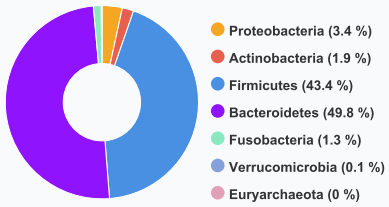
GUT DIVERSITY

1.1
Shannon's Index
Scale: 0 - 3
Ref Range: ≥2.5

0.31
Simpson's Index
Scale: 0 - 1
Ref Range: ≥0.75

NOTE:
Higher value, Higher Diversity

PHYLA



KEY RATIOS

RATIO	CURRENT	REF RANGE	PREVIOUS
F/B	0.9	≤0.9	
P/B	2.00	≥0.48	

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

GUT COMMENSALS

Low Moderate High

TEST NAME	CURRENT	PREV	TEST NAME	CURRENT	PREV
INTESTINAL PERMEABILITY	2.1		SIBO	2.9	
CARDIOVASCULAR HEALTH	2.1		AUTOIMMUNE HEALTH	1.4	
METABOLIC HEALTH	2.9		NUTRITION	1.4	
NEUROLOGICAL HEALTH	1.6		LIVER HEALTH	2.0	
IBD	1.7		IBS	2.0	
HORMONES	1.0				

COMMENTS:

Suggested probiotics include: Lactobacillus reuteri, Lactobacillus bulgaricus, Bifidobacterium longum, Lactobacillus paracasei, Lactobacillus brevis.
Suggested supplements include: L-Glutamine, Immunoglobulin G, Zinc Carnosine, Licorice Root Extract, Omega-3 fatty acids, vitamin D, isoflavone, Taurine, Chitin-Glucan, calcium, resveratrol, epigallocatechin, curcumin, quercetin, Boswellia.

GUT PATHOGENS

No Pathogens detected

INFLAMMATION

MARKER	RESULT			COMMENT
	CURRENT	REF RANGE	PREV	
Calprotectin	16.4 mcg/g	≤50.0		
Fecal lactoferrin	2.2 mcg/ml	≤6.4		
Beta defensin 2	0.3 ng/mL	≤34.9		
Lysozyme	345.2 ng/mL	≤575.0		
S100A12	8.7 mcg/ml	≤50.0		
MMP 9	0.3 ng/mL	≤0.2		MMP9 is a major inflammatory marker of the gut. Consider supplements such as Curcumin, Coumarin, Resveratrol and Ginger root, which are anti inflammatory. Calcium supplementation has shown benefit in reducing epithelial permeability and inflammation in the intestine through reduced expression of MMP-9 in some studies.
Fecal Eosinophil Protein X	2.0 mcg/g	≤4.8		

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

MARKERS OF DIGESTIVE INSUFFICIENCY AND MALABSORPTION

MARKER	RESULT			COMMENT
	CURRENT	REF RANGE	PREV	
Pancreatic elastase 1	398.5 mcg/g	≥200.0		
Meat fiber	NOT DETECTED			
Vegetable fiber	NOT DETECTED			
FAT MALABSORPTION				
Total Fecal Fat	51.8 mg/g	2.9~37.5		High levels of fecal fat are suggestive of maldigestion or malabsorption. Consider cholagogues, betaine HCL, pancreatic enzyme supplementation to improve outcome. Phosphatidyl choline, serine and inositol can be considered when phospholipids are low.
Total Fecal Triglycerides	1.3 mg/g	0.3~2.5		
Long chain fatty acids	24.8 mg/g	0.9~28.1		
Total Cholesterol	1.7 mg/g	0.5~5.3		
Total Phospholipids	23.9 mg/g	0.3~6.4		High levels of fecal fat are suggestive of maldigestion or malabsorption. Consider cholagogues, betaine HCL, pancreatic enzyme supplementation to improve outcome. Phosphatidyl choline, serine and inositol can be considered when phospholipids are low.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

GUT METABOLITES

MARKER	RESULT			COMMENT
	CURRENT	REF RANGE	PREV	
BILE ACID METABOLITES				
Cholic acid (CA)	0.26 %	≤0.36		
Chenodeoxycholic acid (CDCA)	0.32 %	≤1.25		
Deoxycholic acid (DCA)	40.58 %	24.25~75.84		
Lithocholic acid (LCA)	50.66 %	24.16~75.75		
LCA/DCA ratio	1.25	0.32~3.38		
SHORT CHAIN FATTY ACIDS				
Acetate	66.0 %	60.2~72.7		
Butyrate	11.6 %	5.1~12.4		
Propionate	18.1 %	15.4~30.3		
Valerate	3.1 %	0.8~3.5		
Total Short chain fatty acids	30.2 micromol/g	45.4~210.1		SCFA supplements are most commonly found as butyric acid salts. Herbal medicines that can affect SCFA levels include berberine, resistant starch. Best sources of resistant starches include: Green bananas (adding green banana flour to your daily routine works well. Raw plantains, Raw potato starch, Cooked and cooled rice, Legumes

