Comprehensive Digestive Stool Analysis 2.0

CDSA 2.0

Patient: BRIAN DAVIES
DOB: August 02, 1976
Sex: M
MRN: 1232068556

Order Number: F7300379
Completed: February 07, 2013
Received: January 30, 2013
Collected: January 28, 2013

Northshore Naturopathic Clinic
Brian Davies ND
156 West 3rd St
North Vancouver, BC V7M 1E8
Canada

Digestion/Absorption

Analyte	Result	Reference Range
1. Pancreatic Elastase 1 ◆	224	>= 201 mcg/g
2. Putrefactive SCFAs (Total*)	1.0	1.3-8.6 micromol/g

*Total values equal the sum of all measurable parts.

Digestion/Absorption
Digestion encompasses the functional activities of: mastication, gastric acid production, pancreatic activity, bile production and brush border maintenance. Absorption depends on all of the above actions, as well as a healthy gut mucosal barrier.

Gut Immunology

Analyte	Result	Reference Range
3. Eosinophil Protein X	0.7	<= 7.0 mcg/g
4. Calprotectin ◆	<16	<=50 mcg/g

Gut Immunology
Eosinophil Protein X (EPX) reflects IgE-mediated inflammation and tissue damage and can be elevated in celiac disease, collagenous colitis, helminthic/parasitic infection, and IgE mediated food allergies. Elevated EPX requires further diagnostic testing to determine the cause. Calprotectin is a neutrophilic marker specific for inflammation in the gastrointestinal tract. It is elevated with infection, post-infectious IBS, and NSAID enteropathy. Fecal calprotectin can be used to differentiate IBD vs. IBS, to monitor treatment in IBD, and to determine which patients should be referred for endoscopy and/or colonoscopy. Levels between 50-120 should be repeated at 4-6 weeks and confirmed.

Metabolic

Analyte	Result	Reference Range
5. Beneficial SCFAs (Total*)	34.4	>= 13.6 micromol/g
6. n-Butyrate	7.1	>= 2.5 micromol/g
7. pH	6.1	6.1-7.9
8. Beta-glucuronidase	3,082	337-4,433 U/g
Secondary Bile Acids		
9. Lithocholic acid (LCA)	1.63	0.65-5.21 mg/g
10. Deoxycholic acid (DCA)	1.79	0.67-6.76 mg/g
11. LCA / DCA Ratio	0.91	0.39-2.07

*Total values equal the sum of all measurable parts.

Metabolic
Gut metabolism is representative of the bacterial milieu, primarily through the presence of commensal bacteria. Metabolic activities include: mucous production, vitamin synthesis and absorption, deconjugation of steroid hormones and bile acids, fat regulation, and SCFA metabolism. These metabolic activities require a normal population of commensal bacteria without active bacterial, viral, or parasitic infection.

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Asheville, NC 28801

Microbiology

Bacteriology

12. Beneficial Bacteria

Lactobacillus species	4+
Escherichia coli	2+
Bifidobacterium	4+

13. Additional Bacteria

gamma haemolytic Streptococcus	NP	4+
alpha haemolytic Streptococcus	NP	4+
Klebsiella oxytoca	PP	4+
Enterobacter cloacae	PP	4+
Bacillus species	NP	1+
Staphylococcus aureus	NP	1+

14. Mycology

*NG *NG

Human microflora is influenced by environmental factors and the competitive ecosystem of the organisms in the GI tract. Pathological significance should be based upon clinical symptoms and reproducibility of bacterial recovery.

*NG	NP	PP	P
*NG			
No Growth	Non-Pathogen	Potential Pathogen	Pathogen

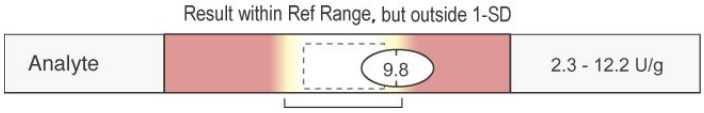
Lab Comments

SENSI'S: All yeast, add'l bacteria

Microbiology
The Markers in this section reflect the bacteriological status of the gut.
Beneficial bacteria Beneficial flora controls potentially pathogenic organisms, influences nutrient production, removes toxins from the gut and stimulates the intestinal immune system (GALT). The composition of the colonic flora is affected by diet, transit time, stool pH, age, microbial interactions, colonic availability of nutrients, bile acids, sulfate and the ability of the microbes to metabolize these substrates. Ideally, levels of Lactobacilli and E. coli should be 2+ or greater. Bifidobacteria being a predominate anaerobe should be recovered at levels of 4+.

