

PATIENT

NAME: TEST PATIENT

DATE OF BIRTH: 02/03/1997 AGE: 22

HEIGHT: 6'1" WEIGHT: 169.0 lbs

PHONE NUMBER: 1-234-568-9001

ADDRESS: HOWARD AVE, SAN CARLOS, CA- 94402.EMAIL:
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ACCESSION ID: 1907180377

SPECIMEN COLLECTION TIME: 07-17-2019 16:20

SPECIMEN RECEIVED TIME: 07-18-2019 10:20

FINAL REPORT TIME: 07-19-2019 17:24

FASTING: FASTING

PROVIDER

PRACTICE NAME: Vibrant IT2 Practice

PROVIDER NAME: Demo Client, MD (999994)

ADDRESS: 1021 HOWARD AVENUE, SAN CARLOS, CA- 94070.

TELEPHONE: 800-842-7268

Vibrant Wellness is pleased to present to you, **Gut Zoomer** testing, to help you make healthy lifestyle choices in consultation with your physician and dietitian. It is intended to be used as a tool to encourage general healthy lifestyle choices.

Gut Zoomer 3.0 is a health analytics tool based on the gut microbiome which provides potential risks for leaky gut, cardiovascular, metabolic, neurological, intestinal, autoimmune, liver, hormonal, and nutritional health conditions. Additionally it has panels for detection of gut pathogens and digestive markers. It is intended to be used to improve functions associated with a general state of health, and where it is well understood as well as accepted that healthy lifestyle choices may play an important role in these health outcomes.

Interpretation of Report: The following terminologies are used consistently in the report and are explained below.

Gut Diversity is an indicator for the amount of individual bacteria from each of the bacterial species present in your gut microbiome. There are two indices calculated including Shannon's Index (Scale 0-3) and Simpson's Index (Scale 0-1). For both calculations, higher index value represents increased diversity of species. While Shannon's is a better indicator of 'Evenness' of the diversity, Simpson's is a better indicator of 'Richness'. The reference range for Shannon's Index is ≥ 2.5 units and for Simpson's Index is ≥ 0.75 units. The calculated Index values are surrounded with a risk indicator (Green – high diversity, Yellow – moderate diversity, and Red – low diversity).

Gut Phyla distribution is displayed in a pie chart with each pie representing the % of individual phyla tested.

Key Ratios are calculated and displayed comprising of F/B (Firmicutes to Bacteroidetes ratio) and P/B (Prevotella to Bacteroides ratio), along with the corresponding risk indicator.

Gut Commensal bacteria is represented using relative abundance values. **Relative abundance** is the percent composition of an organism of a particular kind relative to the total number of organisms in your gut microbiome. The abundance of individual bacterial phylum/family/genus/species is calculated by comparing the relative abundance to the healthy reference range. Reference ranges have been established using results from 192 healthy individuals.

In some cases, a high abundance is potentially associated with an increased risk for a condition and in some cases a low abundance is potentially associated with an increased risk for a condition. The abundance is always mentioned in the report along with the potential associated risks, however, it is applicable only when indicated in **RED**. Associated probiotic tests are displayed in each panel with suggestions based on potential associated risks.

Ratings are calculated based on the impact factor, citations, and study population of the references which correlate the bacterial organism with the associated conditions. It is indicated with a star based system (1 star – 5 stars) with 5 stars indicating the best correlation of the bacteria with the potential associated risk. The impact factor of the journal in which the reference is published is the number of citations received by articles published in that journal during the two preceding years, divided by the total number of articles published in that journal during the two preceding years. Study population includes the number of samples tested along with gender, age, and ethnicity of the population.

Gut Pathogens comprising of pathogenic bacteria, parasites, virus, and fungi are indicated as DETECTED or NOT DETECTED along with the levels in respective units. Worm and antibiotic resistance gene testing is displayed as DETECTED or NOT DETECTED based on the test result.

Inflammation and Digestive Insufficiency markers are displayed along with a risk indicator and the corresponding reference range for each test calculated using results from 192 healthy individuals. All test results are displayed with risk indicator and abundance direction as applicable. (Red – High Risk, Yellow – Moderate Risk and Green – Low Risk).

Vibrant Wellness is a personalized health analytics company founded out of our passion to serve patients and providers. The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. All testing offered by Vibrant Wellness is performed at a CLIA approved lab testing facility and licensed by California Department of Public Health.

Please Note - It is important that you discuss any modifications to your diet, exercise and nutritional supplementation with your physician before making any changes.

To schedule an appointment with Vibrant Clinical Dietitians please call: Toll-Free 866-364-0963.

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GUT DIVERSITY



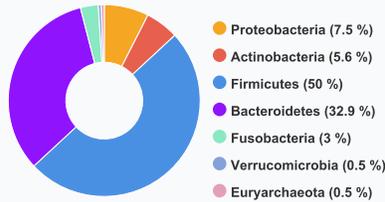
Shannon's Index
Ref Range: ≥ 2.5
Prev value: 0.9



Simpson's Index
Ref Range: ≥ 0.8
Prev value: 0.4

NOTE:
Higher value, Higher Diversity

PHYLA



KEY RATIOS

RATIO	CURRENT	REF RANGE	PREVIOUS 06/18/2019
F/B	6.2	≤ 0.9	9.0
P/B	2.20	≥ 0.48	2.50

COMMENTS:
Increased risk for IBS.