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Other Markers

MARKER	RESULT			COMMENT
	CURRENT	REF RANGE	PREV	
sIgA	>1000.0 mcg/g	≤857.0		Elevated levels are indicative of immune upregulation in the gut. Causes could be due to food sensitivities, intestinal permeability or infections. Consider testing at peptide and protein levels for food sensitivities for higher sensitivity.
ß-glucuronidase	904 U/mL	≤2300		
Fecal Occult Blood	1.4 mcg/g	≤10.0		
pH	7.0	6.1~7.8		
Fecal Zonulin	47.2 ng/mL	25.1~160.8		
Fecal Anti Gliadin	204.5 U/L	≤148.0		Fecal Anti Gliadin is a less sensitive marker of wheat sensitivity in comparison to serum antibodies to peptide fragments of wheat. Individuals may consider running a Wheat Zoomer and/or following a gluten free diet.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Microbiome and Intestinal Permeability

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Enterobacteriaceae⁻	29.2 ↑	≤20.0		★★★★	Intestinal permeability
Akkermansia muciniphila⁻	10.5 ↔	≥10.0		★★★★	
Bifidobacterium	18.6 ↔	≥10.0		★★★	Lower SCFA production
Propionibacterium	10.4 ↔	≥10.0		★★★	
Eubacterium	27.6 ↔	≥10.0		★★★	
Lactobacillus	21.3 ↔	≥10.0		★★★	
Roseburia	5.0 ↓	≥10.0		★★★	
Eubacterium rectale	20.4 ↔	≥10.0		★★★	Lower butyrate production
Butyrivibrio	20.8 ↔	≥10.0		★★★★	
Faecalibacterium prausnitzii	14.5 ↔	≥10.0		★★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus reuteri	6.6 ↓	≥10.0			
Lactobacillus rhamnosus	22.4 ↔	≥10.0			
Lactobacillus plantarum	10.7 ↔	≥10.0			
Streptococcus thermophilus	20.7 ↔	≥10.0			
Lactobacillus bulgaricus	9.1 ↓	≥10.0			
Lactobacillus acidophilus	26.7 ↔	≥10.0			
Bifidobacterium longum	2.9 ↓	≥10.0			

Based on clinical literature, the following probiotics and supplements maybe beneficial

Probiotics: Lactobacillus reuteri, Lactobacillus bulgaricus, Bifidobacterium longum.

Supplements: L-Glutamine, Immunoglobulin G, Zinc Carnosine, Licorice Root Extract.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Microbiome and SIBO

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Streptococcus species	12.2 ↔	≤20.0		★★★	SIBO syndrome
Escherichia coli¯	24.6 ↑	≤20.0		★★★	
Staphylococcus species	26.9 ↑	≤20.0		★★★	
Micrococcus	11.1 ↔	≤20.0		★★★	
Acinetobacter¯	3.7 ↔	≤20.0		★★★	
Bacteroides¯	11.9 ↔	≤20.0		★★★	
Clostridium	2.9 ↔	≤20.0		★★★	
Peptostreptococcus	17.1 ↔	≤20.0		★★★	
Enterococcus species	10.6 ↔	≤20.0		★★★	
Methanobrevibacter smithii	27.4 ↑	≤20.0		★★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus casei	17.1 ↔	≥10.0			
Lactobacillus plantarum	10.7 ↔	≥10.0			

Gut Microbiome and Cardiovascular Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Collinsella	28.4 ↑	≤20.0		★★★★	Atherosclerosis
Lactobacillus ruminis	1.2 ↔	≤20.0		★★★★	Stroke
Atopobium	2.3 ↔	≤20.0		★★★★	
Lactobacillus sakei	17.6 ↔	≥10.0		★★★★	
Escherichia coli¯	24.6 ↑	≤20.0		★★★★★	Cardiovascular disease
Enterobacter aerogenes¯	3.9 ↔	≤20.0		★★★★★	
Streptococcus species	12.2 ↔	≤20.0		★★★★★	
Solobacterium moorei	10.2 ↔	≤20.0		★★★★★	
Atopobium parvulum	18.0 ↔	≤20.0		★★★★★	
Roseburia intestinalis	19.6 ↔	≥10.0		★★★★★	
Faecalibacterium prausnitzii	14.5 ↔	≥10.0		★★★★★	
Prevotella copri¯	29.7 ↔	≥10.0		★★★★★	
Alloprevotella¯	14.4 ↔	≥10.0		★★★★★	
Catenibacterium	12.9 ↔	≥10.0		★★★★★	
Tyzzerella	1.7 ↔	≤20.0		★★★★★	
Tyzzerella 4	28.4 ↑	≤20.0		★★★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus plantarum	10.7 ↔	≥10.0			
Streptococcus thermophilus	20.7 ↔	≥10.0			

Based on clinical literature, the following probiotics and supplements maybe beneficial

Supplements: Omega-3 fatty acids, vitamin D, isoflavone, Taurine, Chitin-Glucan.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Bacteria and Autoimmune Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Porphyromonas gingivalis⁻	23.5 ↑	≤20.0		★★★	Rheumatoid arthritis
Lactobacillus	21.3 ↔	≥10.0		★★★★	Celiac disease
Bifidobacterium	18.6 ↔	≥10.0		★★★★	
Enterobacteriaceae⁻	29.2 ↑	≤20.0		★★★	
Staphylococcaceae	26.7 ↑	≤20.0		★★★	
Staphylococcus epidermidis	15.9 ↔	≤20.0		★★★	
Staphylococcus pasteuri	13.2 ↔	≤20.0		★★★	
Coprococcus	19.6 ↔	≥10.0		★★★	Psoriatic arthritis
Akkermansia muciniphila⁻	10.5 ↔	≥10.0		★★★	
Pseudobutyrivibrio⁻	21.3 ↔	≥10.0		★★★	
Proteus mirabilis⁻	0.0 ↔	≤20.0		★★	Rheumatoid arthritis, Ankylosing spondylitis
Enterococcus gallinarum	0.7 ↔	≤20.0		★★★★★	Autoimmunity
Clostridia clusters XIVa	17.8 ↔	≥10.0		★★★★★	Inflammation, Allergy
Clostridia clusters IV	15.4 ↔	≥10.0		★★★★★	
Clostridia clusters XVIII	17.2 ↔	≥10.0		★★★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus acidophilus	26.7 ↔	≥10.0			
Lactobacillus casei	17.1 ↔	≥10.0			
Bifidobacterium bifidum	19.7 ↔	≥10.0			

