sample type: **STOOL**

CDSA 2.0 Comprehensive Digestive Stool Analysis 2.0

The Comprehensive Digestive Stool Analysis 2.0 (CDSA 2.0) is the most advanced non-invasive evaluation of specific gastrointestinal imbalances. In addition to identifying general dysfunction, this assay provides direct measures to pinpoint the diagnosis and treatment of patients with many digestive conditions such as Irritable Bowel Syndrome (IBS) and Inflammatory Bowel Disease (IBD).

Digestive complaints are among the most common reasons that individuals seek medical care. Recent evidence now confirms that GI abnormalities are associated with many conditions outside the GI tract.

General GI Dysfunction:	Extra-intestinal Indications:	Specific GI Indications:
Indigestion	Osteoporosis	Post Inflammatory IBS
Constipation	Diabetes	Crohns Disease or Ulcerative Colitis (IBD)
Diarrhea	Arthritis	Family history of IBD
Gas and Bloating	Autoimmune disease	Family history of Gastrointestinal cancers
Recent use of antibiotics	Fibromyalgia	Pancreatic Insufficiency
GI infection/Dysbiosis	Chronic Fatigue	Gallstones
	Abdominal Pain	

Digestion/Absorption Markers:

(Pancreatic Elastase, Putrefactive SCFAs, n-Butyrate)

- Direct measure of Pancreatic Digestive Enzyme output without interference from digestive supplements, changes in stool transit time or marker variability. Low levels of digestive enzyme output are associated with intestinal and Extra-intestinal conditions.

Gut Immunology Markers:

(Calprotectin, Eosinophil Protein X)

- This quantitative analysis identifies mild, moderate or severe inflammation within the GI tract. Elevations of these markers are associated with infection (bacterial, viral, & parasitic), food allergy, NSAID enteropathy, IBD and neoplasia.
- GI inflammation is associated with Intestinal and Extra-intestinal conditions.

Metabolic Markers:

(Short Chain Fatty Acids, pH, Beta-glucuronidase, Bile Acids)

- Abnormal levels of Short Chain Fatty Acids may indicate alterations in gut flora, insufficient dietary fiber, altered transit time and small bowel bacteria overgrowth.
- The chemistry markers identify imbalances that are associated with increased toxic burden within the colon, increasing long-term risk for colon and breast cancers.

Microbiology Markers:

(Bacteriology, Mycology)

- Quantitative measures of the beneficial flora Lactobacillus and Bifidobacterium
- Quantitative measures of additional flora, including strict pathogenic bacteria and potentially pathogenic and bacteria and yeast.
- An imbalance in GI flora is associated with Intestinal and Extra-intestinal conditions.

Parasitology:

(EIA and microscopic evaluation)

- With the highest documented recovery rates (22% positivity rate), this Parasitology exam quantifies all ova and parasites identified.
- Includes microscopic evaluation for yeast and blood cells.

- ***Analytes:***
  Pancreatic Elastase 1
  Putrefactive SCFAs
  Short Chain Fatty Acids
  n-Butyrate
  Calprotectin
  Eosinophil Protein X
  pH
  Beta-glucuronidase
  Bile Acids
  Bacteriology
  Mycology
  EIA
  microscopic evaluation

- ***Specimen Requirement:***
  5cc stool in each vial–3 SAF, 2 Cary Blair, 1 Formalin; 40ml stool in yellow-top cup; 20 ml stool in clean vial. May be random stool or purge.

- ***Before Patient Takes this Test:***
  - Avoid antibiotics, antifungals, laxatives, and anti-diarrheals (for 3 days)
  - Avoid use of non-steroidal anti-inflammatories (for 2 days)
  - See instructions inside test kit for more details

Genova Diagnostics®
Improving Healthcare for Chronic Disease

Comprehensive Digestive Stool Analysis 2.0

CDSA 2.0

Patient: **SAMPLE PATIENT**
Age: 56
Sex: M
MRN:

Order Number:
Completed: June 27, 2007
Received: June 21, 2007
Collected: June 20, 2007

Digestion/Absorption

Analyte	Result	Reference Range
1. Pancreatic Elastase 1	284	>= 201 mcg/g
2. Putrefactive SCFAs (Total*)	4.6	1.3-8.6 micromol/g

*Total values equal the sum of all measurable parts.

Gut Immunology

Analyte	Result	Reference Range
3. Eosinophil Protein X	>22.6	<= 7.0 mcg/g
4. Calprotectin	>500	<= 50 mcg/g

Metabolic

Analyte	Result	Reference Range
5. Beneficial SCFAs (Total*)	115.3	>= 13.6 micromol/g
6. n-Butyrate	21.3	>= 2.5 micromol/g
7. pH	5.7	6.1-7.9
8. Beta-glucuronidase	317	337-4,433 U/g
Bile Acids		
9. Lithocholic acid (LCA)	1.30	0.65-5.21 mg/g
10. Deoxycholic acid (DCA)	1.25	0.67-6.76 mg/g
11. LCA / DCA Ratio	1.04	0.39-2.07

*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
These immune markers are derived from the activation and degranulation of eosinophils (EPX) and neutrophils (calprotectin). EPX reflects inflammation and tissue damage and can be elevated in food allergies, celiac disease, helminthic infection, IBD and cancer. Calprotectin is inflammation specific and can elevate with infection or post infectious IBS, NSAID enteropathy, IBD and cancer. Children with chronic diarrhea from cows milk allergy or multiple food allergies may also have increased calprotectin.

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.

This test reveals important information about:

- ***Calprotectin*** *as an important marker of gastrointestinal inflammation. It can help to distinguish IBD & IBS, as well as other inflammatory conditions.*
- ***Pancreatic Elastase*** *to distinguish maldigestion from pancreatic versus gastric sources.*
- ***Decreased exocrine pancreatic function*** *is linked to gallstones, diabetes, osteoporosis, and autoimmune diseases.*
- ***Gastrointestinal tract inflammation*** *occurring in response to food allergy, protein-sensitive enteropathy, helminthic infection, IBD, allergic colitis, or neoplasm.*
- ***Bile Acids*** *play an important role in fat emulsion and fat absorption. High levels of some bile acids are associated with increased toxin buildup, increased risk of gallstones, and gastro-intestinal neoplasms.*

Genova Diagnostics
Improving Healthcare for Chronic Disease

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CD201 RMS 2505 Rev 5

For test kits, clinical support, or more information contact:

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More detailed publications with references are also available: www.GDX.net