GUT COMMENSALS

● Low ● Moderate ● High

TEST NAME	CURRENT	PREV	TEST NAME	CURRENT	PREV
INTESTINAL PERMEABILITY	2.9	4.5	SIBO	3.9	3.5
CARDIOVASCULAR HEALTH	2.4	3.6	AUTOIMMUNE HEALTH	1.2	2.2
METABOLIC HEALTH	1.0	2.3	NUTRITION	3.4	5.1
NEUROLOGICAL DISEASES	0.9	2.8	LIVER DISEASES	1.9	6.0
IBD	1.1	4.2	IBS	1.7	6.0
HORMONES	1.0	1.5			

COMMENTS:
Increased risk for Intestinal permeability, SIBO, Cardiovascular health, Nutrition.
Suggested Probiotics include: Lactobacillus reuteri, Lactobacillus rhamnosus, Lactobacillus plantarum, Streptococcus thermophilus, Lactobacillus bulgaricus, Lactobacillus acidophilus, Bifidobacterium Longum, Lactobacillus casei, Lactobacillus, Bifidobacterium, Lactobacillus animalis, Lactobacillus murinus, Bifidobacterium animalis, Bifidobacterium animalis subsp lactis, Bifidobacterium bifidum, Lactobacillus fermentum, Lactobacillus spp, Lactobacillus salivarius, Saccharomyces boulardii, Bacillus coagulans, Bifidobacterium infantis, Bifidobacterium breve, Bifidobacterium lactis, Bifidobacterium longum.

GUT PATHOGENS

ORGANISM	DETECTED	RESULT			COMMENTS
		CURRENT	REF RANGE	PREVIOUS	
Bacteria	Clostridium difficile Toxin A	2.5e5	$\leq 1e3$	1e6	Consider broad-spectrum antimicrobial herbs including berberine, caprylic acid, garlic oil, oil of oregano, uva ursi, olive leaf extract.
	Plesiomonas shigelloides	7.5e4	$\leq 3e2$	3.5e7	Consider broad-spectrum antimicrobial herbs including berberine, caprylic acid, garlic oil, oil of oregano, uva ursi, olive leaf extract.
Antibiotic Resistance Genes	Helicobacter - Clarithromycin	DETECTED		DETECTED	Consider herbal formulas to eradicate or suppress H. pylori. Ingredients may include: deglycyrrhizinated licorice, mastic gum, methylmethionine sulfonium chloride, vitamin C, zinc carnosine, bismuth citrate, berberine, goldenseal, oil of oregano, grape extract, Chinese goldthread extract, yerba mansa extract. Rebuild healthy gastric mucosa by reducing stress and giving soothing and healing agents such as glutamine, aloe, DGL, and vitamin A.

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INFLAMMATION & DIGESTIVE INSUFFICIENCY

MARKER	RESULT			COMMENT
	CURRENT	REF RANGE	PREV	
Calprotectin	145.8 mcg/g	≤50.0	257.2 mcg/g	Five polyphenols in particular have evidence of benefit in treating gut inflammation: resveratrol, epigallocatechin, curcumin, quercetin, and Boswellia. Sleep, diet, exercise and stress management should be evaluated. Be cautious with medications such as ibuprofen, acetaminophen, aspirin, especially in children.
Pancreatic elastase 1	250.4 mcg/g	≥200.0	307.9 mcg/g	
Cholic acid (CA)	0.74 %	≤0.36	1.50 %	Digestive support with betaine HCL. Consider pepsin, plant or pancreatic enzyme supplements, digestive herbs, bile salts, and taurine. Micronutrient evaluation recommended, especially for fat soluble vitamins A, D, E, and K. Consider eat six small meals per day. Chew thoroughly and relax at meal time. Stay well-hydrated. Avoid alcohol and smoking.
Chenodeoxycholic acid (CDCA)	1.20 %	≤1.25	1.15 %	
Deoxycholic acid (DCA)	36.20 %	24.25~75.84	35.80 %	
Lithocholic acid (LCA)	61.86 %	24.16~75.75	61.55 %	
LCA/DCA ratio	0.42	0.32~3.38	0.36	

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METABOLITES

MARKER	RESULT			COMMENT
	CURRENT	REF RANGE	PREV	
Acetate	69.5 %	60.2~72.7	65.2 %	
Butyrate	4.3 %	5.1~12.4	1.2 %	SCFA supplements are most commonly found as butyric acid salts. Herbal medicines that can affect SCFA levles include berberine, passiflora edulis, Chinese Yam, trametes versicolor extract, lotus seed resistant starch, xylooligosaccharides from corn cobs, coptis chinensis, Reishi mushroom, Poria mushroom, Lingzhi mushroom, Daikenchuto. Sleep, diet, exercise and stress management needs to be evaluated. Be cautious with use of antibiotics.
Propionate	20.7 %	15.4~30.3	30.2 %	
Valerate	1.5 %	0.8~3.5	3.4 %	
Total Short chain fatty acids	114.7 micromol/g	45.4~210.1	100.6 micromol/g	
β-glucuronidase	1275 U/mL	≤2300	1575 U/mL	