Based on clinical literature, the following probiotics and supplements maybe beneficial

Supplements: vitamin D, calcium.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Microbiome and Metabolic Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Oscillospira¯	13.8 ↔	≤20.0		★★★★★	Low BMI, Metabolic health
Christensenella minuta	9.2 ↔	≤20.0		★★★★★	
Bacteroides caccae¯	27.0 ↑	≤20.0		★★★★★	Diabetes, Metabolic health
Clostridium hathewayi¯	27.5 ↑	≤20.0		★★★★★	
Clostridium ramosum	21.1 ↑	≤20.0		★★★★★	
Clostridium symbiosum¯	4.2 ↔	≤20.0		★★★★★	
Eggerthella lenta	5.6 ↔	≤20.0		★★★★★	
Escherichia coli¯	24.6 ↑	≤20.0		★★★★★	
Bifidobacterium animalis	25.4 ↔	≥10.0		★★★★	Obesity, Metabolic health
Blautia hydrogenotorophica	12.9 ↔	≤20.0		★★	
Ruminococcus obeum	5.9 ↔	≤20.0		★★	
Akkermansia muciniphila¯	10.5 ↔	≥10.0		★★★★★	Obesity, Diabetes, Metabolic health
Methanobrevibacter smithii	27.4 ↑	≤20.0		★★	IBS, Obesity, Metabolic health
Bifidobacterium adolescentis	20.6 ↔	≥10.0		★★★	Digestive insufficiency, Metabolic health
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus paracasei	2.7 ↓	≥10.0			
Lactobacillus rhamnosus	22.4 ↔	≥10.0			
Lactobacillus acidophilus	26.7 ↔	≥10.0			
Lactobacillus casei	17.1 ↔	≥10.0			
Bifidobacterium animalis	25.4 ↔	≥10.0			

Based on clinical literature, the following probiotics and supplements maybe beneficial

Probiotics: Lactobacillus paracasei.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Microbiome and Nutrition

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Bifidobacterium	18.6 ↔	≥10.0		★★★★	Lower prodution of folate, Lower production of vitamin K, Lower production of riboflavin (vitamin B2), Lower production of cobalamin (vitamin B12)
Lactobacillus	21.3 ↔	≥10.0		★★★★	
Bacillus subtilis	29.8 ↔	≥10.0		★★★★	
Propionibacterium freudenreichii	24.8 ↔	≥10.0		★★★★	
Bifidobacterium animalis subspecies lactis	12.1 ↔	≥10.0		★★	Oxalate degradation affected
Lactobacillus animalis	13.6 ↔	≥10.0		★★	
Ruminococcus bromii	23.5 ↔	≥10.0		★★★★	Digestive insufficiency
Eubacterium rectale	20.4 ↔	≥10.0		★★★★	
Roseburia	5.0 ↓	≥10.0		★★★★	Lower butyrate production
Eubacterium rectale	20.4 ↔	≥10.0		★★★★	
Bifidobacterium	18.6 ↔	≥10.0		★★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus animalis	13.6 ↔	≥10.0			
Bifidobacterium animalis	25.4 ↔	≥10.0			

Gut Microbiome and Neurological Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Lactobacillaceae	0.1 ↔	≤20.0		★★★★	Parkinson's disease
Bradyrhizobiaceae⁻	11.6 ↔	≤20.0		★★★★	
Clotridiales Incertae Sedis IV	2.6 ↔	≤20.0		★★★★	
Enterobacteriaceae⁻	29.2 ↑	≤20.0		★★★★	
Desulfovibrio⁻	14.5 ↔	≤20.0		★★★★	Autism
Bacteroides vulgatus⁻	15.3 ↔	≤20.0		★★★★	
Bifidobacterium	18.6 ↔	≥10.0		★★★★	
Prevotella⁻	23.8 ↔	≥10.0		★★★★	
Coprococcus	19.6 ↔	≥10.0		★★★★	
Veillonellaceae⁻	13.6 ↔	≥10.0		★★★★	
Bacteroidales⁻	6.0 ↔	≤20.0		★★★	Depression
Lachnospiraceae	20.1 ↔	≥10.0		★★★	
Methanobrevibacter	3.5 ↔	≤20.0		★★★	Multiple sclerosis
Butyricimonas⁻	10.1 ↔	≥10.0		★★★	
Pseudomonas	19.8 ↔	≤20.0		★★★	
Mycoplana⁻	16.9 ↔	≤20.0		★★★	
Haemophilus⁻	1.3 ↔	≤20.0		★★★	
Blautia	14.0 ↔	≤20.0		★★★	
Dorea	10.4 ↔	≤20.0		★★★	
Bifidobacterium	18.6 ↔	≥10.0		★★★	Alzheimer's disease.
Bacteroides⁻	11.9 ↔	≤20.0		★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus acidophilus	26.7 ↔	≥10.0			
Lactobacillus casei	17.1 ↔	≥10.0			
Lactobacillus fermentum	18.5 ↔	≥10.0			

