GENOVA DIAGNOSTICS

63 Zillicoa Street
Asheville, NC 28801

Patient:

2300 Microbiology Analysis Profile - Stool

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

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

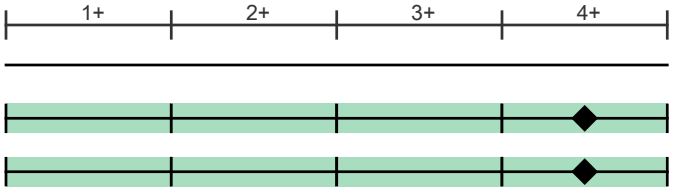
Additional Bacteria

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.		NG
Escherichia coli	4+	NP
Bifidobacterium (Anaerobic Culture)	4+	NP

Additional Bacteria

Salmonella spp.		NG
Shigella spp.		NG
alpha haemolytic Streptococcus	1+	NP
Klebsiella pneumoniae	4+	PP
gamma haemolytic Streptococcus	4+	NP

Mycology (Culture)

Candida albicans	3+	PP

OPTIONAL ADD-ON

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	No 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

Additional Results

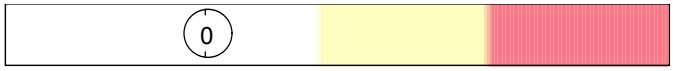
Methodology: EIA

	Result	Expected Result
Campylobacter specific antigen ◆	Negative	Negative
Enterohemorrhagic Escherichia coli Shiga-like Toxin ◆	Negative	Negative

OPTIONAL ADD-ON

Calprotectin

Methodology: EIA

	Result	Reference Range
Calprotectin *		<50 mcg/g

* If the patient's result is less than the functional sensitivity (FS) of the assay, then the FS is used for calculation purposes.

Commentary

Methodology: MALDI-TOF MS, Automated and Manual Biochemical Methods, Vitek 2® System Microbial identification and Antibiotic susceptibility, ELISA and EIA.
The performance characteristics of all assays have been verified by Genova Diagnostics, Inc. Unless otherwise noted with ◆, the assay has not been cleared by the U.S. Food and Drug Administration.

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

Sufficient amounts of Bifidobacteria and E. coli appear to be present in the stool. However, Lactobacilli is below optimal levels. These bacteria are known to exert positive local and systemic effects in the microbiome. Lower levels of these beneficial bacteria have been associated with disease.

Klebsiella bacteria are considered commensal but act as opportunistic bacteria in the GI tract. They can asymptomatically colonize the GI tract. However, depending on host factors, they may cause diarrhea. Ankylosing spondylitis and Crohn’s disease have been shown to be triggered by Klebsiella due to cross-reactivity in HLA-B27 genetically susceptible patients.

A 3+ growth of Candida is greater than normal. Due to the heterogeneity of fecal material, it may occur in normal stools. It could, however, reflect a condition of yeast overgrowth, depending on the patient’s clinical presentation.

Methodology: Vitek 2® System Microbial Antibiotic susceptibility, Manual Minimum Inhibition Concentration

Bacteria Sensitivity

Prescriptive Agents

Klebsiella pneumoniae	R	I	S-DD	S	NI
Ampicillin	R				
Amox./Clavulanic Acid				S	
Cephalothin				S	
Ciprofloxacin				S	
Tetracycline				S	
Trimethoprim/Sulfa				S	

Natural Agents

Klebsiella pneumoniae	LOW INHIBITION	HIGH INHIBITION
Berberine		
Oregano		
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.

Methodology: Vitek 2® System Microbial Antibiotic susceptibility, Manual Minimum Inhibition Concentration

Mycology Sensitivity

Candida Susceptibility Profile for Azoles*

Organism	Number of Isolates	% Sensitive	
		Fluconazole	Voriconazole
Candida albicans	25561	99.19%	99.51%
Candida parapsilosis	8777	98.64%	99.33%
Candida kruseii	3420	0.23%	97.79%
Candida tropicalis	1076	93.22%	90.57%
Candida glabrata	2898	27.1%	90.9%

Results of pharmaceutical sensitivities against certain yeast species are based on internal Genova data pertaining to the frequency of susceptibility of the specific yeast to the listed antifungal agent. The pharmaceutical results are not patient-specific. Conversely, the results of inhibition to nystatin and natural agents are patient-specific.

Non-absorbed Antifungals

Candida albicans	LOW INHIBITION — HIGH INHIBITION
Nystatin	

Natural Agents

Candida albicans	LOW INHIBITION — HIGH INHIBITION
Berberine	
Caprylic Acid	
Garlic	
Undecylenic Acid	
Uva-Ursi	

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.