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Gut Microbiome and Intestinal Permeability

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Enterobacteriaceae	13.5 ↔	≤20.0	13.1 ↔	★★★★★	Intestinal permeability
Akkermansia muciniphila	19.6 ↔	≥10.0	19.2 ↔	★★★★★	
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	★★★	Lower SCFA production
Propionibacterium	29.3 ↔	≥10.0	28.7 ↔	★★★	
Eubacterium	27.0 ↔	≥10.0	26.2 ↔	★★★	
Lactobacillus	10.6 ↔	≥10.0	4.2 ↓	★★★	
Roseburia	14.8 ↔	≥10.0	14.1 ↔	★★★	
Eubacterium rectale	29.0 ↔	≥10.0	28.3 ↔	★★★	Lower butyrate production
Butyrivibrio	18.8 ↔	≥10.0	18.1 ↔	★★★★★	

YOUR LEVELS OF PROBIOTIC ORGANISMS

Lactobacillus reuteri	>30.0 ↔	≥10.0	29.3 ↔	
Lactobacillus rhamnosus	11.5 ↔	≥10.0	11.4 ↔	
Lactobacillus plantarum	6.5 ↓	≥10.0	5.6 ↓	
Streptococcus thermophilus	14.4 ↔	≥10.0	14.1 ↔	
Lactobacillus bulgaricus	12.6 ↔	≥10.0	11.7 ↔	
Lactobacillus acidophilus	21.7 ↔	≥10.0	21.5 ↔	
Bifidobacterium longum	5.0 ↓	≥10.0	4.1 ↓	

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

Probiotics: Lactobacillus reuteri, Lactobacillus rhamnosus, Lactobacillus plantarum, Streptococcus thermophilus, Lactobacillus bulgaricus, Lactobacillus acidophilus, Bifidobacterium Longum.

Supplements: Arabinogalactan, Inulin.

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.

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Gut Microbiome and SIBO

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Streptococcus species	8.7 ↔	≤20.0	7.9 ↔	★★★	SIBO syndrome
Escherichia coli	14.2 ↔	≤20.0	24.8 ↑	★★★	
Staphylococcus species	13.3 ↔	≤20.0	12.9 ↔	★★★	
Micrococcus	20.3 ↑	≤20.0	19.5 ↔	★★★	
Acinetobacter	19.9 ↔	≤20.0	19.7 ↔	★★★	
Bacteroides	11.5 ↔	≤20.0	11.2 ↔	★★★	
Clostridium	11.2 ↔	≤20.0	10.2 ↔	★★★	
Peptostreptococcus	16.1 ↔	≤20.0	15.9 ↔	★★★	
Enterococcus species	19.5 ↔	≤20.0	18.6 ↔	★★★	
Methanobrevibacter smithii	6.7 ↔	≤20.0	5.8 ↔	★★★★★	

YOUR LEVELS OF PROBIOTIC ORGANISMS

Lactobacillus casei	24.5 ↔	≥10.0	23.8 ↔	
Lactobacillus plantarum	6.5 ↓	≥10.0	5.6 ↓	

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

Probiotics: Lactobacillus casei, Lactobacillus plantarum.

Supplements: Berberine, Origanum vulgare, Wormwood oil, Lemon balm oil, Barberry 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.

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Gut Microbiome and Cardiovascular Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Collinsella	3.0 ↔	≤20.0	2.4 ↔	★★★★★	Atherosclerosis
Lactobacillus ruminis	9.0 ↔	≤20.0	8.5 ↔	★★★★★	Stroke
Atopobium	8.1 ↔	≤20.0	8.1 ↔	★★★★★	
Lactobacillus sakei	14.0 ↔	≥10.0	13.9 ↔	★★★★★	
Escherichia coli	8.5 ↔	≤20.0	24.8 ↑	★★★★★	Cardiovascular disease
Enterobacter aerogenes	13.6 ↔	≤20.0	12.7 ↔	★★★★★	
Streptococcus species	8.7 ↔	≤20.0	7.9 ↔	★★★★★	
Solobacterium moorei	15.8 ↔	≤20.0	15.2 ↔	★★★★★	
Atopobium parvulum	12.4 ↔	≤20.0	12.4 ↔	★★★★★	
Roseburia intestinalis	13.9 ↔	≥10.0	13.4 ↔	★★★★★	
Faecalibacterium prausnitzii	5.6 ↓	≥10.0	5.3 ↓	★★★★★	
Prevotella copri	18.4 ↔	≥10.0	17.7 ↔	★★★★★	
Alloprevotella	15.8 ↔	≥10.0	14.8 ↔	★★★★★	
Catenibacterium	10.6 ↔	≥10.0	10.3 ↔	★★★★★	
Tyzzereella	19.9 ↔	≤20.0	19.5 ↔	★★★★★	
Tyzzereella 4	13.0 ↔	≤20.0	12.2 ↔	★★★★★	

YOUR LEVELS OF PROBIOTIC ORGANISMS

Lactobacillus plantarum	6.5 ↓	≥10.0	5.6 ↓	
Streptococcus thermophilus	14.4 ↔	≥10.0	14.1 ↔	

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

Probiotics: Lactobacillus plantarum, Streptococcus thermophilus.

