VIOME

Mary Wilson's Results

SAMPLE REPORT

The information on this report is for educational and informational use only. The information is not intended to be used by the customer for any diagnostic purpose and is not a substitute for professional medical advice. You should always seek the advice of your physician or other healthcare providers with any questions you may have regarding diagnosis, cure, treatment, mitigation, or prevention of any disease or other medical condition or impairment or the status of your health.

Mary's Report

Test Name: Health Intelligence Service

Authorized Order Person: Mary Wilson

Customer Name: Mary Wilson

DOB: 12/10/1955

Gender: Female

Customer ID: [redacted]

Sample Source: Fecal, Blood

Date Collected: 1/17/2020

Date Received: 1/20/2020

Date Issued: 1/29/2020

Date Amended: 4/24/2020

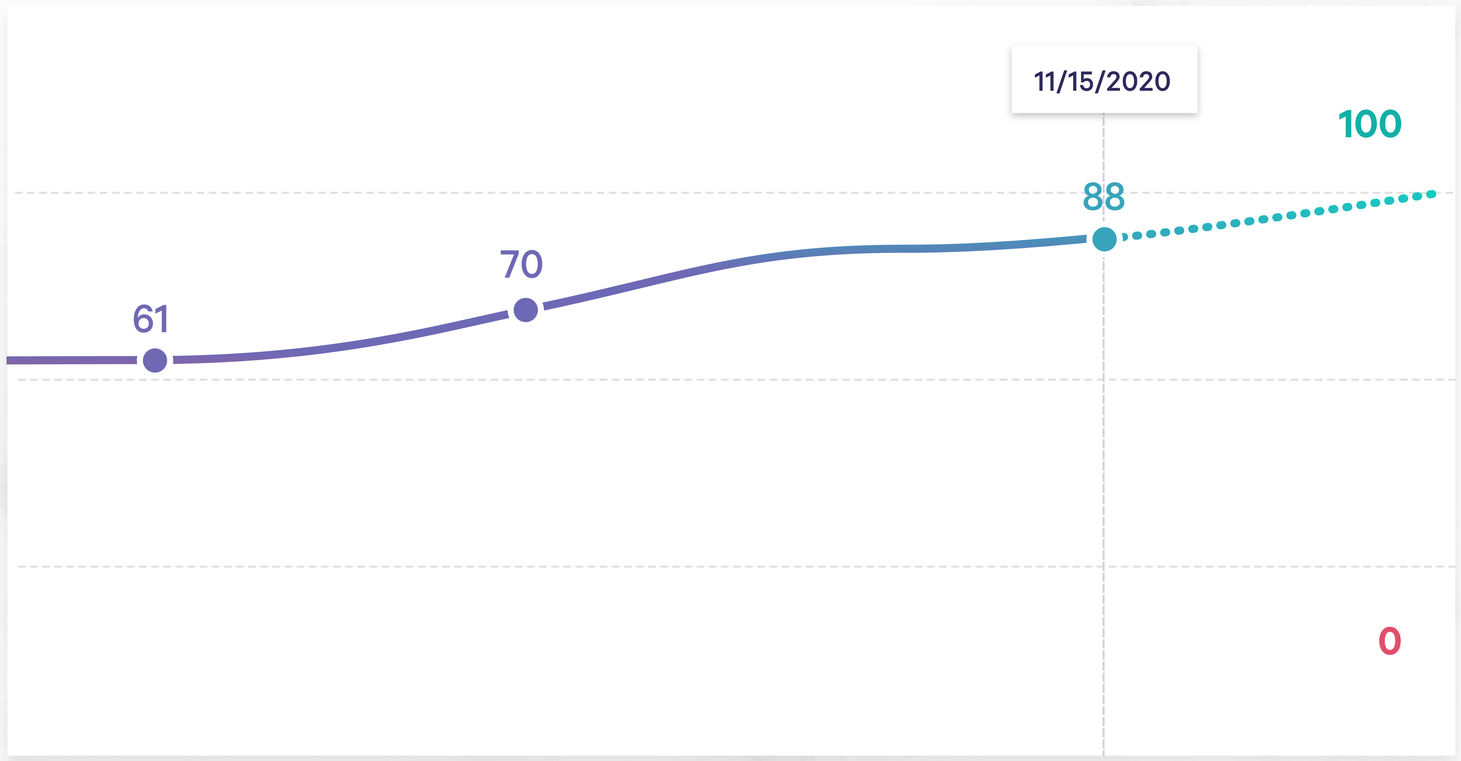
Sample ID: [redacted]

Gut Microbiome Health

88

Your Gut Microbiome Health score integrates over 20 microbial functional scores. When this score is low it means that your gut microbiome may be producing chemicals that are causing inflammation (such as LPS, sulfide, or ammonia) or not producing enough nutrients that your body needs (such as butyrate, serotonin, and other vitamins). Our food and supplement recommendations are designed specifically for you to optimize your microbial functions and bring your gut microbiome into balance. Scroll down below to the section titled "How We Calculate This Score" to learn more.

Did you know?
In many ways, your gut bacteria are as vast and mysterious as the Milky Way. About 100 trillion bacteria, both good and bad, live inside your digestive system. Optimizing your microbial functions can help you achieve a healthy weight, boost energy, reduce stress, improve sleep, and strengthen your immunity.



How We Calculate This Score

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74 **Inflammatory Activity**

68 **Protein Fermentation**

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How We Calculate This Score (Gut Microbiome Health) continued..