Additional bacteria
Non-pathogen: Organisms that fall under this category are those that constitute normal, commensal flora, or have not been recognized as etiological agents of disease.
Potential Pathogen: Organisms that fall under this category are considered potential or opportunistic pathogens when present in heavy growth.
Pathogen: The organisms that fall under this category are well-recognized pathogens in clinical literature that have a clearly recognized mechanism of pathogenicity and are considered significant regardless of the quantity that appears in culture.
Mycology: Organisms that fall under this category constitute part of the normal colonic flora when present in small numbers. They may, however, become potential pathogens after disruption of the mucosal lining, which enables fungi to colonize and establish a local infection.

The **Reference Range** is a statistical interval representing 95% or 2 Standard Deviations (2 S.D.) of the reference population. One Standard Deviation (1 S.D.) is a statistical interval representing 68% of the reference population. Values between 1 and 2 S.D. are not necessarily abnormal. Clinical correlation is suggested. (See example below)



Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or treatment recommendations. Diagnosis and treatment decisions are the responsibility of the practitioner.

The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ◆ as cleared by the U.S. Food and Drug Administration, assays are For Research Use Only.

Bacterial Sensitivity

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Prescriptive Agents

KLEBSIELLA OXYTOCA

	S	I	R
Ampicillin			R
Amox./Clavulanic Acid	S		
Cephalothin	S		
Ciprofloxacin	S		
Tetracycline	S		
Trimethoprim/Sulfa	S		

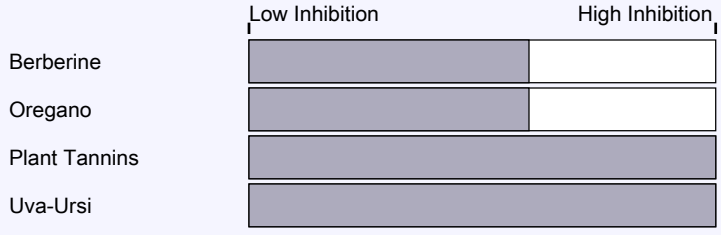
S Indicates susceptibility to prescriptive agents

I Indicates intermediate susceptibility to prescriptive agents

R Indicates resistance to prescriptive agents

Natural Agents

KLEBSIELLA OXYTOCA



Prescriptive Agents:
Microbial testing has been performed in vitro to determine antibiotic sensitivity and resistance at standard dosages. Prudent use of antimicrobials requires knowledge of appropriate blood or tissue levels of those agents. Antibiotics that appear in the "S" (susceptible) column are more effective at inhibiting the growth of this organism. Antibiotics that appear in the "I" (intermediate) column are partially effective at inhibiting the growth of this organism. Antibiotics that appear in the "R" (resistant) column allow continued growth of the organism in vitro and are usually less effective clinically. Inappropriate use of antibacterials often results in the emergence of resistance.

Natural Agents:
In this assay, "inhibition" is defined as the reduction level on organism growth as a direct result of inhibition by a natural substance. The level of inhibition is an indicator of how effective the natural substance was at limiting the growth of an organism in an in vitro environment. High inhibition indicates a greater ability by the natural substance to limit growth, while Low Inhibition a lesser ability to limit growth. These natural products should be considered investigational in nature and not be viewed as standard clinical treatment substances.

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Parasitology

Microscopic Exam Results:

No Ova or Parasites seen

PARASITOLOGY EIA TESTS:

	In Range	Out of Range
Cryptosporidium	Negative	
Giardia lamblia	Negative	
Entamoeba histolytica/dispar	Negative	

Parasitology

Optimized Parasite Recovery (OPR) is a technique used by Genova Diagnostics Inc. that involves combining multiple stool specimens submitted from the same patient for intestinal parasite examination as compared to individual sample evaluation. Research demonstrates that this method increases parasite recovery.

Data from analysis shows that parasites are detected in 22% of samples submitted to Genova Diagnostics Inc. This implies that a significant portion of the population suffers from infection with parasites, many of whom experience minimal gastrointestinal symptoms.