Bifidobacterium bifidum	19.7 ↔	≥10.0		
Lactobacillus brevis	2.2 ↓	≥10.0		
Bifidobacterium dentium	24.3 ↔	≥10.0		
Streptococcus thermophilus	20.7 ↔	≥10.0		
Lactobacillus bulgaricus	9.1 ↓	≥10.0		
Streptococcus	13.3 ↔	≥10.0		

Based on clinical literature, the following probiotics and supplements maybe beneficial

Probiotics: Lactobacillus brevis, Lactobacillus bulgaricus.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Microbiome and Liver Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Lactococcus	26.9 ↔	≥10.0		★★	Alcohol-associated dysbiosis
Pediococcus	17.4 ↔	≥10.0		★★	
Lactobacillus	21.3 ↔	≥10.0		★★	
Leuconostoc	25.6 ↔	≥10.0		★★	
Veillonella⁻	28.3 ↑	≤20.0		★★★★★	Liver cirrhosis
Streptococcus species	12.2 ↔	≤20.0		★★★★★	
Clostridium	2.9 ↔	≤20.0		★★★★★	
Lachnospiraceae	20.1 ↔	≥10.0		★★★	Alcohol-related liver cirrhosis
Ruminococcaceae	27.0 ↔	≥10.0		★★★	
Clostridiales Family XIV Incertae Sedis	11.1 ↔	≥10.0		★★★	
Enterobacteriaceae⁻	29.2 ↑	≤20.0		★★★	
Escherichia coli⁻	24.6 ↑	≤20.0		★★★	
Streptococci	20.0 ↔	≤20.0		★★★	Alcoholic hepatitis
Enterobacteria⁻	19.6 ↔	≤20.0		★★★	
Faecalibacterium prausnitzii	14.5 ↔	≥10.0		★★★	
Ruminococcus	4.9 ↔	≤20.0		★★★★	Nonalcoholic steatohepatitis
Prevotella⁻	23.8 ↔	≥10.0		★★★★	
Enterococcus	22.5 ↑	≤20.0		★★★★	Primary sclerosing cholangitis
Fusobacterium⁻	15.5 ↔	≤20.0		★★★★	
Streptococcus species	12.2 ↔	≤20.0		★★★★	
Veillonella⁻	28.3 ↑	≤20.0		★★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Lactobacillus rhamnosus GG	23.6 ↔	≥10.0			
Lactobacillus	21.3 ↔	≥10.0			
Bifidobacterium	18.6 ↔	≥10.0			

Gut Microbiome and IBD

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Roseburia	5.0 ↓	≥10.0		★★★★★	IBD
Phascolarctobacterim⁻	7.2 ↔	≤20.0		★★★★★	
Clostridium	2.9 ↔	≤20.0		★★★★★	
Ruminococcaceae	27.0 ↔	≥10.0		★★★★★	
Faecalibacterium	16.2 ↔	≥10.0		★★★★★	
Desulfovibrio piger⁻	6.0 ↔	≤20.0		★★★★★	
Faecalibacterium prausnitzii	14.5 ↔	≥10.0		★★★	
Akkermansia muciniphila⁻	10.5 ↔	≥10.0		★★★	Crohn's disease
Dialister invisus⁻	27.5 ↔	≥10.0		★★★★	
Faecalibacterium prausnitzii	14.5 ↔	≥10.0		★★★★	
Bifidobacterium adolescentis	20.6 ↔	≥10.0		★★★★	
Ruminococcus gnavus	3.9 ↔	≤20.0		★★★★	
Enterococcus	22.5 ↑	≤20.0		★★	
Veillonella⁻	28.3 ↑	≤20.0		★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Saccharomyces boulardii	12.9 ↔	≥10.0			
Lactobacillus reuteri	6.6 ↓	≥10.0			
Lactobacillus plantarum	10.7 ↔	≥10.0			
Lactobacillus salivarius	19.1 ↔	≥10.0			
Bifidobacterium breve	28.9 ↔	≥10.0			
Bifidobacterium bifidum	19.7 ↔	≥10.0			
Lactobacillus acidophilus	26.7 ↔	≥10.0			
Escherichia coli Nissle⁻	24.3 ↔	≥10.0			

Based on clinical literature, the following probiotics and supplements maybe beneficial

Probiotics: Lactobacillus reuteri.

Supplements: resveratrol, epigallocatechin, curcumin, quercetin, Boswellia.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Microbiome and IBS

