



Patient: **EMILY**  
**TEST**  
DOB: December 31, 1980  
Sex: F  
MRN: 0001558266

**Order Number: M9301014**  
Completed: January 31, 2019  
Received: January 30, 2019  
Collected: January 30, 2019


Test Office  
Test PROD Test MD, DO, ND  
84 Peachtree Road  
Between 85th & 86th St Ste 1B  
Asheville, NC 28803

**2207 GI Effects™ Gut Pathogen Profile - Stool**

**Interpretation At-a-Glance**


**Parasitology**

*Dientamoeba fragilis*  
*Blastocystis* spp.




**Bacteriology**

HpSA - *H. pylori*  
*Yersinia enterocolitica*  
PP Bacteria ▲



**Mycology**

PP Yeast/Fungi ▲  
KOH Preparation ▲



See individual sections for detailed results

**Parasitology**

**PCR Parasitology - Protozoa**

Methodologies: DNA by PCR, Next Generation Sequencing

Organism	Result	Units		Expected Result
<i>Blastocystis</i> spp.	6.00e2	femtograms/microliter Cary Blair stool	<b>Detected</b>	Not Detected
<i>Cryptosporidium</i> spp.	<4.87e2	genome copies/microliter Cary Blair stool	Not Detected	Not Detected
<i>Cyclospora cayetanensis</i>	<2.65e2	genome copies/microliter Cary Blair stool	Not Detected	Not Detected
<i>Dientamoeba fragilis</i>	8.00e2	genome copies/microliter Cary Blair stool	<b>Detected</b>	Not Detected
<i>Entamoeba histolytica</i>	<1.14e3	genome copies/microliter Cary Blair stool	Not Detected	Not Detected
<i>Giardia</i>	<1.57e2	genome copies/microliter Cary Blair stool	Not Detected	Not Detected

***Blastocystis* spp. Reflex Subtyping**

Type 1: <b>Not Detected</b>	Type 4: <b>Not Detected</b>	Type 7: <b>Not Detected</b>
Type 2: <b>Detected</b>	Type 5: <b>Not Detected</b>	Type 8: <b>Not Detected</b>
Type 3: <b>Not Detected</b>	Type 6: <b>Not Detected</b>	Type 9: <b>Not Detected</b>

A not applicable (N/A) result for *Blastocystis* reflex subtyping indicates the test was not performed because *Blastocystis* spp. is negative.



## Gastrointestinal Microbiome

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

Microbiology Legend			
<b>NG</b>	<b>NP</b>	<b>PP</b>	<b>P</b>
<b>No Growth</b>	<b>Non-Pathogen</b>	<b>Potential Pathogen</b>	<b>Pathogen</b>

### 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 have a well-recognized mechanism of pathogenicity in clinical literature and are considered significant regardless of the quantity that appears in the culture.

### Bacteriology (Culture)

*Lactobacillus spp.*

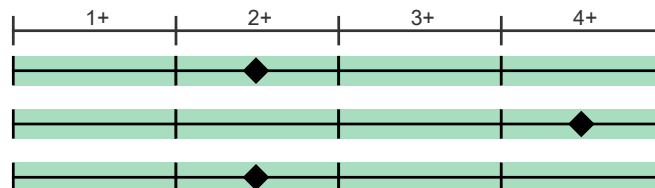
2+ NP

*Escherichia coli*

4+ NP

*Bifidobacterium*

2+ NP



### Additional Bacteria

*alpha haemolytic Streptococcus*

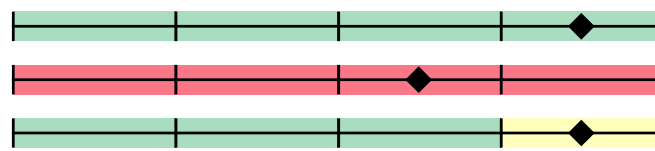
4+ NP

*Yersinia enterocolitica*

3+ P

*Proteus mirabilis*

4+ PP



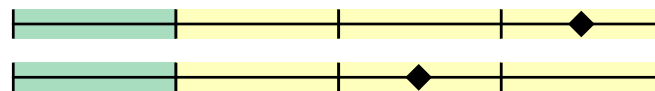
### Mycology (Culture)

*Candida species*

4+ PP

*Candida albicans*

3+ PP



## KOH Preparation for Yeast

Methodology: Potassium Hydroxide (KOH) Preparation for Yeast

### Potassium Hydroxide (KOH) Preparation for Yeast

These yeast usually represent the organisms isolated by culture. In the presence of a negative yeast culture, microscopic yeast may reflect organisms not viable enough to grow in culture. The presence of yeast on KOH prep should be correlated with the patient's symptoms. However, moderate to many yeast suggests yeast overgrowth.