Gas Production



Digestive Efficiency



Metabolic Fitness



Gut Lining Health



Active Microbial Richness & Diversity

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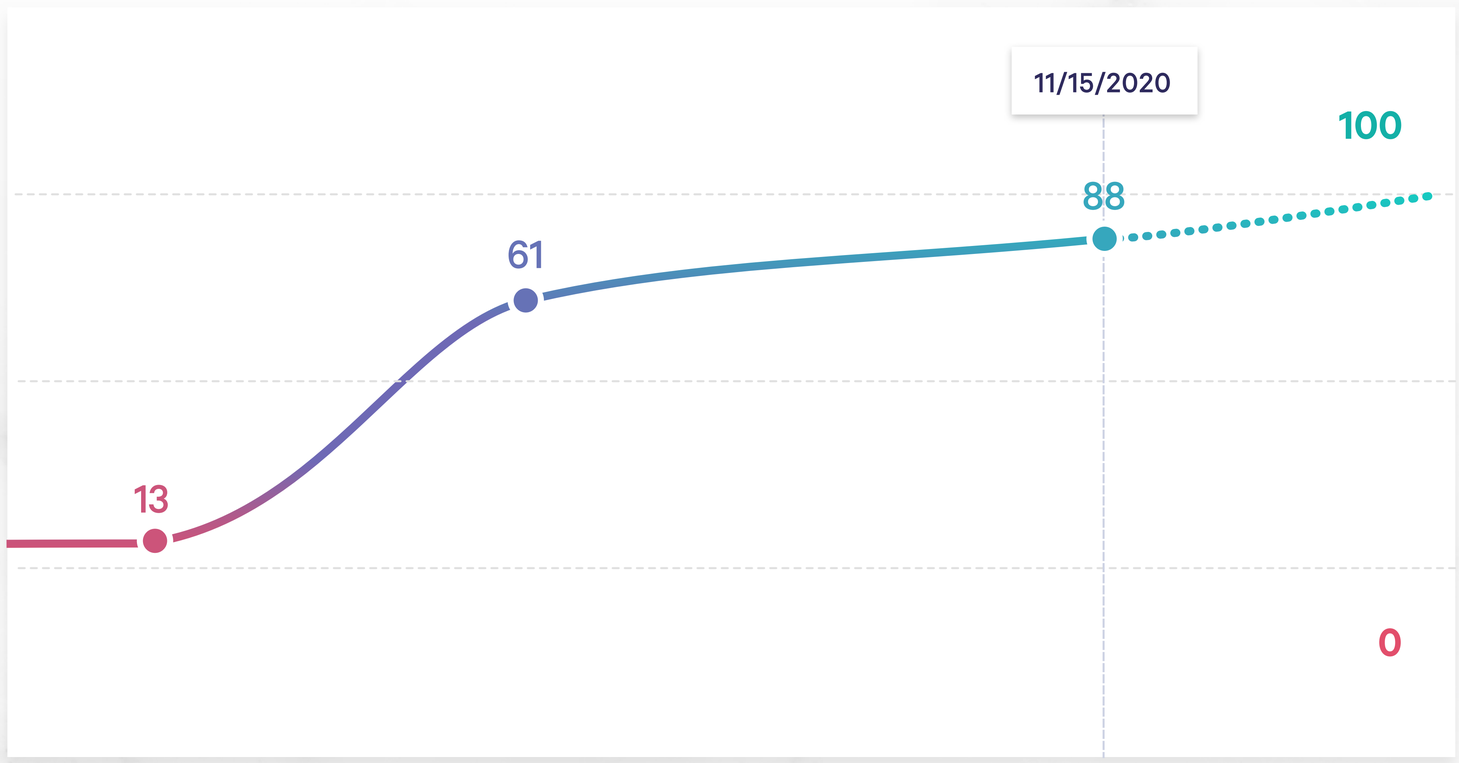
Sample ID: [redacted]

Cellular Health

88

Your Cellular Health score offers a complete picture of what is happening in the human body on the cellular level and takes into account the aging of your cells, cellular stress, cellular inflammation along with the health of your mitochondria. If your Cellular Health score is not optimal or low, this can mean that your cellular functions are not performing efficiently, your energy production is low, or your cells are undergoing stress due to oxidative stress, inflammation, or environmental toxins. To improve this score, we may recommend antioxidants or anti-inflammatory food and supplements specifically for you. Scroll down below to the section titled "How We Calculate This Score" to learn more.

Did you know?
The human body is composed of trillions of cells that provide structure for the body, converting nutrients into energy and carrying out specialized functions. Every single cell in your body has the same DNA.



How We Calculate This Score

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4 Cellular Senescence	18 Mitochondrial Health

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How We Calculate This Score (Cellular Health) continued..



Cellular Stress

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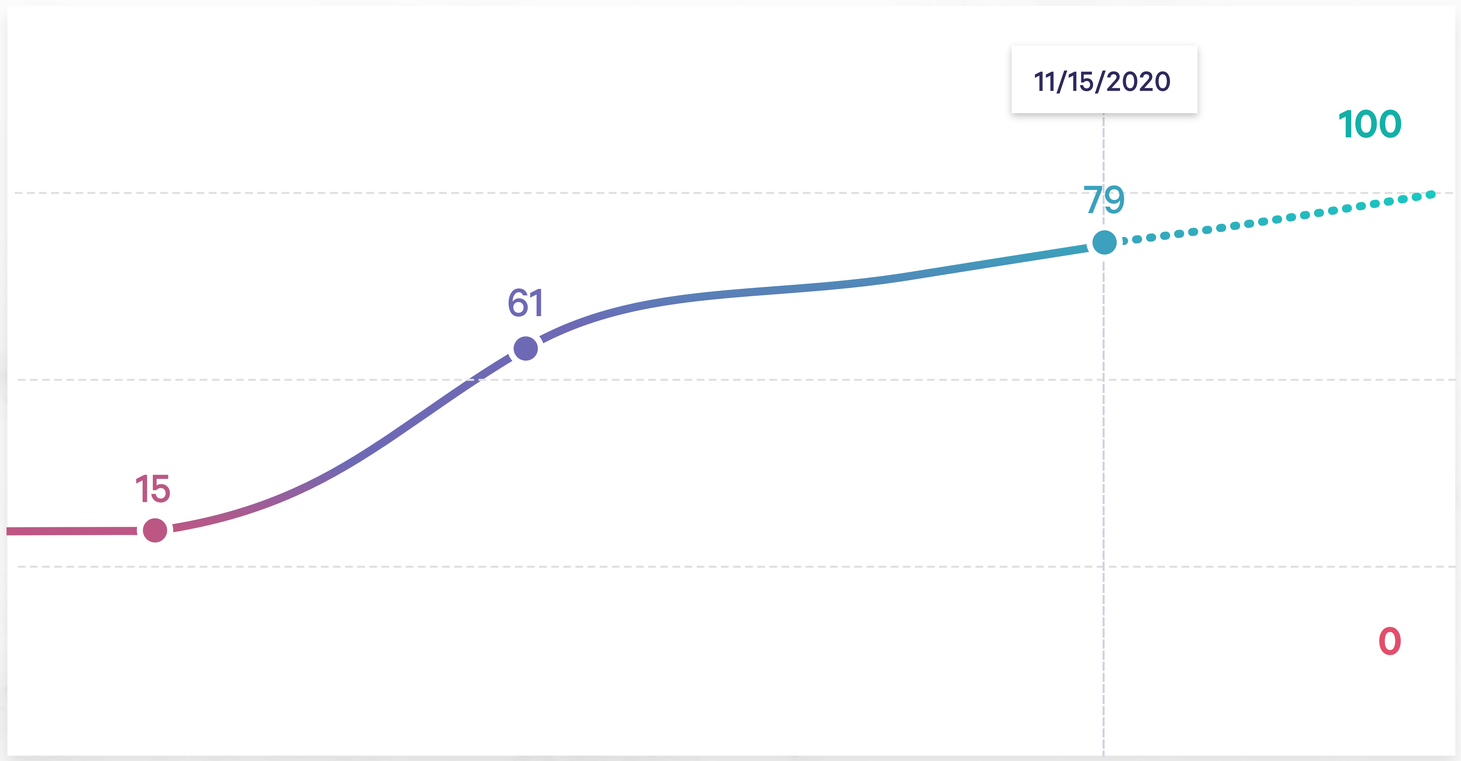
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Mitochondrial Health

79

Your Mitochondrial Health score is an integrative score that assesses the efficiency of the functions of your mitochondria that are required to meet your body's energy and metabolic demands. If your Mitochondrial Health score is not optimal, it could mean that your cells are not receiving enough energy to function efficiently, resulting in accelerated aging, and poor metabolism, cardiovascular, and brain health. Your supplement recommendations may include nutrients to boost mitochondria production or other coenzymes needed to increase cellular energy (ATP). Scroll down below to the section titled "How We Calculate This Score" to learn more.