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
Dorea	10.4 ↔	≤20.0		★★★★★	IBS
Ruminococcus	4.9 ↔	≤20.0		★★★★★	
Clostridium	2.9 ↔	≤20.0		★★★★★	
Lactobacillus	21.3 ↔	≥10.0		★★★★★	
Veillonella[-]	28.3 ↑	≤20.0		★★★★★	
Bifidobacterium catenulatum	13.0 ↔	≥10.0		★★★★★	
Bifidobacterium	18.6 ↔	≥10.0		★★★	
Enterobacteriaceae[-]	29.2 ↑	≤20.0		★★★	
Roseburia	5.0 ↓	≥10.0		★★★★	Lower butyrate production
Eubacterium rectale	20.4 ↔	≥10.0		★★★★	
YOUR LEVELS OF PROBIOTIC ORGANISMS					
Bacillus coagulans	10.8 ↔	≥10.0			
Bifidobacterium infantis	28.5 ↔	≥10.0			
Lactobacillus acidophilus	26.7 ↔	≥10.0			
Lactobacillus plantarum	10.7 ↔	≥10.0			
Lactobacillus rhamnosus	22.4 ↔	≥10.0			
Bifidobacterium breve	28.9 ↔	≥10.0			
Bifidobacterium lactis	10.4 ↔	≥10.0			
Bifidobacterium longum	2.9 ↓	≥10.0			
Streptococcus thermophilus	20.7 ↔	≥10.0			

Based on clinical literature, the following probiotics and supplements maybe beneficial

Probiotics: Bifidobacterium longum.

Consider these supplements in relation to medical history and symptoms. Not all recommended supplements are appropriate in all individual cases. Consult a knowledgeable healthcare provider before taking any supplemental nutrients or probiotics.

Gut Microbiome and Hormones

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS		
ß-glucuronidase producing bacteria	8.6 ↔	≤20.0		★★★★	Estrogen metabolism affected
ß-galactosidase producing bacteria	16.8 ↔	≤20.0		★★★★	

GUT PATHOGENS

Bacteria

✓Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT	RESULT
Clostridium difficile Toxin A	<1e3	—	≤1e3		
Clostridium difficile Toxin B	<1e3	—	≤1e3		
Campylobacter spp	<1e2	—	≤1e2		
Campylobacter jejuni	<1e2	—	≤1e2		
Campylobacter coli	<1e2	—	≤1e2		
Campylobacter upsaliensis	<1e2	—	≤1e2		
Plesiomonas shigelloides	<3e2	—	≤3e2		
Vibrio (parahaemolyticus)	<3e3	—	≤3e3		
Enteropathogenic E.coli (EPEC)	<1.5e3	—	≤1.5e3		
Enterotoxigenic E.coli (ETEC) Lt/St	<2e3	—	≤2e3		
E.coli O157	<1e2	—	≤1e2		
Shiga-Like Toxin Producing E.coli (STEC) Stx1/Stx2	<1e2	—	≤1e2		
Shigella/EIEC	<1e2	—	≤1e2		
Helicobacter pylori	<1.5e4	—	≤1.5e4		
Listeria	<3e3	—	≤3e3		
Vibrio (cholerae)	<2e2	—	≤2e2		
Enteroaggregative E.coli (EAEC)	<1e2	—	≤1e2		
Klebsiella pneumoniae	<3.5e3	—	≤3.5e3		
Edwardsiella tarda	<4.5e3	—	≤4.5e3		
Yersinia enterocolitica	<2e4	—	≤2e4		
Vibrio (vulnificus)	<1e4	—	≤1e4		
Salmonella	<2e3	—	≤2e3		

Parasites - Protozoans

✓Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT	RESULT
Cryptosporidium	<1e2	—	≤1e2		
Entamoeba histolytica	<1e2	—	≤1e2		
Giardia lamblia	<4e2	—	≤4e2		
Cyclospora cayetanensis	<2e3	—	≤2e3		
Chilomastix mesnili	<2e3	—	≤2e3		
Cyclospora spp.	<2.5e3	—	≤2.5e3		
Dientamoeba fragilis	<1e3	—	≤1e3		
Endolimax nana	<2e3	—	≤2e3		
Entamoeba coli	<2e3	—	≤2e3		
Pentatrichomonas hominis	<1e3	—	≤1e3		
Isospora belli	<1e3	—	≤1e3		
Blastocystis hominis	<1e3	—	≤1e3		
Trichomonas hominis	<1e3	—	≤1e3		

Parasites - Helminths

✓Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	PREVIOUS RESULT
Strongyloides stercoralis	—	
Taenia solium	—	
Schistosoma	—	
Fasciola/Fasciolopsis	—	
Hymenolepis	—	
Dipylidium caninum	—	
Diphyllobothrium latum	—	
Enterobius vermicularis	—	
Mansonella	—	
Ancylostoma duodenale	—	
Ascaris lumbricoides	—	
Necator americanus	—	
Trichuris trichiura	—	
Taenia spp.	—	
Larval Nematode	—	

Virus

✓Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT	RESULT
Adenovirus F40/41	<1e2	—	≤1e2		
Rotavirus A	<3.1e2	—	≤3.1e2		
Astrovirus	<1.2e3	—	≤1.2e3		
Norovirus GI	<1e3	—	≤1e3		
Norovirus GII	<1e3	—	≤1e3		
Sapovirus I	<2.1e2	—	≤2.1e2		
Sapovirus II	<2.1e2	—	≤2.1e2		
Sapovirus V	<2.1e2	—	≤2.1e2		
Sapovirus IV	<2.1e2	—	≤2.1e2		
Cytomegalovirus	<1e3	—	≤1e3		
Epstein Barr virus	<1e3	—	≤1e3		

Fungi

✓Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT	RESULT
Candida albicans	<1.1e2	—	≤1e2		
Candida spp.	<1.1e2	—	≤1e2		
Geotrichum spp.	<1.1e2	—	≤1e2		
Microsporidium spp.	<1.1e2	—	≤1e2		
Rodotorula spp.	<2.5e3	—	≤2.5e3		