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.

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Gut Bacteria and Autoimmune Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Porphyromonas gingivalis	16.0 ↔	≤20.0	16.0 ↔	★★★	Rheumatoid arthritis
Lactobacillus	10.6 ↔	≥10.0	4.2 ↓	★★★★★	Celiac disease
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	★★★★★	
Proteobacteria	11.3 ↔	≤20.0	11.3 ↔	★★★	
Enterobacteriaceae	13.5 ↔	≤20.0	13.1 ↔	★★★	
Staphylococcaceae	17.9 ↔	≤20.0	16.9 ↔	★★★	
Staphylococcus epidermidis	11.6 ↔	≤20.0	10.9 ↔	★★★	
Staphylococcus pasteurii	1.9 ↔	≤20.0	1.5 ↔	★★★	
Coprococcus	19.3 ↔	≥10.0	19.2 ↔	★★★	Psoriatic arthritis
Akkermansia	25.3 ↔	≥10.0	25.2 ↔	★★★	
Pseudobutyrvibrio	21.4 ↔	≥10.0	20.9 ↔	★★★	
Proteus mirabilis	1.9 ↔	≤20.0	1.0 ↔	★★	Rheumatoid arthritis, Ankylosing spondylitis
Enterococcus gallinarum	6.2 ↔	≤20.0	5.7 ↔	★★★★★	Autoimmunity
Clostridia clusters XIVa	17.8 ↔	≥10.0	17.8 ↔	★★★★★	Inflammation, Allergy
Clostridia clusters IV	22.0 ↔	≥10.0	21.3 ↔	★★★★★	
Clostridia clusters XVIII	27.9 ↔	≥10.0	27.7 ↔	★★★★★	

YOUR LEVELS OF PROBIOTIC ORGANISMS

Lactobacillus acidophilus	21.7 ↔	≥10.0	21.5 ↔	
Lactobacillus casei	24.5 ↔	≥10.0	23.8 ↔	
Bifidobacterium bifidum	29.1 ↔	≥10.0	28.3 ↔	

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

Probiotics: Lactobacillus, Bifidobacterium.

Supplements: peptidase, ginger 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.

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Gut Microbiome and Metabolic Health

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Oscillospira	5.0 ↔	≤20.0	4.1 ↔	★★★★★	Low BMI, Metabolic health
Christensenella minuta	15.5 ↔	≤20.0	15.3 ↔	★★★★★	
Bacteroides caccae	4.6 ↔	≤20.0	4.5 ↔	★★★★★	Diabetes, Metabolic health
Clostridium hathewayi	16.3 ↔	≤20.0	15.7 ↔	★★★★★	
Clostridium ramosum	3.0 ↔	≤20.0	2.0 ↔	★★★★★	
Clostridium symbiosum	15.5 ↔	≤20.0	15.3 ↔	★★★★★	
Eggerthella lenta	9.0 ↔	≤20.0	8.5 ↔	★★★★★	
Escherichia coli	14.2 ↔	≤20.0	24.8 ↑	★★★★★	
Bifidobacterium animalis	18.5 ↔	≥10.0	18.1 ↔	★★★★	Obesity, Metabolic health
Blautia hydrogenotrophica	14.5 ↔	≤20.0	19.9 ↔	★★	
Ruminococcus obeum	15.7 ↔	≤20.0	14.8 ↔	★★	
Akkermansia muciniphila	19.6 ↔	≥10.0	19.2 ↔	★★★★★	Obesity, Diabetes, Metabolic health
Methanobrevibacter smithii	6.7 ↔	≤20.0	5.8 ↔	★★	IBS, Obesity, Metabolic health
Bifidobacterium adolescentis	16.0 ↔	≥10.0	16.0 ↔	★★★	Digestive insufficiency, Metabolic health

YOUR LEVELS OF PROBIOTIC ORGANISMS

Lactobacillus paracasei	12.7 ↔	≥10.0	12.5 ↔	
Lactobacillus rhamnosus	11.5 ↔	≥10.0	11.4 ↔	
Lactobacillus acidophilus	21.7 ↔	≥10.0	21.5 ↔	
Lactobacillus casei	24.5 ↔	≥10.0	23.8 ↔	
Bifidobacterium animalis	18.5 ↔	≥10.0	18.1 ↔	

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Gut Microbiome and Nutrition