Did you know?
Mitochondria are considered the powerhouse of the cell, supplying energy for basic cellular functions like care and repair of cells in the body. Each cell contains hundreds to thousands of mitochondria that have their own DNA, known as mitochondrial DNA. In addition to analyzing microbial and human gene expression, Viome also analyzes the gene expression from your mitochondria.



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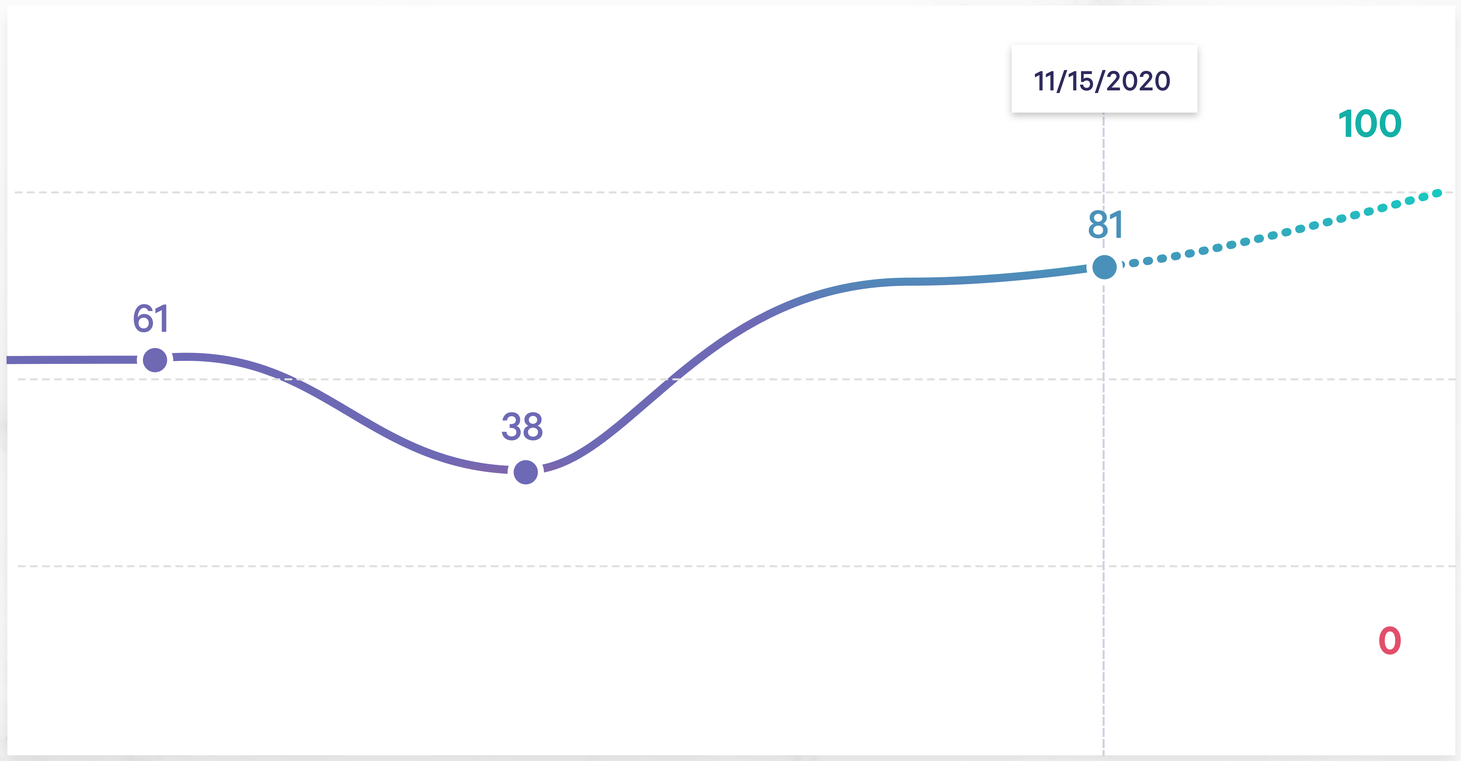
Sample ID: [redacted]

Stress Response Health



Your Stress Response score combines insights from your microbiome-induced stress factors, as well as your cellular functions that get activated in response to various triggers of cellular stress. If your Stress Response score is low or not optimal, it could mean that your microbiome is under stress due to excess salt, excess protein, or toxins produced by the microbiome as a result of an unbalanced diet. It could also mean that your cellular stress is high which can be triggered by things like environmental toxins, free radicals, or lifestyle related stress. Your recommended food and supplements will address your unique patterns of stress at a molecular level and may include antioxidants, anti-inflammatory nutrients, and personalized prebiotics or probiotics for you. Scroll down below to the section titled "How We Calculate This Score" to learn more.

Did you know?
Changes in lifestyle, food, and supplement intake can address your unique patterns of stress at a molecular level and supply you with cellular balance and resilience.