#### Result

KOH Preparation, stool

Moderate Yeast Present

The result is reported as the amount of yeast seen microscopically:

- Rare: 1-2 per slide
- Few: 2-5 per high power field (HPF)
- Moderate: 5-10 per HPF
- Many: >10 per HPF



## Parasitology

### Microscopic O&P Results

Microscopic O&P is capable of detecting all described gastrointestinal parasites. The organisms listed in the box represent those commonly found in microscopic stool analysis. Should an organism be detected that is not included in the list below, it will be reported in the Additional Results section. For an extensive reference of all potentially detectable organisms, please visit

[www.gdx.net/product/gi-effects-comprehensive-stool-test](http://www.gdx.net/product/gi-effects-comprehensive-stool-test)

Genus/species	Result
<b>Nematodes - roundworms</b>	
<i>Ancylostoma/Necator</i> (Hookworm)	Not Detected
<i>Ascaris lumbricoides</i>	Not Detected
<i>Capillaria philippinensis</i>	Not Detected
<i>Enterobius vermicularis</i>	Not Detected
<i>Strongyloides stercoralis</i>	Not Detected
<i>Trichuris trichiura</i>	Not Detected
<b>Cestodes - tapeworms</b>	
<i>Diphyllobothrium latum</i>	Not Detected
<i>Dipylidium caninum</i>	Not Detected
<i>Hymenolepis diminuta</i>	Not Detected
<i>Hymenolepis nana</i>	Not Detected
<i>Taenia</i> spp.	Not Detected
<b>Trematodes - flukes</b>	
<i>Clonorchis/Opisthorchis</i> spp.	Not Detected
<i>Fasciola</i> spp./ <i>Fasciolopsis buski</i>	Not Detected
<i>Heterophyes/Metagonimus</i>	Not Detected
<i>Paragonimus</i> spp.	Not Detected
<i>Schistosoma</i> spp.	Not Detected
<b>Protozoa</b>	
<i>Balantidium coli</i>	Not Detected
<i>Blastocystis</i> spp.	<b>Few Detected</b>
<i>Chilomastix mesnili</i>	Not Detected
<i>Cryptosporidium</i> spp.	Not Detected
<i>Cyclospora cayetanensis</i>	Not Detected
<i>Dientamoeba fragilis</i>	<b>Moderate Detected</b>
<i>Entamoeba coli</i>	Not Detected
<i>Entamoeba histolytica/dispar</i>	Not Detected
<i>Entamoeba hartmanii</i>	Not Detected
<i>Entamoeba polecki</i>	Not Detected
<i>Endolimax nana</i>	Not Detected
<i>Giardia</i>	Not Detected
<i>Iodamoeba buetschlii</i>	Not Detected
<i>Cystoisospora</i> spp.	Not Detected
<i>Trichomonads</i> (e.g. <i>Pentatrichomonas</i> )	Not Detected
<b>Additional Findings</b>	
White Blood Cells	Not Detected
Charcot-Leyden Crystals	Not Detected
<b>Other Infectious Findings</b>	



## Macroscopic Exam for Worms

Methodology: Macroscopic Evaluation

No larvae seen macroscopically.

## Add-on Testing

Methodology: EIA

	Result	Expected Value	
HpSA - <i>H. pylori</i>	Positive	Negative	<p><b>HpSA (<i>Helicobacter pylori</i> stool antigen)</b></p> <p><i>Helicobacter pylori</i> is a bacterium which causes peptic ulcer disease and plays a role in the development of gastric cancer. Direct stool testing of the antigen (HpSA) is highly accurate and is appropriate for diagnosis and follow-up of infection.</p>
<i>Campylobacter</i> spp. ♦	Negative	Negative	<p><b><i>Campylobacter</i> spp.</b></p> <p><i>Campylobacter jejuni</i> 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.</p>
<i>Clostridium difficile</i> ♦	Negative	Negative	<p><b><i>Clostridium difficile</i></b></p> <p><i>Clostridium difficile</i> is an anaerobic, spore-forming gram-positive bacterium. After a disturbance of the gut flora (usually with antibiotics), colonization with <i>Clostridium difficile</i> can take place. <i>Clostridium difficile</i> infection is much more common than once thought.</p>
Shiga toxin <i>E. coli</i> ♦	Negative	Negative	<p><b>Shiga toxin <i>E. coli</i></b></p> <p>Shiga toxin-producing <i>Escherichia coli</i> (STEC) is a group of bacterial strains that have been identified as worldwide causes of serious human gastrointestinal disease. The subgroup enterohemorrhagic <i>E. coli</i> includes over 100 different serotypes, with 0157:H7 being the most significant, as it occurs in over 80% of all cases. Contaminated food continues to be the principal vehicle for transmission; foods associated with outbreaks include alfalfa sprouts, fresh produce, beef, and unpasteurized juices.</p>

## Lab Comments

Tests were developed and their performance characteristics determined by Genova Diagnostics. Unless otherwise noted with ♦, the assays have not been cleared by the U.S. Food and Drug Administration.