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	★★★★★	Lower production of folate, Lower production of vitamin K, Lower production of riboflavin (vitamin B2), Lower production of cobalamin (vitamin B12)
Lactobacillus	10.6 ↔	≥10.0	4.2 ↓	★★★★★	
Bacillus subtilis	8.5 ↓	≥10.0	8.3 ↓	★★★★★	
Propionibacterium freudenreichii	11.5 ↔	≥10.0	10.6 ↔	★★★★★	
Bifidobacterium animalis subspecies lactis	8.9 ↓	≥10.0	2.1 ↓	★★	Digestive insufficiency
Lactobacillus animalis	17.0 ↔	≥10.0	16.1 ↔	★★	
Ruminococcus bromii	17.5 ↔	≥10.0	16.9 ↔	★★★★★	
Eubacterium rectale	29.0 ↔	≥10.0	28.3 ↔	★★★★★	
Roseburia	14.8 ↔	≥10.0	14.1 ↔	★★★★★	Lower butyrate production
Eubacterium rectale	29.0 ↔	≥10.0	28.3 ↔	★★★★★	
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	★★★★★	

YOUR LEVELS OF PROBIOTIC ORGANISMS

Lactobacillus animalis	17.0 ↔	≥10.0	16.1 ↔	
Bifidobacterium animalis	18.5 ↔	≥10.0	18.1 ↔	

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

Probiotics: Lactobacillus animalis, Lactobacillus murinus, Bifidobacterium animalis.

Supplements: protease, amyloglucosidase, beta-glucanase, alpha-galactoidase, lipase, amylases.

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.

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Gut Microbiome and Neuro diseases

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Lactobacillaceae	7.5 ↔	≤20.0	7.1 ↔	★★★★★	Parkinson's disease
Bradyrhizobiaceae	8.0 ↔	≤20.0	8.0 ↔	★★★★★	
Clostridiales Incertae Sedis IV	4.1 ↔	≤20.0	3.8 ↔	★★★★★	
Enterobacteriaceae	13.5 ↔	≤20.0	13.1 ↔	★★★★★	
Desulfovibrio	10.2 ↔	≤20.0	9.3 ↔	★★★★★	Autism
Bacteroides vulgatus	16.8 ↔	≤20.0	16.6 ↔	★★★★★	
Bacteroidetes	7.7 ↔	≤20.0	7.0 ↔	★★★★★	
Firmicutes	27.6 ↔	≥10.0	27.2 ↔	★★★★★	
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	★★★★★	
Prevotella	14.7 ↔	≥10.0	13.9 ↔	★★★★★	
Coprococcus	19.3 ↔	≥10.0	19.2 ↔	★★★★★	
Veillonellaceae	19.4 ↔	≥10.0	19.3 ↔	★★★★★	Depression
Bacteroidales	6.1 ↔	≤20.0	5.5 ↔	★★★	
Lachnospiraceae	10.8 ↔	≥10.0	10.1 ↔	★★★	
Methanobrevibacter	15.6 ↔	≤20.0	20.0 ↔	★★★	Multiple sclerosis
Butyricimonas	15.5 ↔	≥10.0	15.2 ↔	★★★	
Pseudomonas	6.4 ↔	≤20.0	5.8 ↔	★★★	
Mycoplana	4.4 ↔	≤20.0	3.8 ↔	★★★	
Haemophilus	19.1 ↔	≤20.0	19.0 ↔	★★★	
Blautia	17.0 ↔	≤20.0	16.6 ↔	★★★	
Dorea	12.6 ↔	≤20.0	25.6 ↑	★★★	
Firmicutes	27.6 ↔	≥10.0	27.2 ↔	★★★	
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	★★★	
Bacteroidetes	7.7 ↔	≤20.0	7.0 ↔	★★★	
Bacteroides	11.5 ↔	≤20.0	11.2 ↔	★★★	

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Lactobacillus acidophilus	21.7 ↔	≥10.0	21.5 ↔	
Lactobacillus casei	24.5 ↔	≥10.0	23.8 ↔	
Lactobacillus fermentum	23.5 ↔	≥10.0	22.9 ↔	
Bifidobacterium bifidum	29.1 ↔	≥10.0	28.3 ↔	
Lactobacillus brevis	>30.0 ↔	≥10.0	30.0 ↔	
Bifidobacterium dentium	11.5 ↔	≥10.0	11.1 ↔	
Bifidobacterium animalis subsp lactis	27.3 ↔	≥10.0	26.8 ↔	
Streptococcus thermophilus	14.4 ↔	≥10.0	14.1 ↔	
Lactobacillus bulgaricus	12.6 ↔	≥10.0	11.7 ↔	
Streptococcus	11.4 ↔	≥10.0	10.4 ↔	

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

Probiotics: Bifidobacterium animalis subsp lactis, Streptococcus thermophilus, Lactobacillus bulgaricus, Lactobacillus acidophilus, Lactobacillus casei, Bifidobacterium bifidum, Lactobacillus fermentum.

Supplements: glycine, Pantothenic Acid, riboflavin, vitamin B6, folate, vitamin B12, betaine.

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.