How We Calculate This Score

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Cellular Stress



Microbiome Induced Stress

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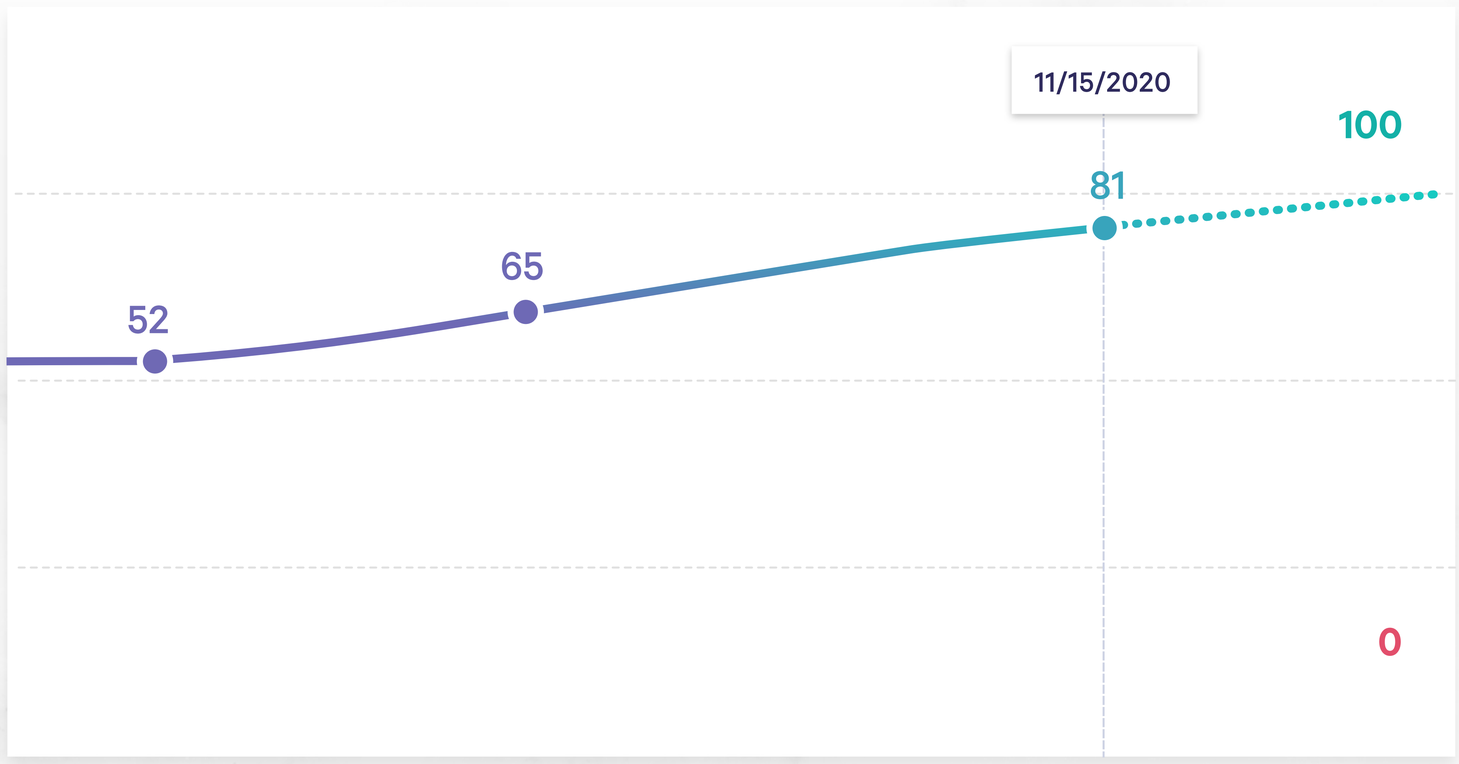
Sample ID: [redacted]

Immune System Health



Your Immune System Health score assesses your immune system's defense based on the inflammatory activities throughout your body as well as inside of your gut. If this score is not optimal, it means that your immunity is low and your immune system's preparedness to invading bacteria or viruses needs support. We may recommend specific foods or supplements that address harmful microbial activities, stimulate anti-inflammatory nutrients (like the short-chain fatty acids produced by the gut microbiome), or suppress proinflammatory molecules or allergy-related reactions in the body. Scroll down below to the section titled "How We Calculate This Score" to learn more.

Did you know?
Your body's immune system is your defense against the invisible invaders that seek to use you as a host to infect and reproduce. Your immune system may not be ready to fight the invading bacteria or viruses if it's already dealing with inflammation caused by cellular stress, an overactive immune system, or toxins produced by your gut microbiome due to an unhealthy diet.



How We Calculate This Score

To arrive at the Integrative Health score you see above, we combine multiple functional activities measured in the scores you see below. Each score below may contribute to multiple Integrative Health scores, but with a specific level of impact. This is based on the scientific knowledge to date and the data we derive from your test.



Gut Lining Health



Immune System Activation

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Sample ID: [redacted]

How We Calculate This Score (Immune System Health) continued..



Inflammatory Activity



Cellular Stress

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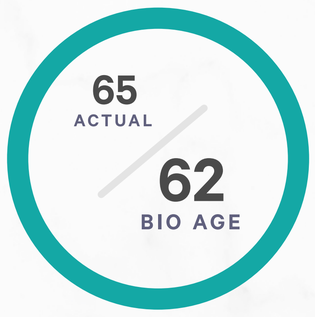
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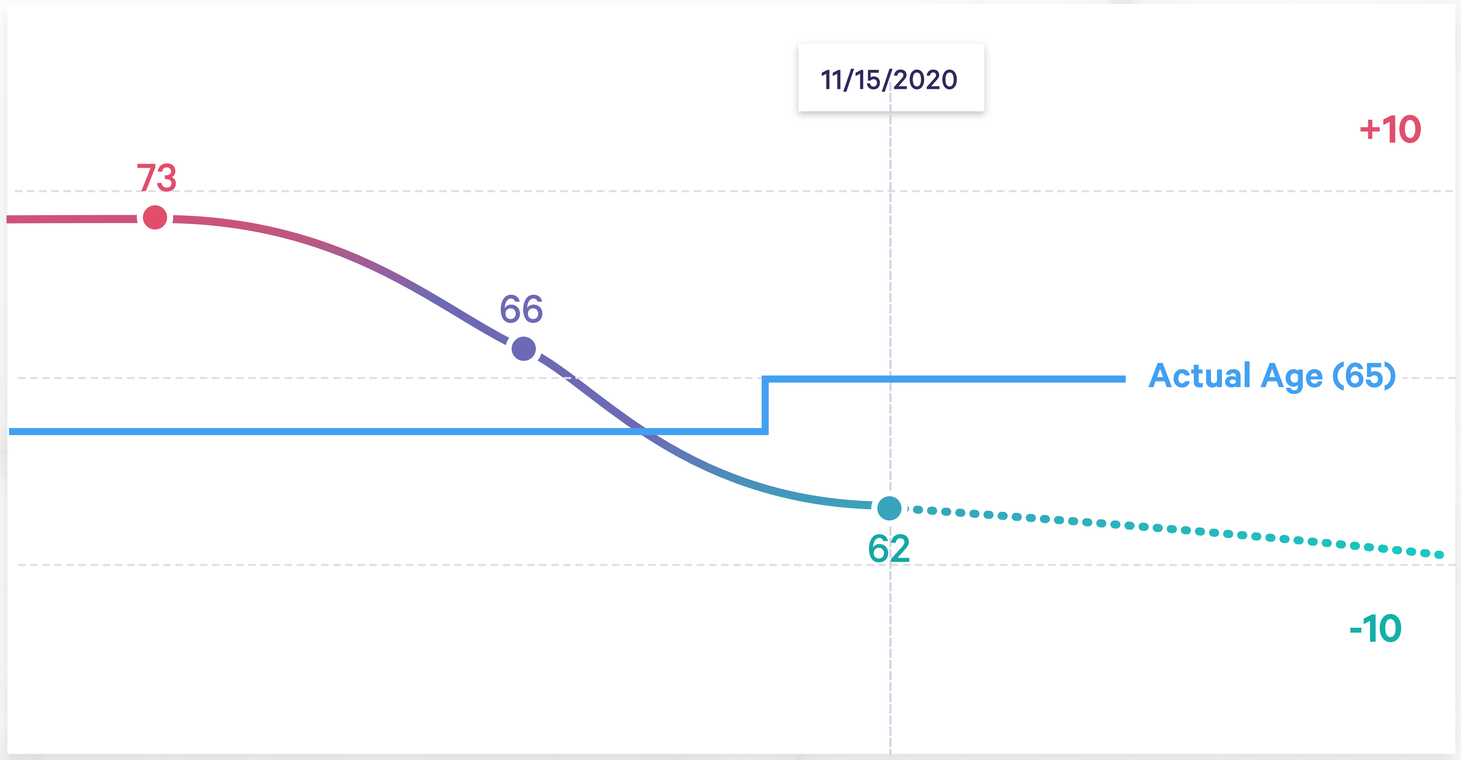
Sample ID: [redacted]

Biological Age



Your Biological Age assesses the efficiency of your cellular activities and your gut microbial activities in order to determine how well you are aging in comparison with your chronological age. If your Biological Age is substantially higher than your chronological age, this means that at a cellular level, your body is aging faster compared with other people your age. Your food and supplement recommendations will target the underlying causes detailed in your other Integrative Health scores.