## Bacteria Sensitivity

### Prescriptive Agents

<i>Proteus mirabilis</i>	R	I	S-DD	S	NI
Ampicillin	R				
Amox./Clavulanic Acid				S	
Cephalothin				S	
Ciprofloxacin				S	
Tetracycline	R				
Trimethoprim/Sulfa				S	

### Natural Agents

<i>Proteus mirabilis</i>	LOW INHIBITION	HIGH INHIBITION
Berberine		
Oregano		
Plant Tannins		
Uva-Ursi		

**Prescriptive Agents:**

The R (Resistant) category implies isolate is not inhibited by obtainable levels of pharmaceutical agent.

The I (Intermediate) category includes isolates for which the minimum inhibition concentration (MIC) values usually approach obtainable pharmaceutical agent levels and for which response rates may be lower than for susceptible isolates.

The S-DD (Susceptible-Dose Dependent) category implies clinical efficacy when higher than normal dosage of a drug can be used and maximal concentration achieved.

The S (Susceptible) column implies that isolates are inhibited by the usually achievable concentrations of the pharmaceutical agent.

NI (No Interpretive guidelines established) category is used for organisms that currently do not have established guidelines for MIC interpretation.

Refer to published pharmaceutical guidelines for appropriate dosage therapy.

**Natural Agents:**

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



## Bacteria Sensitivity

### Prescriptive Agents

<i>Yersinia enterocolitica</i>	R	I	S-DD	S	NI
Ampicillin	R				
Amox./Clavulanic Acid	R				
Cephalothin	R				
Ciprofloxacin				S	
Tetracycline				S	
Trimethoprim/Sulfa				S	

### Natural Agents

<i>Yersinia enterocolitica</i>	LOW INHIBITION	HIGH INHIBITION
Berberine		
Oregano		
Plant Tannins		
Uva-Ursi		

**Prescriptive Agents:**

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## Mycology Sensitivity

### Azole Antifungals

<i>Candida albicans</i>	R	I	S-DD	S	NI
Fluconazole				0.25	
Voriconazole				<=0.008	

### Non-absorbed Antifungals

<i>Candida albicans</i>	LOW INHIBITION	HIGH INHIBITION
Nystatin		

### Natural Agents

<i>Candida albicans</i>	LOW INHIBITION	HIGH INHIBITION
Berberine		
Caprylic Acid		
Garlic		
Undecylenic Acid		
Plant tannins		
Uva-Ursi		

**Prescriptive Agents:**

The R (Resistant) category implies isolate is not inhibited by obtainable levels of pharmaceutical agent.

The I (Intermediate) category includes isolates for which the minimum inhibition concentration (MIC) values usually approach obtainable pharmaceutical agent levels and for which response rates may be lower than for susceptible isolates.

The S-DD (Susceptible-Dose Dependent) category implies clinical efficacy when higher than normal dosage of a drug can be used and maximal concentration achieved.

The S (Susceptible) column implies that isolates are inhibited by the usually achievable concentrations of the pharmaceutical agent.

NI (No Interpretive guidelines established) category is used for organisms that currently do not have established guidelines for MIC interpretation.

Refer to published pharmaceutical guidelines for appropriate dosage therapy.

**Nystatin and Natural Agents:**

Results for Nystatin are being reported with natural antifungals in this category in accordance with laboratory guidelines for reporting sensitivities. 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 substance was at limiting the growth of an organism in an in vitro environment. High inhibition indicates a greater ability by the substance to limit growth, while Low Inhibition a lesser ability to limit growth. The designated natural products should be considered investigational in nature and not be viewed as standard clinical treatment substances.



## Mycology Sensitivity

### Azole Antifungals

<i>Candida species</i>	R	I	S-DD	S	NI
Fluconazole					128
Voriconazole					0.25

### Non-absorbed Antifungals

<i>Candida species</i>	LOW INHIBITION	HIGH INHIBITION
Nystatin		

### Natural Agents

<i>Candida species</i>	LOW INHIBITION	HIGH INHIBITION
Berberine		
Caprylic Acid		
Garlic		
Undecylenic Acid		
Plant tannins		
Uva-Ursi		

**Prescriptive Agents:**

The R (Resistant) category implies isolate is not inhibited by obtainable levels of pharmaceutical agent.

The I (Intermediate) category includes isolates for which the minimum inhibition concentration (MIC) values usually approach obtainable pharmaceutical agent levels and for which response rates may be lower than for susceptible isolates.

The S-DD (Susceptible-Dose Dependent) category implies clinical efficacy when higher than normal dosage of a drug can be used and maximal concentration achieved.

The S (Susceptible) column implies that isolates are inhibited by the usually achievable concentrations of the pharmaceutical agent.

NI (No Interpretive guidelines established) category is used for organisms that currently do not have established guidelines for MIC interpretation.

Refer to published pharmaceutical guidelines for appropriate dosage therapy.

**Nystatin and Natural Agents:**

Results for Nystatin are being reported with natural antifungals in this category in accordance with laboratory guidelines for reporting sensitivities. 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 substance was at limiting the growth of an organism in an in vitro environment. High inhibition indicates a greater ability by the substance to limit growth, while Low Inhibition a lesser ability to limit growth. The designated natural products should be considered investigational in nature and not be viewed as standard clinical treatment substances.