Diagnostic Solutions
laboratory

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Patient: Ima Sample	**Accession: 20250230-0001**
Collected: 6/1/2025	Received: 6/6/2025
DOB: 1/20/2010	Completed: 6/15/2025
	Ordered by: Sample Doctor,MD

GI-MAP™
GI Microbial Assay Plus

DNA STOOL ANALYSIS BY QUANTITATIVE PCR

YOUR PERSONALIZED REPORT

PATHOGENS

The testing includes pathogens (bacterial, parasitic and viral) commonly known to cause gastroenteritis. Note that not all individuals with positive findings will present with symptoms. Many factors, including the health of the individual (such as immune health, digestive function, and microbiome balance), the transient nature of most pathogens, and the presence and expression of virulence factors, all contribute to pathogen virulence and individual symptoms.

BACTERIAL PATHOGENS	Result		Reference
Campylobacter	<dl		< 1.00e3
C. difficile Toxin A	**3.47e5**	**High ↑**	< 1.00e3
C. difficile Toxin B	**2.52e5**	**High ↑**	< 1.00e3
E. coli - EPEC/EHEC	<dl		< 1.00e3
E. coli O157	<dl		< 1.00e3
Enteroinvasive *E. coli/Shigella*	<dl		< 1.00e3
Enterotoxigenic *E. coli* LT/ST	<dl		< 1.00e3
Shiga-like Toxin *E. coli* stx1	<dl		< 1.00e3
Shiga-like Toxin *E. coli* stx2	**5.93e2**		< 1.00e3
Salmonella	<dl		< 1.00e4
Vibrio cholerae	<dl		< 1.00e5
Yersinia enterocolitica	<dl		< 1.00e5
PARASITIC PATHOGENS			
Cryptosporidium	<dl		< 1.00e6
Entamoeba histolytica	<dl		< 1.00e4
Giardia	<dl		< 5.00e3
VIRAL PATHOGENS			
Adenovirus 40/41	<dl		< 1.00e10
Norovirus GI/II	<dl		< 1.00e7

KEY: Results are reported as genome equivalents per gram of stool, which is a standard method for estimating the number of microbes measured per gram of stool, based on qPCR analysis of DNA samples.

Results are expressed in standard scientific notation. For example, a reported result of 3.5e7 is equivalent to 3.5 x 10^7 microbes per gram, which equals 35,000,000 (35 million) microbes per gram of stool.

< dl represents results below detectable limit.

The assays were developed and/or the performance characteristics determined by Diagnostic Solutions Laboratory.

HELICOBACTER PYLORI

H. PYLORI & VIRULENCE FACTORS	Result	Reference
Helicobacter pylori	<dl	< 1.00e3
Virulence Factor, babA	N/A	Negative
Virulence Factor, cagA	N/A	Negative
Virulence Factor, dupA	N/A	Negative
Virulence Factor, iceA	N/A	Negative
Virulence Factor, oipA	N/A	Negative
Virulence Factor, vacA	N/A	Negative
Virulence Factor, virB	N/A	Negative
Virulence Factor, virD	N/A	Negative

COMMENSAL/KEYSTONE BACTERIA

COMMENSAL BACTERIA	Result	Reference
Bacteroides fragilis	3.00e10	1.6e9 - 2.5e11
Bifidobacterium spp.	3.85e10	> 6.7e7
Enterococcus spp.	1.44e7	1.9e5 - 2.0e8
Escherichia spp.	3.79e9	3.7e6 - 3.8e9
Lactobacillus spp.	9.04e6	8.6e5 - 6.2e8
Enterobacter spp.	5.04e6	1.0e6 - 5.0e7
Akkermansia muciniphila	<dl L	1.0e1 - 8.2e6
Faecalibacterium prausnitzii	1.37e3	1.0e3 - 5.0e8
Roseburia spp.	8.60e8	5.0e7 - 2.0e10

BACTERIAL PHYLA	Result	Reference
Bacteroidetes	1.75e12	8.6e11 - 3.3e12
Firmicutes	1.48e11	5.7e10 - 3.0e11
Firmicutes:Bacteroidetes Ratio	0.08	< 1.0

OPPORTUNISTIC/OVERGROWTH MICROBES

DYSBIOTIC & OVERGROWTH BACTERIA	Result		Reference
Bacillus spp.	1.22e6		< 1.76e6
Enterococcus faecalis	<dl		< 1.00e4
Enterococcus faecium	<dl		< 1.00e4
Morganella spp.	<dl		< 1.00e3
Pseudomonas spp.	**6.08e5**	**High ↑**	< 1.00e4
Pseudomonas aeruginosa	**1.70e3**	**High ↑**	< 5.00e2
Staphylococcus spp.	**1.24e5**	**High ↑**	< 1.00e4
Staphylococcus aureus	3.65e2		< 5.00e2
Streptococcus spp.	**1.02e4**	**High ↑**	< 1.00e3
COMMENSAL OVERGROWTH MICROBES			
Desulfovibrio spp.	<dl		< 7.98e8
Methanobacteriaceae (family)	9.97e6		< 3.38e8
INFLAMMATORY & AUTOIMMUNE-RELATED BACTERIA			
Citrobacter spp.	<dl		< 5.00e6
Citrobacter freundii	<dl		< 5.00e5
Klebsiella spp.	<dl		< 5.00e3
Klebsiella pneumoniae	<dl		< 5.00e4
M. avium subsp. paratuberculosis	<dl		< 5.00e3
Proteus spp.	<dl		< 5.00e4
Proteus mirabilis	<dl		< 1.00e3
COMMENSAL INFLAMMATORY & AUTOIMMUNE-RELATED BACTERIA			
Enterobacter spp.	5.04e6		< 5.00e7
Escherichia spp.	3.79e9		< 3.80e9
Fusobacterium spp.	3.21e7		< 1.00e8
Prevotella spp.	1.74e7		< 1.00e8