Did you know?
Nutrient levels in the body can influence various metabolic pathways. Among the affected parts of these pathways are proteins like IGF-1, mTOR, sirtuins, and AMPK. Changing levels of these proteins' pathways have implications on longevity and your biological age.



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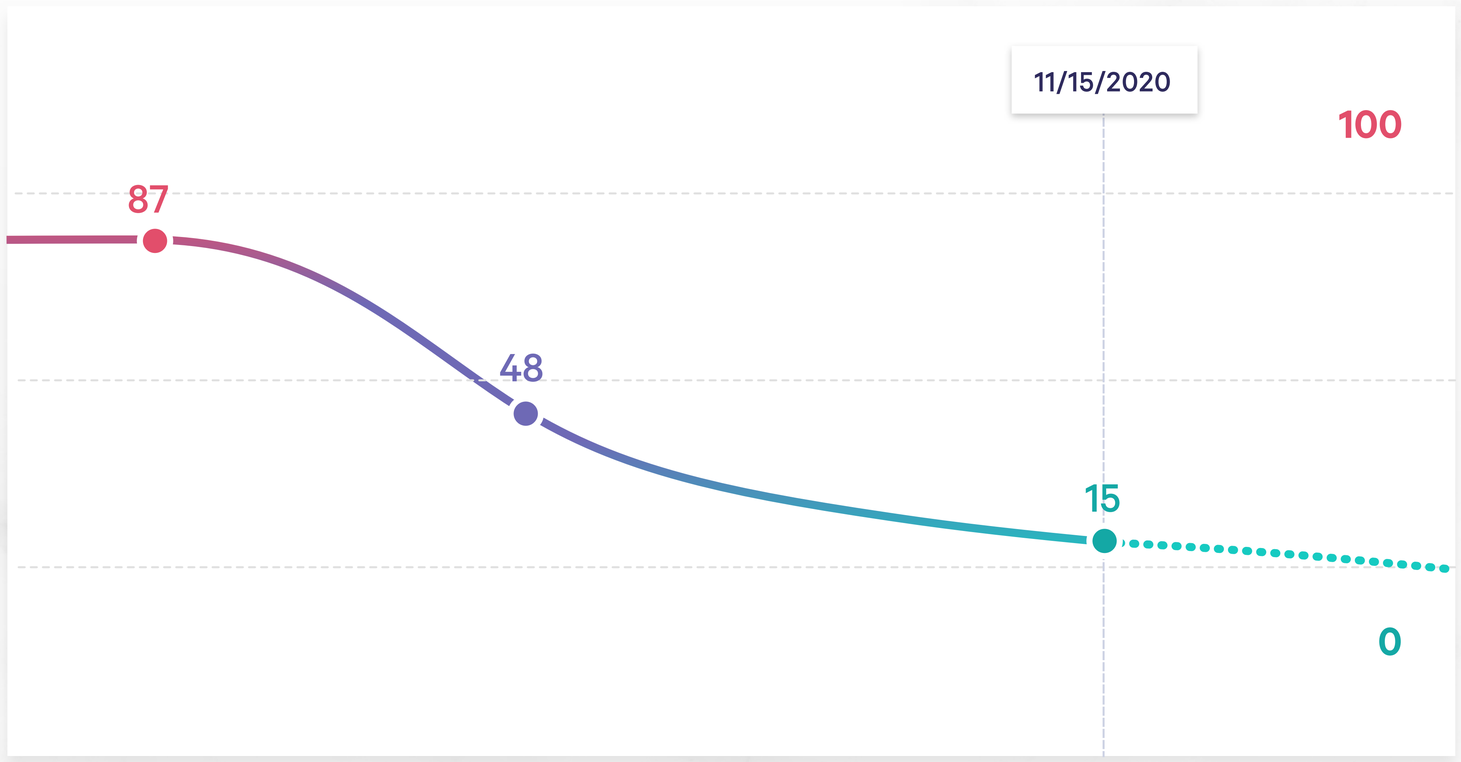
Sample ID: [redacted]

Inflammatory Activity

15

This score measures the activities of your microbes that can contribute to or reflect inflammation in your gut environment. Inflammation in your gut can be caused by harmful things your microbes produce when you are either inefficiently digesting your proteins, have excessive microbial gas production, or simply have a gut environment that your microbes perceive as threatening.

A score in the red zone (not optimal) means that there are relatively more pro-inflammatory activities, as opposed to anti-inflammatory or protective ones. Everyone's pattern is unique, so if your score is in the red, some of your recommendations may focus on boosting more of the protective and healing anti-inflammatory functions, while others may focus more on controlling and balancing out the more harmful pro-inflammatory microbes and functions. Follow your recommendations to maintain a good range or improve this score.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

Biofilm, Chemotaxis, Virulence Pathways

Good

Butyrate Production Pathways

Average

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How We Calculate This Score (Inflammatory Activity) continued..

LPS Biosynthesis Pathways

Average

Flagellar Assembly Pathways

Not Optimal

Sulfide Gas Production Pathways

Not Optimal

Ammonia Production Pathways

Average

Bile Acid Metabolism Pathways

Good

Uric Acid Production Pathways

Average

Methane Gas Production Pathways

Good

Salt Stress Pathways

Average

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Protein Fermentation



This score reflects whether or not you are digesting your proteins properly. Protein digestion begins when you first start chewing and continues down in your stomach. If the protein is not fully broken down through this process, your microbes will digest the excess protein available and may convert it into harmful byproducts. Overly high microbial protein fermentation translates into a score within the red zone, suggesting your protein digestion is suboptimal.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

