

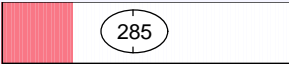



Patient: **SAMPLE**
REPORT
DOB: May 10, 2001
Sex: M

Completed: May 08, 2009
Received: April 23, 2009
Collected: April 18, 2009

Genova Diagnostics Europe
Referring Laboratory
Parkgate House
356 West Barnes Lane
New Malden, Surrey KT3 6NB
Great Britain and Northern Ireland

Digestion/Absorption



| Analyte | Result | Reference Range |
|---------------------------------------|---|--------------------|
| 1. Pancreatic Elastase 1 [♦] |  | >= 201 mcg/g |
| 2. Putrefactive SCFAs (Total*) |  | 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.

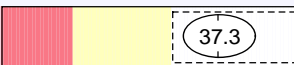
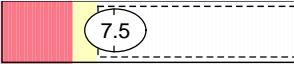
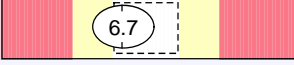

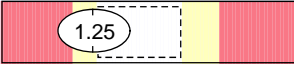

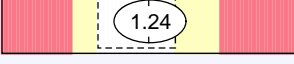
Gut Immunology

| Analyte | Result | Reference Range |
|-------------------------|---|-----------------|
| 3. Eosinophil Protein X |  | <= 7.0 mcg/g |
| 4. Calprotectin |  | <= 50 mcg/g |

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. Levels greater than 120 mcg/g warrant further investigation.

Metabolic

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

Microbiology

Bacteriology

12. Beneficial Bacteria

| | | |
|-----------------------|--|------|
| Lactobacillus species | | (2+) |
| Escherichia coli | | (4+) |
| Bifidobacterium | | (4+) |

13. Additional Bacteria

| | | |
|--------------------------------|----|------|
| gamma haemolytic Streptococcus | NP | (3+) |
| Pseudomonas aeruginosa | PP | (4+) |

14. Mycology

| | | |
|----------------------|----|------|
| Candida parapsilosis | PP | (3+) |
| Trichosporon species | NP | (1+) |

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

No Growth

NP

Non-Pathogen

PP

Potential Pathogen

P

Pathogen

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

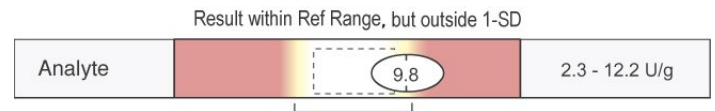
Non-pathogen: Organisms that fall under this category are those that constitute normal, commensal flora, or have not been recognized as etiological agents of disease.

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.

Lab Comments

SENSI'S: All yeast, add'I bacteria

Additional Tests

| | In Range | Out of Range |
|---------------------------|----------|--------------|
| 16. Shiga toxin E. coli ♦ | Negative | |
| 17. Campylobacter ♦ | Negative | |

Shiga toxin E. coli

Shiga toxin-producing Escherichia coli (STEC) is a group of bacterial strains that have been identified as worldwide causes of serious human gastrointestinal disease. The subgroup enterohemorrhagic E. coli includes over 100 different serotypes, with O157:H7 being the most significant, as it occurs in over 80% of all cases. The pathogen is transmitted primarily by food, in particular dairy and beef cattle.

Campylobacter

Campylobacter jejuni is the most frequent cause of bacterial-induced diarrhea. While transmission can occur via the fecal-oral route, infection is primarily associated with the ingestion of contaminated and poorly cooked foods of animal origin, notably, red meat and milk.