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Gut Microbiome and Liver Diseases

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Lactococcus	16.9 ↔	≥10.0	16.6 ↔	★★	Alcohol-associated dysbiosis
Pediococcus	24.1 ↔	≥10.0	23.9 ↔	★★	
Lactobacillus	10.6 ↔	≥10.0	4.2 ↓	★★	
Leuconostoc	20.3 ↔	≥10.0	19.9 ↔	★★	
Proteobacteria	11.3 ↔	≤20.0	11.3 ↔	★★★★★	Liver cirrhosis
Fusobacteria	12.4 ↔	≤20.0	12.3 ↔	★★★★★	
Veillonella	10.1 ↔	≤20.0	9.2 ↔	★★★★★	
Streptococcus species	8.7 ↔	≤20.0	7.9 ↔	★★★★★	
Clostridium	11.2 ↔	≤20.0	10.2 ↔	★★★★★	Alcohol-related liver cirrhosis
Lachnospiraceae	10.8 ↔	≥10.0	10.1 ↔	★★★	
Ruminococcaceae	24.0 ↔	≥10.0	23.1 ↔	★★★	
Clostridiales Family XIV Incertae Sedis	13.5 ↔	≥10.0	12.9 ↔	★★★	
Enterobacteriaceae	13.5 ↔	≤20.0	13.1 ↔	★★★	Alcoholic hepatitis
Escherichia coli	14.2 ↔	≤20.0	24.8 ↑	★★★	
Streptococci	20.8 ↑	≤20.0	19.8 ↔	★★★	
Enterobacteria	9.8 ↔	≤20.0	9.5 ↔	★★★	
Faecalibacterium prausnitzii	5.6 ↓	≥10.0	5.3 ↓	★★★	Nonalcoholic steatohepatitis
Ruminococcus	9.4 ↔	≤20.0	29.5 ↑	★★★★★	
Prevotella	14.7 ↔	≥10.0	13.9 ↔	★★★★★	Primary sclerosing cholangitis
Enterococcus	10.8 ↔	≤20.0	9.9 ↔	★★★★★	
Fusobacterium	10.1 ↔	≤20.0	9.8 ↔	★★★★★	
Streptococcus species	8.7 ↔	≤20.0	7.9 ↔	★★★★★	
Veillonella	10.1 ↔	≤20.0	9.2 ↔	★★★★★	

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YOUR LEVELS OF PROBIOTIC ORGANISMS

Lactobacillus rhamnosus GG	28.0 ↔	≥10.0	27.8 ↔	
Lactobacillus	10.6 ↔	≥10.0	4.2 ↓	
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	

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

Probiotics: Lactobacillus rhamnosus, Lactobacillus spp, Bifidobacterium.

Supplements: selenium, Milk Thistle extract, alpha-lipoic acid, N-Acetyl-L-Cysteine.

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.

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Gut Microbiome and IBD

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Roseburia	14.8 ↔	≥10.0	14.1 ↔	★★★★★	IBD
Phascolarctobacterim	19.2 ↔	≤20.0	18.6 ↔	★★★★★	
Clostridium	11.2 ↔	≤20.0	10.2 ↔	★★★★★	
Ruminococcaceae	24.0 ↔	≥10.0	23.1 ↔	★★★★★	
Faecalibacterium	18.6 ↔	≥10.0	18.5 ↔	★★★★★	
Desulfovibrio piger	13.0 ↔	≤20.0	12.9 ↔	★★★★★	
Faecalibacterium prausnitzii	5.6 ↓	≥10.0	5.3 ↓	★★★	
Akkermansia muciniphila	19.6 ↔	≥10.0	19.2 ↔	★★★	Crohn's disease
Dialister invisus	25.1 ↔	≥10.0	24.6 ↔	★★★★	
Faecalibacterium prausnitzii	5.6 ↓	≥10.0	5.3 ↓	★★★★	
Bifidobacterium adolescentis	16.0 ↔	≥10.0	16.0 ↔	★★★★	
Ruminococcus gnavus	8.1 ↔	≤20.0	7.9 ↔	★★★★	
Enterococcus	10.8 ↔	≤20.0	9.9 ↔	★★	
Veillonella	10.1 ↔	≤20.0	9.2 ↔	★★	

YOUR LEVELS OF PROBIOTIC ORGANISMS

Saccharomyces boulardii	29.8 ↔	≥10.0	29.8 ↔	
Lactobacillus reuteri	>30.0 ↔	≥10.0	29.3 ↔	
Lactobacillus plantarum	6.5 ↓	≥10.0	5.6 ↓	
Lactobacillus salivarius	20.3 ↔	≥10.0	19.5 ↔	
Bifidobacterium breve	26.1 ↔	≥10.0	26.0 ↔	
Bifidobacterium bifidum	29.1 ↔	≥10.0	28.3 ↔	
Lactobacillus acidophilus	21.7 ↔	≥10.0	21.5 ↔	
Escherichia coli Nissle	24.1 ↔	≥10.0	23.3 ↔	

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

Probiotics: Lactobacillus reuteri, Lactobacillus plantarum, Lactobacillus salivarius, Saccharomyces boulardii.

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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.

