

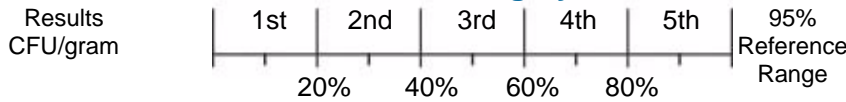
Metamatrix

3425 Corporate Way
 Duluth, GA 30096

2105 Microbial Ecology Profile

Methodology: DNA Analysis, GC/MS, Microscopic, Colorimetric, Automated Chemistry, ELISA

Percentile Ranking by Quintile



Consistency = Hard/Constipated

Predominant Bacteria E+007

Obligate anaerobes

Organism	Results	1st	2nd	3rd	4th	5th	95% Reference Range
Bacteroides sp.	1.75	1.6				6.7	>= 1.3
Clostridia sp.	2.2	1.5				6.2	>= 1.0
Prevotella sp.	2.8	1.6				6.2	>= 1.1
Fusobacteria sp.	1.4 L	1.6				7.4	>= 1.1
Streptomyces sp.	2.5	1.6				5.8	>= 1.0
Mycoplasma sp.	1.9	1.7				6.2	>= 1.2

Facultative anaerobes

Organism	Results	1st	2nd	3rd	4th	5th	95% Reference Range
Lactobacillus sp.	2.1	1.8				7.8	>= 1.2
Bifidobacter sp.	2.3	2.3				7.6	>= 1.8

Obligate aerobes

Organism	Results	1st	2nd	3rd	4th	5th	95% Reference Range
Escherichia coli	20.6	1.7				7.7	>= 1.1

Opportunistic Bacteria

Yersinia sp.	2.5E+008 H						<=1.0E+005
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Units and Reference Ranges

Organisms are detected by DNA analysis. One colony forming unit (CFU) is equivalent to one bacterium. Each genome detected represents one cell, or one CFU. Results are expressed in scientific notation, so an organism reported as 2.5 E7 CFU/gram is read as 25 million colony forming units per gram of feces. The cutoff for significance of Opportunistic Bacteria has been set at 1.0E+ 005 (100,000). These are levels above which clinically significant growth may be present. Rather than reporting semi-quantitative +1 to +4 levels, the new methodology provides full quantitative analysis.

Predominant Bacteria play major roles in health. They provide colonization resistance against potentially pathogenic organisms, aid in digestion and absorption, produce vitamins and SCFA's, and stimulate the GI immune system. DNA probes allow detection of multiple species (sp.) within a genus, so the genera that are reported cover many species.

Opportunistic Bacteria may cause symptoms and be associated with disease. They can affect digestion and absorption, nutrient production, pH and immune state. Antibiotic sensitivity tests will be performed on all opportunistic bacteria found, although clinical history is usually considered to determine treatment since the organisms are not generally considered to be pathogens.

These test results are not for the diagnosis of disease. They are intended to provide nutritional guidelines to qualified healthcare professionals with full knowledge of patient history and concerns to assist in their design of an appropriate healthcare program.

Metametrix

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Duluth, GA 30096

2105 Microbial Ecology Profile

Methodology: DNA Analysis, GC/MS, Microscopic, Colorimetric, Automated Chemistry, ELISA

Pathogenic Bacteria	95% Reference Range
Helicobacter pylori	3.2E+004 H <=1.0E+005
Campylobacter sp.	<0.01 <=1.0E+005
Clostridium difficile	<0.01 <=1.0E+005
E.H.E. coli	<0.01 <=1.0E+005

Yeast/Fungi	95% Reference Range
Rhodotorula sp.	+1 => 100 pg DNA/g specimen Neg

Parasites	95% Reference Range
Blastocystis hominis	Positive Neg
Trichuris trichiura	Positive Neg

Adiposity Index	95% Reference Range
Firmicutes	41 <= 80
Bacteroidetes	59 >= 20

Drug Resistance Genes	95% Reference Range
aacA, aphD	Pos
mecA	Neg
vanA, B, and C	Neg
gyrB, ParE	Neg
PBP1a, 2B	Neg

Yeast/Fungi

Yeast overgrowth has been linked to many chronic conditions, in part because of antigenic responses in some patients to even low rates of yeast growth. Potential symptoms include diarrhea, headache, bloating, atopic dermatitis and fatigue. Positives are reported as +1, +2, +3 or +4 indicating >100, >1000, >10000 or >100000 pg DNA/g.

