GENOVA DIAGNOSTICS
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Ordering Physician:

John Doe, MD

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Anywhere, GA 30096

Accession #:	**A1309230356**
Order #:	**G1234567**
Reference #:	
Patient:	**Sample Report**
Date of Birth:	02/05/1962
Age:	51
Sex:	Female
Reprinted:	10/30/2013
Comment:	

Date Collected:	09/22/2013
Date Received:	09/23/2013
Date of Report:	10/29/2013
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GI fx GI Effects Stool Profiles
U.S. patent pending 2008

2200 GI Effects Comprehensive Profile

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

Consistency = Formed/Normal

Predominant Bacteria

	Results	Quintile Ranking (1st / 2nd / 3rd / 4th / 5th)	95% Reference Range
Predominant Bacteria			E+007
Obligate Anaerobes			
Bacteroides spp.	3.7	1.6 – 6.7	>= 1.3
Clostridia spp.	7.6	1.5 – 6.2	>= 1.0
Prevotella spp.	2.3	1.6 – 6.2	>= 1.1
Fusobacteria spp.	7.1	1.6 – 7.4	>= 1.1
Streptomyces spp.	2.4	1.6 – 5.8	>= 1.0
Mycoplasma spp.	3.1	1.7 – 6.2	>= 1.2
Facultative Anaerobes			
Lactobacillus spp.	3.4	1.8 – 7.8	>= 1.2
Bifidobacter spp.	4.9	2.3 – 7.6	>= 1.8
Escherichia coli (E. coli)	6.7	1.7 – 7.7	>= 1.1

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 (spp.) within a genus, so the genera that are reported cover many species.

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 E+007 CFU/gram is read as 25 million colony forming units per gram of feces.

Opportunistic Bacteria

Expected Value

No clinically significant amounts.

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.

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Yeast/Fungi

Expected Value

No clinically significant amounts.

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.

Parasitology

Microscopic Exam Results:*

Dientamoeba fragilis: Few

Parasitology EIA Tests:

	In Range	Out of Range
Cryptosporidium	Negative	
Giardia lamblia	Negative	
E. histolytica/dispar	Negative	

Parasitology
Parasite Recovery: Literature suggests that >90% of enteric parasitic infections are detected in a sample from a single stool collection. Increased sensitivity results from the collection of additional specimens on separate days. Parasites have been detected in 20-24% of U.S. patients with mild to moderate GI symptoms.

*Indicates testing performed by Genova, Inc. 63 Zillicoa St., Asheville, NC 28801-1074
A. L. Peace-Brewer, PhD, D(ABMLI), Lab Director · CLIA Lic. #34D0655571 · Medicare Lic. #34-8475

Adiposity Index

Expected Value

Firmicutes %	70		<= 80 %
Bacteroidetes %	30		>= 20 %

The **Adiposity Index** is derived by using DNA 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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	Results	Quintile Ranking (1st / 2nd / 3rd / 4th / 5th)	95% Reference Range

Beneficial SCFA

	Results	Quintile Ranking	95% Reference Range
Total SCFA	67	53	>= 35 mM/g
n-Butyrate	9.3	5.2	>= 3.9 mM/g
Acetate %	61	52 – 71	47-77 %
n-Butyrate %	14	10 – 25	7-30 %
Propionate %	24	13 – 25	10-29 %
Valerate %	1.8	1.0 – 3.6	0.4-4.6 %

Beneficial SCFA

Short chain fatty acids (SCFA) are produced by bacterial fermentation of dietary polysaccharides and fiber. The product, N-butyrate, is taken up and used to sustain the normal activity of colonic epithielial cells. Butyrate has been shown to lower the risk of colitis and colorectal cancer. A healthy balance of GI microbes depends on production of SCFA by one specie to allow the normal growth of another one in a complex cross-feeding network.

Inflammation

	Results	Quintile Ranking	95% Reference Range
Lactoferrin	2.6	3.1	<= 6.3 ug/mL
WBCs	Negative		Negative-Rare
Mucus	Negative		Negative

Inflammation

Lactoferrin, an iron-binding glycoprotein, is released in IBD but not in non-inflammatory IBS. High levels are found in Crohn's, UC or infection. WBC's are elevated in general inflammation/infection. Mucus is often visualized in acute GI inflammation.

Immunology

	Results	Quintile Ranking	95% Reference Range
Fecal sIgA	80	20 – 144	5-161 mg/dl

Immunology

High fecal sIgA indicates immune system reactions to the presence of antigens from bacteria, yeast or other microbes. Low sIgA can result from stress or malnutrition.

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Additional Tests

	Results	Quintile Ranking (1st 2nd 3rd 4th 5th)	95% Reference Range
pH	6.1	5.9 – 6.9	5.7-7.1
RBCs	Negative		Negative
Color	Brown		

Additional Tests
pH is influenced by numerous factors, but it is strongly related to the bacterial release of pH-lowering organic acids and pH-raising ammonia. Positive **RBCs** can signify GI tract bleeding. **Color** (other than brown) abnormalities can be due to upper GI bleeding, or bile duct blockage, steatorrhea or antibiotic use.

Digestion

	Results		95% Reference Range
Elastase 1	245	200	> 100 ug/g
Triglycerides	112	119	<= 181 mg/dL
Putrefactive SCFA	2.6	4.4	<= 7.4 mM/g
Vegetable Fibers	Rare		None-Few

Digestion
Pancreatic elastase 1 levels below 100 are strongly correlated with severe pancreatic insufficiency; levels of 100-200 identify moderate pancreatic insufficiency. High triglycerides signify fat maldigestion. Putrefactive SCFA are a result of bacterial fermentation of undigested protein. High numbers of vegetable fibers indicate maldigestion.

Absorption

	Results		95% Reference Range
LCFAs	23.6 H	9.1	<= 15.1 mmol/L
Total Fat	28.2 H	12.9	<= 18.9 mmol/L
Cholesterol	129	142	<= 191 mg/dL

Absorption
High **LCFA** indicates fat malabsorption due to pancreatic or biliary insufficiency, or acute bacterial infection that produces intestinal cell destruction. High total fat usually signals malabsorption, as does elevated fecal cholesterol.

*UC = Unable to Calculate

Decisions involving diagnosis and treatment are the responsibility of the clinician.