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Gut Microbiome and IBS

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
Dorea	12.6 ↔	≤20.0	25.6 ↑	★★★★★	IBS
Ruminococcus	9.4 ↔	≤20.0	29.5 ↑	★★★★★	
Clostridium	11.2 ↔	≤20.0	10.2 ↔	★★★★★	
Lactobacillus	10.6 ↔	≥10.0	4.2 ↓	★★★★★	
Veillonella	10.1 ↔	≤20.0	9.2 ↔	★★★★★	
Bifidobacterium catenulatum	13.8 ↔	≥10.0	12.9 ↔	★★★★★	
Bifidobacterium	7.9 ↓	≥10.0	8.5 ↓	★★★	
Enterobacteriaceae	13.5 ↔	≤20.0	13.1 ↔	★★★	
Roseburia	14.8 ↔	≥10.0	14.1 ↔	★★★★	
Eubacterium rectale	29.0 ↔	≥10.0	28.3 ↔	★★★★	Lower butyrate production

YOUR LEVELS OF PROBIOTIC ORGANISMS

Bacillus coagulans	24.1 ↔	≥10.0	23.8 ↔	
Bifidobacterium infantis	16.0 ↔	≥10.0	15.1 ↔	
Lactobacillus acidophilus	21.7 ↔	≥10.0	21.5 ↔	
Lactobacillus plantarum	6.5 ↓	≥10.0	5.6 ↓	
Lactobacillus rhamnosus	11.5 ↔	≥10.0	11.4 ↔	
Bifidobacterium breve	26.1 ↔	≥10.0	26.0 ↔	
Bifidobacterium lactis	15.6 ↔	≥10.0	15.1 ↔	
Bifidobacterium longum	5.0 ↓	≥10.0	4.1 ↓	
Streptococcus thermophilus	14.4 ↔	≥10.0	14.1 ↔	

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

Probiotics: Bacillus coagulans, Bifidobacterium infantis, Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus rhamnosus, Bifidobacterium breve, Bifidobacterium lactis, Bifidobacterium longum, Streptococcus thermophilus.

Supplements: Berberine, Magnesium citrate, Aloe Leaf Extract, Triphala.

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.

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Gut Microbiome and Hormones

GENUS/SPECIES	RELATIVE ABUNDANCE			RATING	POTENTIAL ASSOCIATED RISK*
	CURRENT	REF RANGE	PREVIOUS 06/18/2019		
β-glucuronidase producing bacteria	7.3 ↔	≤20.0	6.9 ↔	★★★★	Estrogen metabolism affected
β-galactosidase producing bacteria	3.2 ↔	≤20.0	3.1 ↔	★★★★	

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GUT PATHOGENS

Bacteria

✓ Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT 06/18/2019	RESULT
Clostridium difficile Toxin A	2.5e5	✓	≤1e3	1e6	✓
Clostridium difficile Toxin B	<1e3	---	≤1e3	<1e3	---
Campylobacter spp	<1e2	---	≤1e2	<1e2	---
Campylobacter jejuni	<1e2	---	≤1e2	<1e2	---
Campylobacter coli	<1e2	---	≤1e2	<1e2	---
Campylobacter upsaliensis	<1e2	---	≤1e2	<1e2	---
Plesiomonas shigelloides	7.5e4	✓	≤3e2	3.5e7	✓
Vibrio (parahaemolyticus)	<3e3	---	≤3e3	<3e3	---
Enteropathogenic E.coli (EPEC)	<1.5e3	---	≤1.5e3	<1.5e3	---
Enterotoxigenic E.coli (ETEC) Lt/St	<2e3	---	≤2e3	<2e3	---
E.coli O157	<1e2	---	≤1e2	1e5	✓
Shiga-Like Toxin Producing E.coli (STEC) Stx1/Stx2	<1e2	---	≤1e2	<1e2	---
Shigella/EIEC	<1e2	---	≤1e2	<1e2	---
Helicobacter pylori	<1.5e4	---	≤1.5e4	<1.5e4	---
Listeria	<3e3	---	≤3e3	<3e3	---
Vibrio (cholerae)	<2e2	---	≤2e2	<2e2	---
Enteraggregative E.coli (EAEC)	<1e2	---	≤1e2	<1e2	---
Klebsiella pneumoniae	<3.5e3	---	≤3.5e3	<3.5e3	---
Edwardsiella tarda	<4.5e3	---	≤4.5e3	<4.5e3	---
Yersinia enterocolitica	<2e4	---	≤2e4	<2e4	---
Vibrio (vulnificus)	<1e4	---	≤1e4	<1e4	---
Salmonella	<2e3	---	≤2e3	<2e3	---