Antibiotic Resistance Genes

✓Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	PREVIOUS RESULT
Helicobacter - Clarithromycin	—	
Helicobacter - Fluoroquinolones	—	
Universal Microbiota Resistance Genes - b-lactamase	—	
Universal Microbiota Resistance Genes - Fluoroquinolones	—	
Universal Microbiota Resistance Genes - Macrolides	—	
Universal Microbiota Resistance Genes - Vancomycin	—	

INFLAMMATION MARKERS

CALPROTECTIN	CURRENT	REF RANGE	PREVIOUS
Calprotectin, a member of the S100 calcium- and zinc-binding protein family, is a protein released by a type of white blood cell called neutrophil. When there is inflammation in the gastrointestinal tract, neutrophils move to the area and release calprotectin, resulting in an increased level in the stool. The amount of calprotectin reflects the number of participating neutrophils in this inflammation. Calprotectin is most frequently used as part of the diagnostic evaluation of patients with suspected inflammatory bowel disease (IBD). For the individuals already diagnosed with IBD, it can be used to monitor the level of inflammation.	16.4 mcg/g	≤50.0	
FECAL LACTOFERRIN			
Lactoferrin is a glycoprotein released by a type of white blood cell called neutrophil. Fecal lactoferrin is a biomarker of serious gastrointestinal inflammation. Gastrointestinal inflammation is associated with increased infiltration of activated neutrophils into the mucosa and increased release of lactoferrin into the gut. Clinical studies have shown that fecal lactoferrin levels of healthy persons are similar to irritable bowel syndrome (IBS) patients, but markedly increased in patients with active inflammatory bowel disease (IBD). Fecal lactoferrin levels are helpful in monitoring disease activity and efficacy of treatment for IBD.	2.2 mcg/ml	≤6.4	
BETA DEFENSIN 2			
Beta-defensin 2 is an antibiotic peptide locally regulated by inflammation in humans. It is produced by a number of epithelial cells and exhibits potent antimicrobial activity against Gram-negative bacteria and Candida, but not Gram-positive bacteria. It has been speculated that beta-defensin 2 may contribute to the infrequency of Gram-negative infections on skin and lung tissue.	0.3 ng/mL	≤34.9	
LYSOZYME			
Fecal lysozyme concentration is an excellent parameter to gauge inflammatory activity in IBD patients. Patients with IBS have been shown to have similar levels in comparison to healthy controls but this marker is highly elevated in IBD patients.	345.2 ng/mL	≤575.0	
S100A12			
Fecal S100A12 is a novel noninvasive marker that has been shown to distinguish active IBD from healthy control subjects in certain populations. S100A12 levels were evenly distributed throughout fecal samples and were stable for 7 days when stored at room temperature. Fecal S100A12 was shown to be elevated in children with IBD compared with healthy control subjects, with levels closely correlated to disease activity and other serum inflammatory markers, particularly lower gut involvement.	8.7 mcg/ml	≤50.0	
MMP 9			
MMP-9 is an important marker of intestinal inflammation. It has been shown to be significantly increased in the stool of UC patients compared with healthy controls and patients with IBS, and was found to correlate with the clinical and endoscopic activity of UC.	0.3 ng/mL	≤0.2	
FECAL EOSINOPHIL PROTEIN X			
Eosinophil Protein X (EPX) is a water-soluble protein that is found in eosinophils. EPX levels in stool are a marker of eosinophil activity in the gastrointestinal system. Fecal EPX abnormality is suggestive of food allergy, eosinophil-driven inflammation (caused by parasites). The test has been shown to have higher specificity and positive predictive value for detecting disease activity in inflammatory bowel disease compared to fecal calprotectin.	2.0 mcg/g	≤4.8	

DIGESTIVE INSUFFICIENCY AND MALABSORPTION MARKERS

PANCREATIC ELASTASE 1	CURRENT	REF RANGE	PREVIOUS
Pancreatic Elastase is an enzyme produced by exocrine tissue in the pancreas. Fecal pancreatic elastase is a non-invasive marker of exocrine pancreatic function. In the digestive tract, elastase is not broken down by other enzymes and is eventually eliminated from the body in the stool. Elastase can be detected and measured in the stool when a person's pancreas is functioning normally. The level in the stool is decreased when the exocrine tissues of the pancreas are not producing sufficient elastase and other digestive enzymes.	398.5 mcg/g	≥200.0	
MEAT FIBER			
Presence of meat fibers is indicative of improper chewing or digestive insufficiency.	NOT DETECTED		
VEGETABLE FIBER			
Presence of vegetable fibers is indicative of improper chewing or digestive insufficiency.	NOT DETECTED		
FAT MALABSORPTION			
TOTAL FECAL FAT			
This test measures the amount of fat in a stool sample. Excess fecal fat (termed steatorrhea) in stool is indicative of malabsorption disorder. The absorption of fat can be varied by production of bile in the gallbladder or liver, production of digestive enzymes in the pancreas, and normal functioning of the intestines. Decreased absorption of fat can be a sign of many different illnesses, including celiac disease, crohn's disease, cystic fibrosis, pancreatitis, etc.	51.8 mg/g	2.9~37.5	
TOTAL FECAL TRIGLYCERIDES			
Total triglyceride subfraction	1.3 mg/g	0.3~2.5	
LONG CHAIN FATTY ACIDS			
Total long chain fatty acids	24.8 mg/g	0.9~28.1	
TOTAL CHOLESTEROL			
Total Cholestrol subfraction	1.7 mg/g	0.5~5.3	
TOTAL PHOSPHOLIPIDS			
Total Phospholipid subfraction	23.9 mg/g	0.3~6.4	