Sulfide Gas Production Pathways

Not Optimal

Ammonia Production Pathways

Average

Methane Gas Production Pathways

Average

Putrescine Production Pathways

Not Optimal

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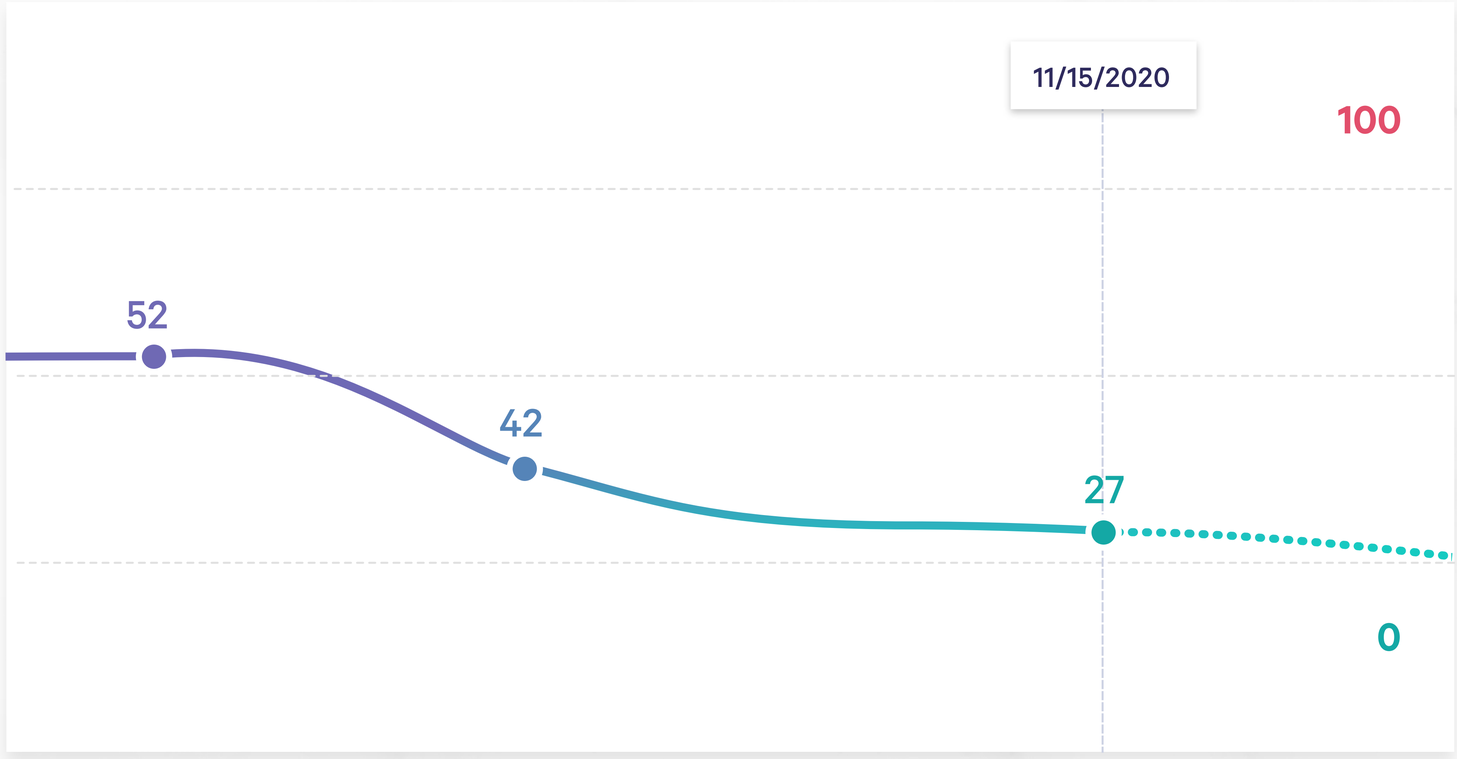
Date Amended: 4/24/2020

Sample ID: [redacted]

Gas Production

27

This score is an assessment of your overall gas production activity by the microbes in your gut. Overall high microbial gas production has been associated with digestive difficulties, discomfort, and gut inflammation. A good score means that your microbes are not actively engaged in gas production functions.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

Sulfide Gas Production Pathways

☹ Not Optimal

Ammonia Production Pathways

😐 Average

Methane Gas Production Pathways

😐 Average

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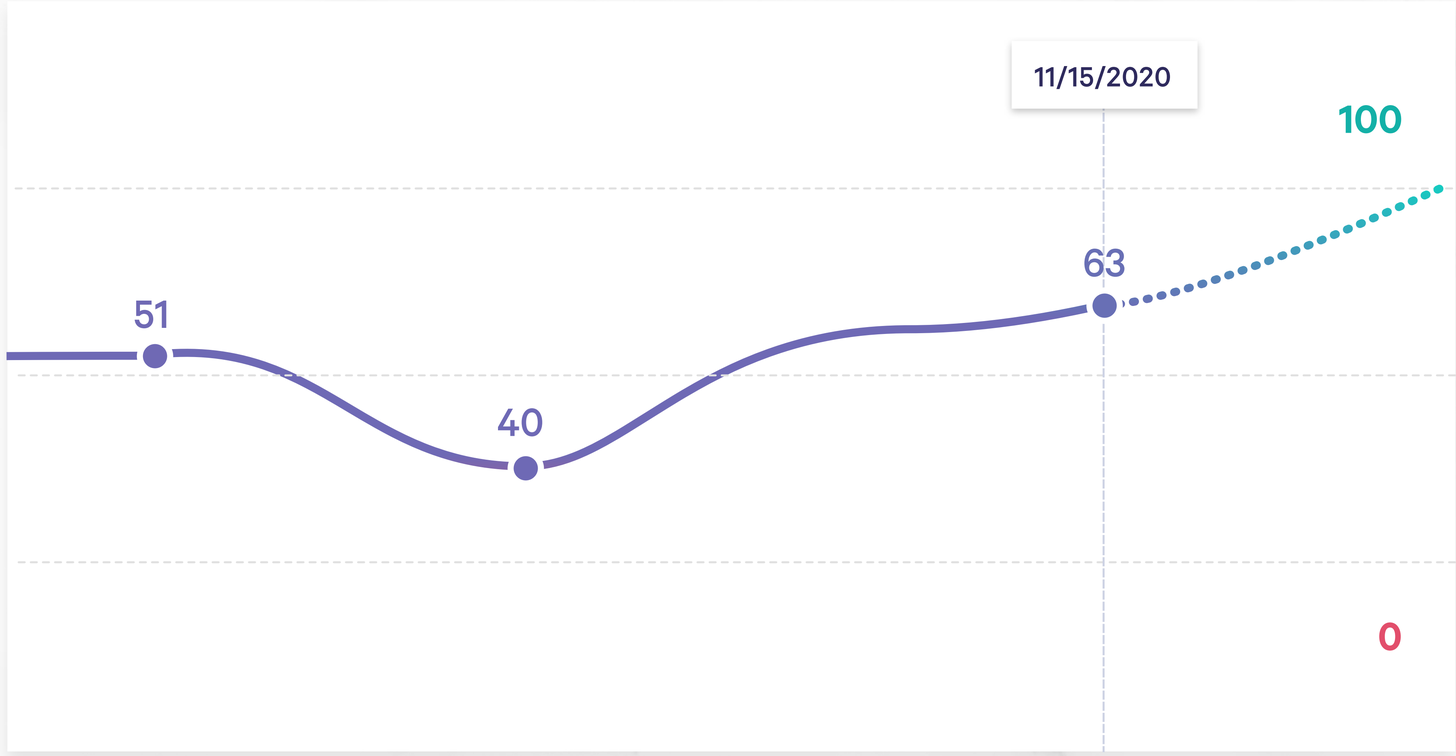
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Digestive Efficiency

63

This score is a comprehensive microbial reflection of your gastrointestinal (GI) tract functions. The score consists of multiple activity patterns related to digestion, such as the movement of food, specific macronutrient breakdown ability, and your gut lining health from your first bite of food to the time it leaves your body. When this score is suboptimal, it means that some of your digestive functions need support.