Parasites

Parasite infections are a major cause of non-viral diarrhea. Symptoms may include constipation, gas, bloating, increased allergy response, colitis, nausea and distention.

The **Adiposity Index** is derived by using DN probes that detect multiple genera of the phyla Firmicutes and Bacteroidetes. Abnormalities of these phyla may be associated with increased caloric extraction from food.

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Microbial Sensitivity Profile

Bacterial Sensitivities

Pharmaceuticals

Amoxicillin	S		
Ampicillin	S		
Cefuroxime	S		
Ciprofloxacin	S		
Clindamycin	S		
Erythromycin	S		
Levofloxacin	S		
Penicillin			R
Potassium Clavula	S		
Sulfamethoxazole			R
Tetracyclin	S		
Trimethoprim-Sulfa	S		

Botanicals

5-Hydroxy-1,4-naphthoquinone Black Walnut	S		
Alliin Garlic	S		
Arbutin Uva Ursi	S		
Artemisinin Wormwood	S		
Berberine Goldenseal	S		
Caprylic acid Octanoic acid	S		
Carvacrol Oregano	S		
Oleuropein Olive Leaf	S		
Quinic acid Cats Claw			R
Thymol Oil of Thyme			R
Undecylenic acid Undecylenic acid	S		

Bacterial growth suppression is measured in a liquid growth medium where fungal growth is suppressed and specific antibacterial agents are introduced before incubation. In contrast to the old isolation and culture techniques, such universal culturing more closely approximates the actions of antibacterials in the complex milieu of the colon.

Agents marked as "**Sensitive**" cause effective bacterial growth suppression. Those antibacterial agents are candidates for suppressing the growth of bacteria in the patient's colon. The results apply to all organisms reported under "Opportunistic Bacteria".

Agents indicated as "**Resistant**" have low effectiveness. If all tested agents are resistant, synergistic mixtures of antibacterial agents may be effective.

Sensitivities are not performed on "**Pathogens**" or "**Parasites**" because they do not grow in culture under normal laboratory conditions. Standard protocols are generally used for treatment of pathogens and parasites.

For Botanical sensitivity testing the active ingredients are tested and an example of the available source is shown.

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Microbial Sensitivity Profile

Fungal Sensitivities

Pharmaceuticals

Amphotericin	S	
Fluconazole		R
Itraconazole		R
Ketoconazole	S	
Nystatin		R

Botanicals

5-Hydroxy-1,4-naphthoquinone	S	
Black Walnut		
Alliin		R
Garlic		
Arbutin	S	
Uva Ursi		
Artemisinin	S	
Wormwood		
Berberine	S	
Goldenseal		
Caprylic acid	S	
Octanoic acid		
Carvacrol	S	
Oregano		
Oleuropein	S	
Olive Leaf		
Quinic acid	S	
Cats Claw		
Thymol		R
Oil of Thyme		
Undecylenic acid	S	
Undecylenic acid		

Fungal growth suppression is measured in a liquid growth medium where bacterial growth is suppressed and specific antifungal agents are introduced before incubation. Growth inhibition is measured after incubation. In contrast to the older isolation and culture techniques, such universal culturing more closely approximates the actions of antifungals in the complex milieu of the colon.

Agents marked as "**Sensitive**" cause effective fungal growth suppression. Those antifungal agent are candidates for suppressing the growth of fungi and yeasts in the patient's colon. The results apply to all organisms reported under "Mycology".

Agents indicated as "**Resistant**" have low effectiveness and can increase the risk of inducing drug resistant organisms. If all tested agents are resistant, synergistic mixtures of antifungal agents may be effective.

Sensitivities are not performed on "**Pathogens**" or "**Parasites**" because they do not grow in culture under normal laboratory conditions. Standard protocols are generally used for treatment of pathogens and parasites.

For Botanical sensitivity testing the active ingredients are tested and an example of the available source is shown.

These test results are not for the diagnosis of disease. They are intended to provide nutritional guidelines to qualified healthcare professionals with full knowledge of patient history and concerns to assist in their design of an appropriate healthcare program.