GUT METABOLITES

BILE ACID METABOLITES

Bile Acids are natural products of cholesterol synthesis that aid in the emulsification and absorption of dietary fats in the small intestine. Elevated total fecal bile acid is indicative of a diagnosis of bile acid malabsorption. Quantification of fecal bile acids aids in diagnosis for IBS and identification of patients with chronic diarrhea who may benefit from bile acid sequestrant therapy. There is a connection between the liver health, fecal bile acid concentrations, and gut microbiota composition. Bile acids have both direct antimicrobial effects on gut microbes and indirect effects through FXR-induced antimicrobial peptides. Cholic acid (CA), Chenodeoxycholic acid (CDCA), Deoxycholic acid (DCA), Lithocholic acid (LCA) are the major bile acids related to gut microbiome.

CHOLIC ACID (CA)	CURRENT	REF RANGE	PREVIOUS
Cholic acid (CA) is synthesized in the liver from cholesterol. It undergoes enterohepatic circulation, in which its principal functions include induction of bile flow; feedback inhibition of bile acid synthesis; modulation of cholesterol synthesis; elimination of cholesterol; and the facilitation of dispersion and absorption of lipids and fat-soluble vitamins through the formation of micelles.	0.26 %	≤0.36	
CHENODEOXYCHOLIC ACID (CDCA)			
Chenodeoxycholic acid (CDCA), also known as chenodiol, usually conjugates with either glycine or taurine. It acts as a detergent to solubilize fats for intestinal absorption and is reabsorbed by the small intestine. It is used as cholagogue, a choleretic laxative, and to prevent or dissolve gallstones.	0.32 %	≤1.25	
DEOXYCHOLIC ACID (DCA)			
Deoxycholic acid (DCA) is a bile acid which emulsifies and solubilizes dietary fats in the intestine, and when injected subcutaneously, it disrupts cell membranes in adipocytes and destroys fat cells in that tissue.	40.58 %	24.25~75.84	
LITHOCHOLIC ACID (LCA)			
Lithocholic acid (LCA) is a bile acid formed from chenodeoxycholate by bacterial action, usually conjugated with glycine or taurine. It acts as a detergent to solubilize fats for absorption and is itself absorbed. It is used as cholagogue and choleretic. Chronically high levels of lithocholic acid are associated with several forms of cancer including colon cancer, pancreatic cancer, esophageal cancer, and many other GI cancers. High bile acid levels lead to the generation of reactive oxygen species and reactive nitrogen species, disruption of the cell membrane and mitochondria, induction of DNA damage, mutation and apoptosis, and the development of reduced apoptosis capability upon chronic exposure.	50.66 %	24.16~75.75	
LCA/DCA RATIO			
LCA and DCA are secondary bile acids formed from CDCA and CA in the colon. The ratio when high or low has been found useful to check risk for several conditions such as colorectal cancer and gall stones.	1.25	0.32~3.38	

SHORT CHAIN FATTY ACIDS

ACETATE			
Acetic Acid can inhibit the accumulation of body fat and hepatic lipids without altering food consumption. It suppresses body fat accumulation by upregulating genes necessary for fatty-acid oxidation and mitochondrial processing. It has been found to have an inhibitory effect on the conversion of glucose to fatty acids in the liver. It has also been suggested as a promising compound for improving obesity and obesity-linked type 2 diabetes.	66.0 %	60.2~72.7	
BUTYRATE			
Butyric Acid has been shown to enhance adaptive thermogenesis and fatty acid oxidation (burning of fat). It has also been shown to improve mitochondrial function, increase insulin sensitivity, and reduce fat production. Butyrate may assist treating and preventing diet induced insulin resistance by promoting energy production and enhancing mitochondrial function.	11.6 %	5.1~12.4	
PROPIONATE			

Propionic Acid is present in the gastro-intestinal tract of humans and other mammals as an end-product of the microbial digestion of carbohydrates. It is also an antifungal agent contained in many food preservatives. Absorbed propionic acid into the blood circulation may cross the blood brain barrier and enter the brain. Propionic aciduria is a disease that comprises many various disorders. The outcome of patients born with Propionic aciduria (genetic disorder) is poor intellectual development patterns, with significant neurological and various visceral complications.	18.1 %	15.4~30.3	
VALERATE			
Valeric Acid, or pentanoic acid, is formed in small amounts during fermentation of dietary fibre, is important in cholesterol metabolism. The structure of valeric acid is very similar to that of the inhibitory neurotransmitter γ-aminobutyric acid (GABA), except for the terminal amino group. Valeric acid is similar to its analogue, valproic acid, which has been shown to increase the production of GABA, resulting in a decreased synthesis of succinic acid. Succinic acid is an inflammatory signaling molecule that is elevated in animals subjected to metabolic and inflammatory diseases and in high-fat diets the levels of succinic acid are increased at the expense of butyric acid. Valeric acid has also been associated with irritable bowel syndrome, ulcerative colitis, Crohn's disease, colorectal cancer, celiac disease, and autism.	3.1 %	0.8~3.5	
TOTAL SHORT CHAIN FATTY ACIDS			
Short Chain Fatty Acids (SCFA) are the products of fermentation of insoluble fiber from diet (e.g., cellulose, resistant starch) by the bacteria in the gut. These fatty acids have been shown to play an important role in regulating metabolism in the gut and are closely associated with gastrointestinal diseases. Acetic acid, propionic acid, and butyric acid are the most abundant, representing 90-95% of the SCFA present in the colon. A total of 13 SCFAs are quantified in stool to assist assessment of the gut health and inflammation.	30.2 micromol/g	45.4~210.1	

