
| Lactobacillus Rhamnosus | 5.1 *L | 8.3 - 885.0 | x10 ⁵ CFU/g | |
| Clostridium species | 27.6 | 5.0 - 50.0 | x10 ⁶ CFU/g | |
| Enterobacter species | 64.0 *H | 1.0 - 50.0 | x10 ⁶ CFU/g | |
| Akkermansia muciniphila | 59.84 *H | 0.01 - 50.00 | x10 ³ CFU/g | |
| Faecalibacterium prausnitzii | 905.9 | 1.0 - 500000 | x10 ³ CFU/g | |

| Short Chain Fatty Acids | Result | Range | Units | |
|-------------------------------------|--------|-------------|--------|--|
| Short Chain Fatty Acids, Beneficial | 37.9 | > 13.6 | umol/g | |
| Butyrate | 17.8 | 10.8 - 33.5 | % | |
| Acetate | 50.4 | 44.5 - 72.4 | % | |
| Propionate | 30.6 | 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."

Metabolism Comment

In a healthy gut Short Chain Fatty Acids are exhibited in the following proportions;
Butyrate, Acetate, Propionate (16% : 60% : 24%)

VALERATE:

Valerate is a short chain fatty acid that is important for gut health. Although Acetate, propionate, and butyrate make up the the most abundant SCFAs in gastrointestinal tract (95%), Valerate and other SCFA's make up the remaining and work optimally when within range.

GIT Markers Comment

PANCREATIC ELASTASE: Normal exocrine pancreatic function.

Pancreatic Elastase reflects trypsin, chymotrypsin, amylase and lipase activity.

This test is not affected by supplements of pancreatic enzymes.

Healthy individuals produce on average 500 ug/g of PE-1. Thus, levels below 500 ug/g and above 200 ug/g suggest a deviation from optimal pancreatic function.

The clinician should therefore consider digestive enzyme supplementation if one or more of the following conditions is present: Loose watery stools, Undigested food in the stools, Post-prandial abdominal pain, Nausea or colicky abdominal pain, Gastroesophageal reflux symptoms, Bloating or food intolerance.

CALPROTECTIN Normal:

Faecal calprotectin values <50 ug/g are not indicative of inflammation in the gastrointestinal tract. Subjects with low faecal calprotectin levels normally do not need to be further investigated by invasive procedures.

FAECAL SECRETORY IgA:

Production of sIgA is important to the normal function of the gastrointestinal mucosa as an immune barrier.

It represents the first line immune defense of the GIT.

Elevated levels are associated with an upregulated immune response.



NutriPATH

INTEGRATIVE PATHOLOGY SERVICES

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Opportunistic Bacteria Comment

ELEVATED BACILLUS SPECIES LEVEL:

Bacillus species are spore forming, gram-positive rods belonging to the Bacillaceae family. There are currently 50 valid species within the genus.

It has been noted that some strains are used as probiotics.

Sources:

Meat dishes are a common source of infection in other species of Bacillus such as B. subtilis and B. licheniformis.

B. cereus food poisoning includes meats, pasta, vegetable dishes, desserts, cakes, sauces and milk.

Pathogenicity:

As yet, no toxins or other virulence factors have been identified in association with the symptoms that accompany non-B. cereus species.

Symptoms:

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

Treatment:

It should be noted that the level of Bacillus spp should be considered in context of clinical symptoms. The level may be neither beneficial nor pathogenic. Where present, often inadequate levels of beneficial bacteria are also noted. These organisms may become dysbiotic at high levels where treatment may become necessary.

Natural Microbials:

In high levels of Bacillus spp, a combination of berberine and plant tannins have shown a high susceptibility success for treatment.

Antibiotics:

B. species is almost always susceptible to clindamycin, erythromycin and vancomycin.

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:

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.

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.

Fungi/Yeasts Comment



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ELEVATED CANDIDA SPECIES LEVEL:

Sources:

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

Pathogenicity:

A normal inhabitant of the GI tract. May become an opportunistic pathogen after disruption of the mucosal barrier, imbalance of the normal intestinal flora and/or impaired immunity.
Risk factors for colonization include: Antibiotics, corticosteroids, antacids, H2 blockers, oral contraceptives, irradiation, GI surgery, Diabetes mellitus, burns, T cell dysfunction, chronic stress and chronic renal disease.

Symptoms:

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

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

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

Treatment:

Currently, standard texts provide no specific antifungal guidelines for GI overgrowth of Candida. Oral azoles have been recommended for extra intestinal infections. Susceptibility testing is advised due to increasing drug resistance.

Bacterial Pathogens Comment

ELEVATED YERSINIA ENTEROCOLITICA LEVEL:

Source:

Faecal contamination of ingested foods and liquids (water, undercooked pork, meats, and dairy products).

Symptoms:

Symptoms usually develop three to seven days after exposure and are self-limiting. Symptoms include water or bloody diarrhea, fever, vomiting, and abdominal pain (may resemble appendicitis). Symptoms may mimic Crohn's disease. May trigger autoimmune thyroiditis or inflammatory arthritis in susceptible individuals.

Treatment:

Consider probiotics, broad-spectrum antimicrobial herbs and follow the 4R treatment protocol. Severe infections can be treated with doxycycline in combination with an aminoglycoside. Trimethoprim-sulfamethoxazole, chloramphenicol, and rifaximin may also be useful treatments.

PLEASE NOTE:

Yersinia detection has been confirmed through a secondary PCR test. Yersinia is a Notifiable Disease in Queensland, South Australia, Western Australia and Tasmania. If applicable, the laboratory has notified the relevant state Department of Health. If applicable, the practitioner is also required to notify the state Dept of Health.



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Normal Bacterial Flora Comment

LOW BIFIDOBACTERIUM LEVEL:

Organism of the Actinobacteria phylum.

Low levels may result from low fiber intake or reduced mucosal health. Thrives on a wide variety of prebiotic fibers.

ELEVATED ENTEROBACTER SPECIES LEVEL:

Organism of the Proteobacteria phylum. Closely related to E. coli (in the same taxonomic family).

High levels may indicate increased intestinal inflammatory activity.

ELEVATED AKKERMANSIA MUCINIPHILA LEVEL:

Akkermansia muciniphila is a organism that lives in the mucus lining of your gut and uses mucus as its primary energy source. This species plays an important role in regulating mucus turnover in the gut so that there is a good balance between mucus breakdown and mucus production. Akkermansia muciniphila promotes healthy intestinal barrier and modulates immune responses.

Although research suggests that this bacterium appears to have mostly beneficial effects within the human microbiome, studies have shown it can be elevated in patients with multiple sclerosis and Parkinson's disease.



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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 |