FUNGI/YEAST

FUNGI/YEAST	Result	Reference
Candida spp.	<dl	< 5.00e3
Candida albicans	<dl	< 5.00e2
Geotrichum spp.	<dl	< 3.00e2
Microsporidium spp.	<dl	< 5.00e3
Rhodotorula spp.	<dl	< 1.00e3

VIRUSES

VIRUSES	Result	Reference
Cytomegalovirus	<dl	< 1.00e5
Epstein-Barr Virus	<dl	< 1.00e7

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PARASITES

PROTOZOA	Result	Reference
Blastocystis hominis	<dl	< 2.00e3
Chilomastix mesnili	<dl	< 1.00e5
Cyclospora spp.	<dl	< 5.00e4
Dientamoeba fragilis	<dl	< 1.00e5
Endolimax nana	<dl	< 1.00e4
Entamoeba coli	<dl	< 5.00e6
Pentatrichomonas hominis	<dl	< 1.00e2

WORMS		
Ancylostoma duodenale	Not Detected	Not Detected
Ascaris lumbricoides	Not Detected	Not Detected
Necator americanus	Not Detected	Not Detected
Trichuris trichiura	Not Detected	Not Detected
Taenia spp.	Not Detected	Not Detected

INTESTINAL HEALTH MARKERS

DIGESTION	Result	Reference
Steatocrit	<dl	< 15 %
Elastase-1	332	> 200 ug/g

GI MARKERS		
β-Glucuronidase	624	< 2486 U/mL
Occult Blood - FIT	<dl	< 10 ug/g

IMMUNE RESPONSE		
Secretory IgA	685	510 - 2010 ug/g
Anti-gliadin IgA	107	< 175 U/L
Eosinophil Activation Protein (EDN, EPX)	0.32	< 2.34 ug/g

INFLAMMATION		
Calprotectin	0	< 173 ug/g

ADD-ON TESTS		
Gluten Peptide	129.6	< 5.0 ng/g
Zonulin	188.9 H	< 175 ng/g

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H. PYLORI ANTIBIOTIC RESISTANCE GENES

	Result	Reference
Amoxicillin	**N/A**	**Negative**
Genes associated with amoxicillin resistance		
PBP1A S414R	**N/A**	
PBP1A T556S	**N/A**	
PBP1A N562Y	**N/A**	

	Result	Reference
Clarithromycin	**N/A**	**Negative**
Genes associated with clarithromycin resistance		
A2142C	**N/A**	
A2142G	**N/A**	
A2143G	**N/A**	

	Result	Reference
Fluoroquinolones	**N/A**	**Negative**
Genes associated with fluoroquinolone resistance		
gyrA N87K	**N/A**	
gyrA D91N	**N/A**	
gyrA D91G	**N/A**	
gyrB S479N	**N/A**	
gyrB R484K	**N/A**	

	Result	Reference
Tetracycline	**N/A**	**Negative**
Genes associated with tetracycline resistance		
A926G	**N/A**	
AGA926-928TTC	**N/A**	

UNIVERSAL ANTIBIOTIC RESISTANCE GENES

	Result	Reference
b-Lactams	**Positive**	**Negative**
blaNDM-1	**Absent**	
CTX-M 1	**Present**	
CTX-M 2	**Absent**	
CTX-M 8/25	**Absent**	
CTX-M 9	**Present**	
GES	**Absent**	
OXA-1	**Absent**	
PER-1	**Absent**	
PER-2	**Absent**	
SHV	**Absent**	
TEM	**Present**	
VEB	**Absent**	

	Result	Reference
Macrolides	**Positive**	**Negative**
acrA	**Absent**	
acrB	**Absent**	
emrE	**Present**	
ermA	**Absent**	
ermB	**Present**	
ermC	**Absent**	
macA	**Absent**	
macB	**Absent**	
mefA	**Present**	
mphA	**Absent**	
msrA	**Absent**	
tolc	**Present**	

	Result	Reference
Trimethoprim	**Negative**	**Negative**
dfrA1	**Absent**	
dfrA12	**Absent**	
dfrA14	**Absent**	
dfrA15	**Absent**	
dfrA17	**Absent**	
dfrA5	**Absent**	
dfrA7	**Absent**	
dfrB1	**Absent**	
dfrB2	**Absent**	
dfrB3	**Absent**	

Fluoroquinolones	**Negative**	**Negative**
qnrA	**Absent**	
qnrB	**Absent**	
qnrS1	**Absent**	
qnrS2	**Absent**	

Ciprofloxacin	**Positive**	**Negative**
emea	**Absent**	
pmra	**Present**	

Sulfonamides	**Negative**	**Negative**
sul1	**Absent**	
sul2	**Absent**	
sul3	**Absent**	

Vancomycin	**Negative**	**Negative**
vanA	**Absent**	
vanB	**Absent**	
vanC1	**Absent**	
vanC2-1	**Absent**	
vanC2-2	**Absent**	

Nitroimidazoles	**Negative**	**Negative**
nimA	**Absent**	
nimB	**Absent**	
nimC	**Absent**	
nimD	**Absent**	
nimE	**Absent**	

Methacillin	**Negative**	**Negative**
mecA	**Absent**	

Chloramphenicol	**Negative**	**Negative**
cata13	**Absent**	

Detection of resistance-associated genes may not confer phenotypic drug resistance. Detected genes cannot be associated with specific microbes.