OTHER MARKERS

SIGA	CURRENT	REF RANGE	PREVIOUS
Secretory IgA is the primary antibody that is protecting us from pathogens and toxins from penetrating mucosal surfaces. Its role is crucial in protecting the integrity of the intestinal epithelium. The antibody blocks the access to the epithelial receptors and traps pathogens and toxins in the mucus which are then excreated by peristaltic movements. SIgA has been identified to potentially neutralize virulence factors, modulate intestinal microbiota by Fab-dependent and -independent mechanisms, promote dendritic cell (DC) recruitement across the epithelial barrier and also down-regulate pro-inflammatory responses normally associated with the uptake of highly pathogenic bacteria and potentially allergenic antigens. Multiple cytokines, including IL-4, TGF-β, IL-5, IL-6, IL-10 are instrumental in intestinal stimulating SIgA production. A subset of these cytokines, notably TGF-β and IL-10, are also required for maintaining mucosal tolerance, thus establishing one of the many links between SIgA production, immunity and intestinal homeostasis.	>1000.0 mcg/g	≤857.0	
ß-GLUCURONIDASE			
Beta-glucuronidase is an enzyme induced by anaerobic bacteria. Many toxins, hormones, and drugs are excreted from the body after conjugation to a glucuronide molecule. Beta-glucuronidase can uncouple these conjugates, freeing these potential carcinogens in the bowel and increase cancer risk.	904 U/mL	≤2300	
FECAL OCCULT BLOOD			
Fecal occult blood testing (FOBT) checks stool samples for hidden (occult) blood loss from the mouth to the colon. A positive result indicates either upper gastrointestinal bleeding or lower gastrointestinal bleeding. The test does not directly detect colon cancer but is often used in clinical screening for that disease. It can also be used in early diagnosis of active occult blood loss in anemia or other gastrointestinal symptoms.	1.4 mcg/g	≤10.0	
PH			
Fecal pH tests for acidity or alkalinity of stool samples. An acidic stool is suggestive of a digestive problem such as lactose intolerance, a pathogen such as E. coli or rotavirus, or overgrowth of the acid producing bacteria (such as lactic acid bacteria). A high alkaline pH rating is associated with the body's inability to create enough acid along with undigested food.	7.0	6.1~7.8	
FECAL ZONULIN			
Fecal zonulin measurement may be advantageous, compared to serum zonulin when assessing intestinal permeability, as serum zonulin may constitute secretion not only from intestinal cells, but also from extraintestinal tissues such as the liver, heart and brain. Stool may therefore present a more appropriate specimen for analyzing only intestinal production of zonulin. Elevated fecal levels of zonulin have been associated with metabolic syndrome, obesity, and healthy cigarette smokers. High fecal zonulin levels in smokers irrespective of IBD point to the significant and undesirable up-regulation of gut permeability in cigarette smokers.	47.2 ng/mL	25.1~160.8	
FECAL ANTI GLIADIN			
Fecal anti-gliadin antibody tests for immune system reaction, IgA and IgG, to gluten in the diet. It enables direct and quantitative assessment of gluten exposure early after ingestion and could aid in the diagnosis and clinical management of nonresponsive CD and refractory CD.	204.5 U/L	≤148.0	

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Risk and Limitations

Gut Zoomer testing is performed at Vibrant Genomics, a CLIA and CAP certified laboratory. However, laboratory error can occur, which might lead to incorrect results. Some of them may include sample or DNA mislabeling or contamination, operational error or failure to obtain data for certain genes. Vibrant's laboratory may need a second sample to complete the testing.

Vibrant Genomics has effective procedures in place to protect against technical and operational problems. However, such problems may still occur and examples include failure to obtain the Gut Zoomer abundance result for a specific species due to circumstances beyond Vibrant's control. Vibrant may re-test a sample in order to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect Gut Zoomer abundance results. A tested individual may wish to pursue further testing to verify any results.

Tested individuals should not change their diet, physical activity, or any medical treatments they are currently using based on the results without consulting their personal health care provider. These risk factors for Gut Zoomer are based on selected peer-reviewed scientific research findings as listed under references.

Tested individuals may find their experience is not consistent with Vibrant's selected peer reviewed scientific research findings of relative improvement for study groups. The science in this area is still developing and many personal health factors affect diet and health. Since subjects in the scientific studies referenced in this report may have had personal health and other factors different from those of tested individuals, results from these studies may not be representative of the results experienced by tested individuals. Further, some recommendations may or may not be attainable, depending on the tested individuals' physical ability or other personal health factors.

A limitation of this testing is that most scientific studies have been performed in Caucasian populations only. The interpretations and recommendations are done in the context of Caucasian studies, but the results may or may not be relevant to tested individuals of different or mixed ethnicities. Please note that pediatric ranges have not been established for these tests. Interference studies have not been established for individuals on immunosuppressive drugs.

Based on test results and other medical knowledge of the tested individual, health care providers might consider additional independent testing, or consult another health care provider or genetic counselor.