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Parasites

✓ Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT 06/18/2019	RESULT
Cryptosporidium	<1e2	---	≤1e2	<1e2	---
Entamoeba histolytica	<1e2	---	≤1e2	<1e2	---
Giardia lamblia	<4e2	---	≤4e2	<4e2	---
Cyclospora cayetanensis	<2e3	---	≤2e3	<2e3	---
Chilomastix mesnili	<2e3	---	≤2e3	<2e3	---
Cyclospora spp.	<2.5e3	---	≤2.5e3	<2.5e3	---
Dientamoeba fragilis	<1e3	---	≤1e3	<1e3	---
Endolimax nana	<2e3	---	≤2e3	<2e3	---
Entamoeba coli	<2e3	---	≤2e3	<2e3	---
Pentatrichomonas hominis	<1e3	---	≤1e3	<1e3	---
Larval Nematode	<1e3	---	≤1e3	<1e3	---
Strongyloides stercoralis	<1e3	---	≤1e3	<1e3	---
Taenia solium	<1e3	---	≤1e3	<1e3	---
Schistosoma	<1e3	---	≤1e3	<1e3	---
Blastocystis hominis	<1e3	---	≤1e3	<1e3	---
Trichomonas hominis	<1e3	---	≤1e3	<1e3	---
Isospora belli	<1e3	---	≤1e3	<1e3	---
Fasciola/Fasciolopsis	<1e3	---	≤1e3	<1e3	---
Hymenolepis	<1e3	---	≤1e3	<1e3	---
Dipylidium caninum	<1e3	---	≤1e3	<1e3	---
Diphyllobothrium datum	<1e3	---	≤1e3	<1e3	---
Trichuris trichina	<1e3	---	≤1e3	<1e3	---
Enterobius vermicularis	<1e3	---	≤1e3	<1e3	---
Mansonella	<1e3	---	≤1e3	<1e3	---

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Virus

✓ Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT 06/18/2019	RESULT
Adenovirus F40/41	<1e2	—	≤1e2	<1e2	—
Rotavirus A	<3.1e2	—	≤3.1e2	<3.1e2	—
Astrovirus	<1.2e3	—	≤1.2e3	<1.2e3	—
Norovirus GI	<1e3	—	≤1e3	<1e3	—
Norovirus GII	<1e3	—	≤1e3	<1e3	—
Sapovirus I	<2.1e2	—	≤2.1e2	<2.1e2	—
Sapovirus II	<2.1e2	—	≤2.1e2	<2.1e2	—
Sapovirus V	<2.1e2	—	≤2.1e2	<2.1e2	—
Sapovirus IV	<2.1e2	—	≤2.1e2	<2.1e2	—
Cytomegalovirus	<1e3	—	≤1e3	<1e3	—
Epstein Barr virus	<1e3	—	≤1e3	<1e3	—

Fungi

✓ Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	RESULT	REF RANGE	PREVIOUS RESULT 06/18/2019	RESULT
Candida albicans	<1.1e2	—	≤1e2	<1.1e2	—
Candida spp.	<1.1e2	—	≤1e2	<1.1e2	—
Geotrichum spp.	<1.1e2	—	≤1e2	<1.1e2	—
Microsporidium spp.	<1.1e2	—	≤1e2	<1.1e2	—
Rodotorula spp.	<2.5e3	—	≤2.5e3	<2.5e3	—

Worms

✓ Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	PREVIOUS RESULT 06/18/2019
Ancylostoma duodenale	—	—
Ascaris lumbricoides	—	—
Necator americanus	—	—
Trichuris trichiura	—	—
Taenia spp.	—	—

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Antibiotic Resistance Genes

✓ Detected --- Not Detected

GENUS/SPECIES	CURRENT RESULT	PREVIOUS RESULT 06/18/2019
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	—	—

GUT INFLAMMATION MARKERS

CALPROTECTIN	CURRENT	REF RANGE	PREVIOUS
<p>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.</p>	145.8 mcg/g	≤50.0	257.2 mcg/g

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DIGESTIVE MARKERS

PANCREATIC ELASTASE 1	CURRENT	REF RANGE	PREVIOUS
<p>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.</p>	250.4 mcg/g	≥200.0	307.9 mcg/g
BILE ACIDS			
<p>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. Quantitation 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.</p>			
CHOLIC ACID (CA)			
<p>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.</p>	0.74 %	≤0.36	1.50 %
CHENODEOXYCHOLIC ACID (CDCA)			
<p>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 choleric laxative, and to prevent or dissolve gallstones.</p>	1.20 %	≤1.25	1.15 %
DEOXYCHOLIC ACID (DCA)			
<p>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.</p>	36.20 %	24.25~75.84	35.80 %
LITHOCHOLIC ACID (LCA)			
<p>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 choleric. 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.</p>	61.86 %	24.16~75.75	61.55 %
LCA/DCA RATIO			
<p>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.</p>	0.42	0.32~3.38	0.36

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GUT METABOLITES

ACETATE	CURRENT	REF RANGE	PREVIOUS
<p>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.</p>	69.5 %	60.2~72.7	65.2 %
BUTYRATE			
<p>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.</p>	4.3 %	5.1~12.4	1.2 %
PROPIONATE			
<p>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 comprise 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.</p>	20.7 %	15.4~30.3	30.2 %
VALERATE			
<p>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.</p>	1.5 %	0.8~3.5	3.4 %
TOTAL SHORT CHAIN FATTY ACIDS			
<p>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.</p>	114.7 micromol/g	45.4~210.1	100.6 micromol/g
β-GLUCURONIDASE			
<p>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.</p>	1275 U/mL	\leq 2300	1575 U/mL

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.