Bacterial Sensitivity

Patient: **SAMPLE
REPORT**

Completed: May 08, 2009

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Sex: M





Collected: April 18, 2009

| Prescriptive Agents | | | |
|------------------------|--------------------------------|----------------------|--------------------------------|
| PSEUDOMONAS AERUGINOSA | | | |
| | S | I | R |
| Ciprofloxacin | <input type="text" value="S"/> | <input type="text"/> | <input type="text"/> |
| Tetracycline | <input type="text"/> | <input type="text"/> | <input type="text" value="R"/> |
| Ticarcillin/CA | <input type="text" value="S"/> | <input type="text"/> | <input type="text"/> |
| Trimethoprim/Sulfa | <input type="text"/> | <input type="text"/> | <input type="text" value="R"/> |

S Indicates susceptibility to prescriptive agents
I Indicates intermediate susceptibility to prescriptive agents
R Indicates resistance to prescriptive agents

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 | |
|------------------------|---|
| PSEUDOMONAS AERUGINOSA | |
| | Low Inhibition High Inhibition |
| Berberine |  |
| Oregano |  |
| Plant Tannins |  |
| Uva-Ursi |  |

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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Asheville, NC 28801-1074

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SEN2 RMS 38 Rev 4

Yeast Sensitivity

Patient: **SAMPLE**
REPORT

Completed: May 08, 2009

Received: April 23, 2009

Sex: M

Collected: April 18, 2009

| Azole Antifungals | | | |
|----------------------|--------|---|---|
| CANDIDA PARAPSILOSIS | | | |
| | S | I | R |
| Fluconazole | =0.5 | | |
| Itraconazole | =0.25 | | |
| Ketoconazole | =0.125 | | |

S Indicates susceptibility to prescriptive agents
I Indicates intermediate susceptibility to prescriptive agents
R Indicates resistance to prescriptive agents

Azole Antifungals:

Microbial testing has been performed in vitro to determine antifungal sensitivity and resistance at standard dosages. Prudent use of antimicrobials requires knowledge of appropriate blood or tissue levels of those agents. Antifungals that appear in the "S" (susceptible) column are more effective at inhibiting the growth of this organism.

Antifungals that appear in the "I" (intermediate) column are partially effective at inhibiting the growth of this organism. Antifungals that appear in the "R" (resistant) column allow continued growth of the organism in vitro and are usually less effective clinically.

Inappropriate use of antifungals often results in the emergence of resistance.

| Non-absorbed Antifungals | |
|--------------------------|----------------------------------|
| CANDIDA PARAPSILOSIS | |
| | Low Inhibition High Inhibition |
| Nystatin | |

Nystatin and Natural Antifungals:

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. In accordance with laboratory guidelines for reporting sensitivities, results for Nystatin are now being reported with natural antifungals in this category.

| Natural Antifungals | |
|----------------------|----------------------------------|
| CANDIDA PARAPSILOSIS | |
| | Low Inhibition High Inhibition |
| Berberine | |
| Caprylic Acid | |
| Garlic | |
| Undecylenic Acid | |
| Plant tannins | |
| Uva-Ursi | |



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SEN3 RMS 65 Rev 3

Yeast Sensitivity

Patient: **SAMPLE**
REPORT

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Received: April 23, 2009

Sex: M

Collected: April 18, 2009

| Azole Antifungals | | | |
|----------------------|------|------|---|
| TRICHOSPORON SPECIES | | | |
| | S | I | R |
| Fluconazole | =1.0 | | |
| Itraconazole | | =0.5 | |
| Ketoconazole | =0.5 | | |


S Indicates susceptibility to prescriptive agents
I Indicates intermediate susceptibility to prescriptive agents
R Indicates resistance to prescriptive agents

Azole Antifungals:

Microbial testing has been performed in vitro to determine antifungal sensitivity and resistance at standard dosages. Prudent use of antimicrobials requires knowledge of appropriate blood or tissue levels of those agents. Antifungals that appear in the "S" (susceptible) column are more effective at inhibiting the growth of this organism.







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| Non-absorbed Antifungals | |
|--------------------------|---|
| TRICHOSPORON SPECIES | |
| | Low Inhibition High Inhibition |
| Nystatin |  |

Nystatin and Natural Antifungals:

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| Natural Antifungals | |
|----------------------|---|
| TRICHOSPORON SPECIES | |
| | Low Inhibition High Inhibition |
| Berberine |  |
| Caprylic Acid |  |
| Garlic |  |
| Undecylenic Acid |  |
| Plant tannins |  |
| Uva-Ursi |  |



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