How We Calculate This Score

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Sulfide Gas Production Pathways

Not Optimal

Ammonia Production Pathways

Average

Methane Gas Production Pathways

Not Optimal

Putrescine Production Pathways

Good

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How We Calculate This Score (Digestive Efficiency) continued..

Butyrate Production Pathways
Not Optimal

Biofilm, Chemotaxis, Virulence Pathways
Average

LPS Biosynthesis Pathways
Good

Flagellar Assembly Pathways
Average

Bile Acid Metabolism Pathways
Average

Salt Stress Pathways
Good

TMA Production Pathways
Not Optimal

Oxalate Metabolism Pathways
Average

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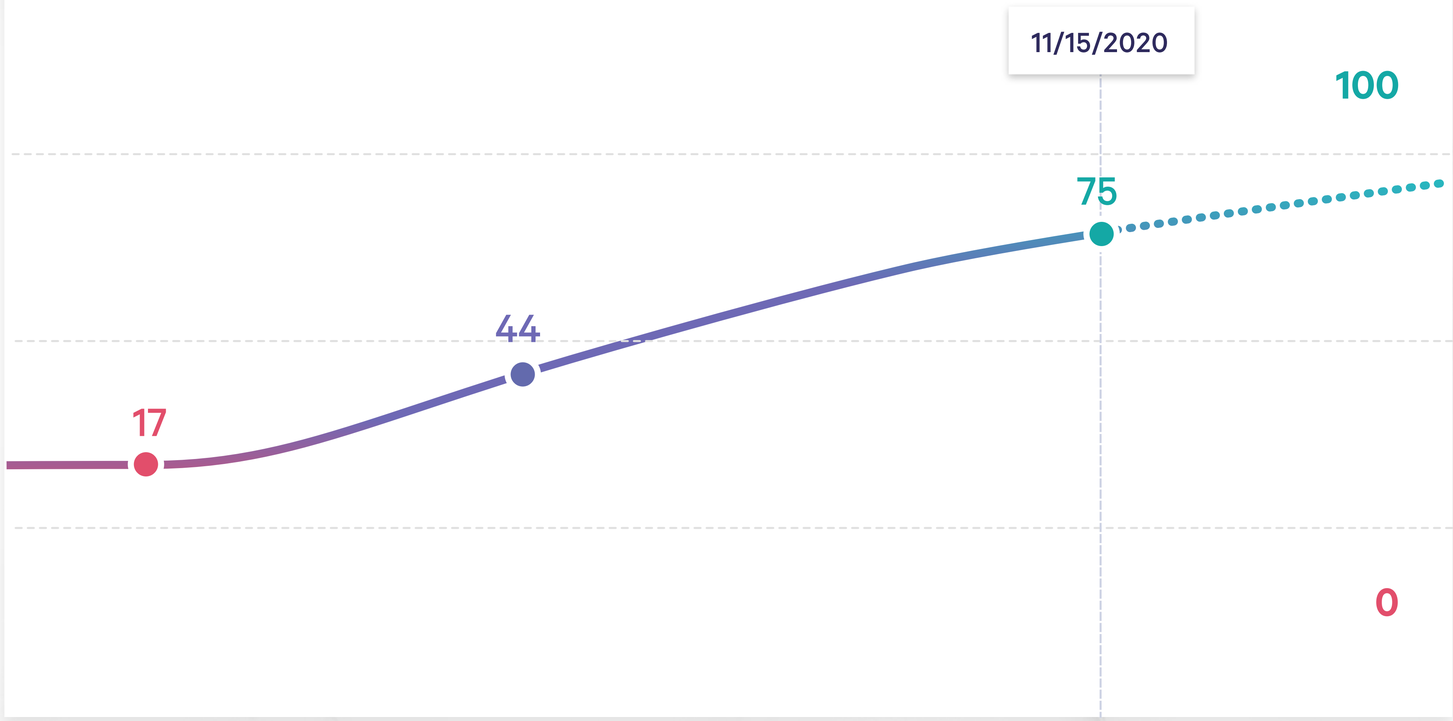
Date Amended: 4/24/2020

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Metabolic Fitness

75

This score represents active microbial organisms and functions that are associated with your blood sugar, insulin resistance, or weight control. A good score (in the green zone) means high activity of microbes and their functions favorably associated with your metabolic fitness. It is important to note that a Metabolic Fitness score that falls within the red zone does not necessarily translate to excessive weight loss or gain. Follow your recommendations to support or improve healthy metabolic functions.



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Bile Acid Metabolism Pathways

Average

Butyrate Production Pathways

Good

Oxalate Metabolism Pathways

Not Optimal

Uric Acid Production Pathways

Average

TMA PRoduction Pathways

Average

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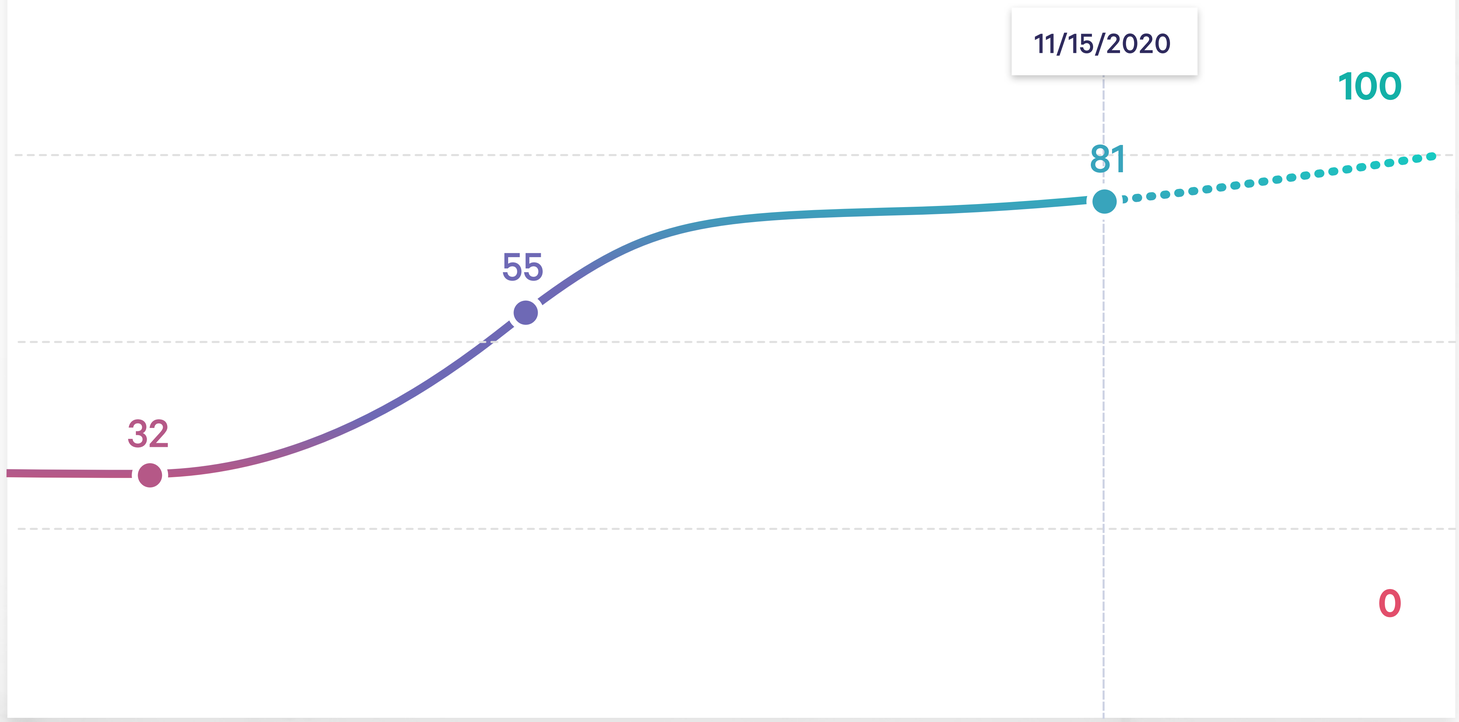
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Gut Lining Health

81

This score focuses on your gut lining (or intestinal barrier) and the health of the mucosal layer that protects it. When your gut lining is compromised, things from the outside environment, like toxins, medications, and harmful bacteria, can make their way into your bloodstream from your gut and negatively affect your immune system and overall wellbeing. A good score (in the green zone) means more optimal microbial functions that support your intestinal barrier and fewer disruptive or harmful functions are active in your gut. Follow your recommendations to address your specific pattern of microbial functions, and to prevent any intestinal permeability known as 'leaky gut'.



How We Calculate This Score

To arrive at the Integrative Health score you see above, we combine multiple functional activities measured in the scores you see below along with many other additional health markers and pathways. Each score below may contribute to multiple Integrative Health scores, but with a specific level of impact. This is based on the scientific knowledge to date and the data we derive from your test.

LPS Biosynthesis Pathways

Not Optimal

Biofilm, Chemotaxis, Virulence Pathways

Good

Butyrate Production Pathways

Good

Flagellar Assembly Pathways

Good

VIOME

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Los Alamos, NM 87544
CLIA Number 32D2156145

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825 NE 13th Street, RT2101
Oklahoma City, OK 73104
CLIA License Number: 37D2111727

Lab Contact: support@viome.com
(505) 672-5785

Mary's Report

Test Name: Health Intelligence Service

Authorized Order Person: Mary Wilson

Customer Name: Mary Wilson

DOB: 12/10/1955

Gender: Female

Customer ID: [redacted]

Sample Source: Fecal, Blood

Date Collected: 1/17/2020

Date Received: 1/20/2020

Date Issued: 1/29/2020

Date Amended: 4/24/2020

Sample ID: [redacted]

How We Calculate This Score (Gut Lining Health) continued..

Sulfide Gas Production Pathways

Average

Ammonia Production Pathways

Average

Methane Gas Production Pathways

Not Optimal

Bile Acid Metabolism Pathways

Average

Uric Acid Production Pathways

Not Optimal

Salt Stress Pathways

Good

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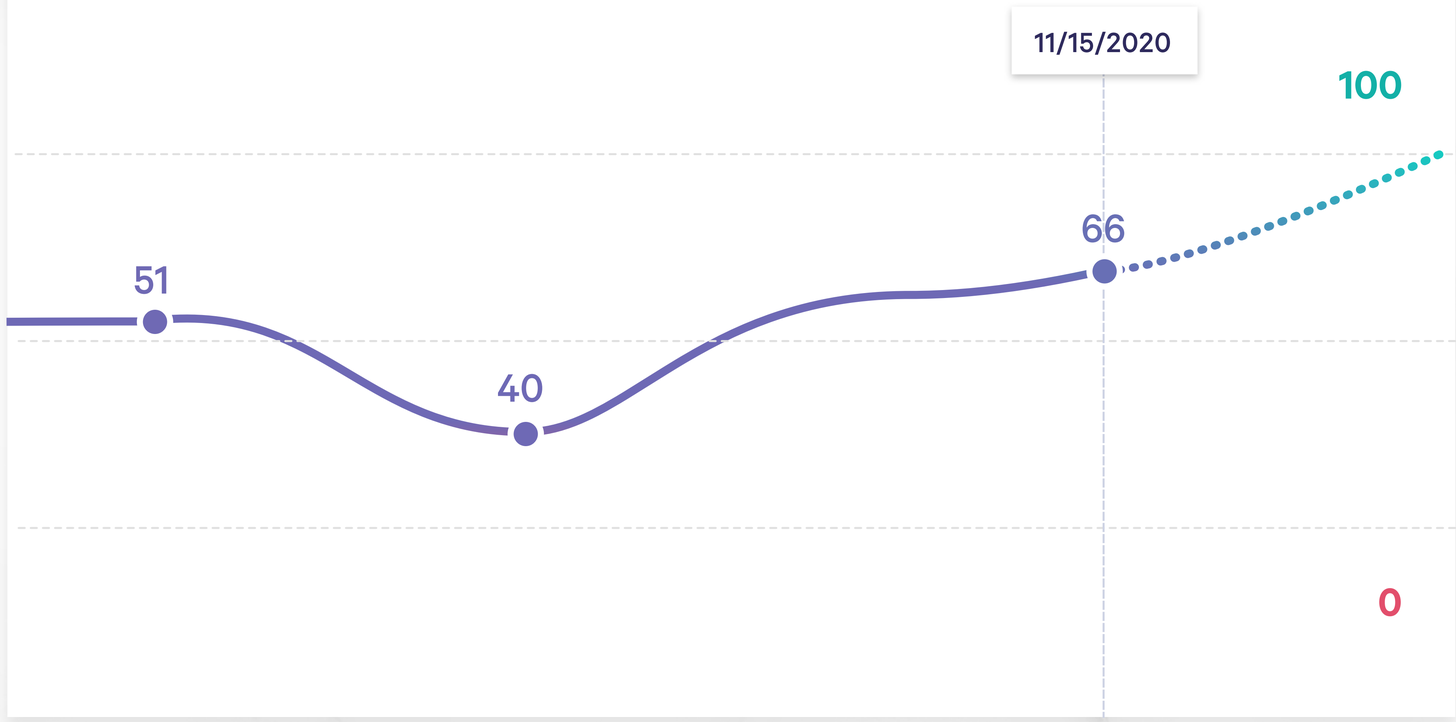
Date Amended: 4/24/2020

Sample ID: [redacted]

Active Microbial Richness & Diversity

66

The score is your percentile for total count of active microbial species detected and sequenced from your sample. A good score translates to more richness, which in turn can provide more resilience to your microbial gut ecosystem and your body. This score could use some improvement when the count of active microbes is relatively low and your gut flora could use additional microbes in its active composition. Your recommendations may include certain supplements or fermented foods that address this score.



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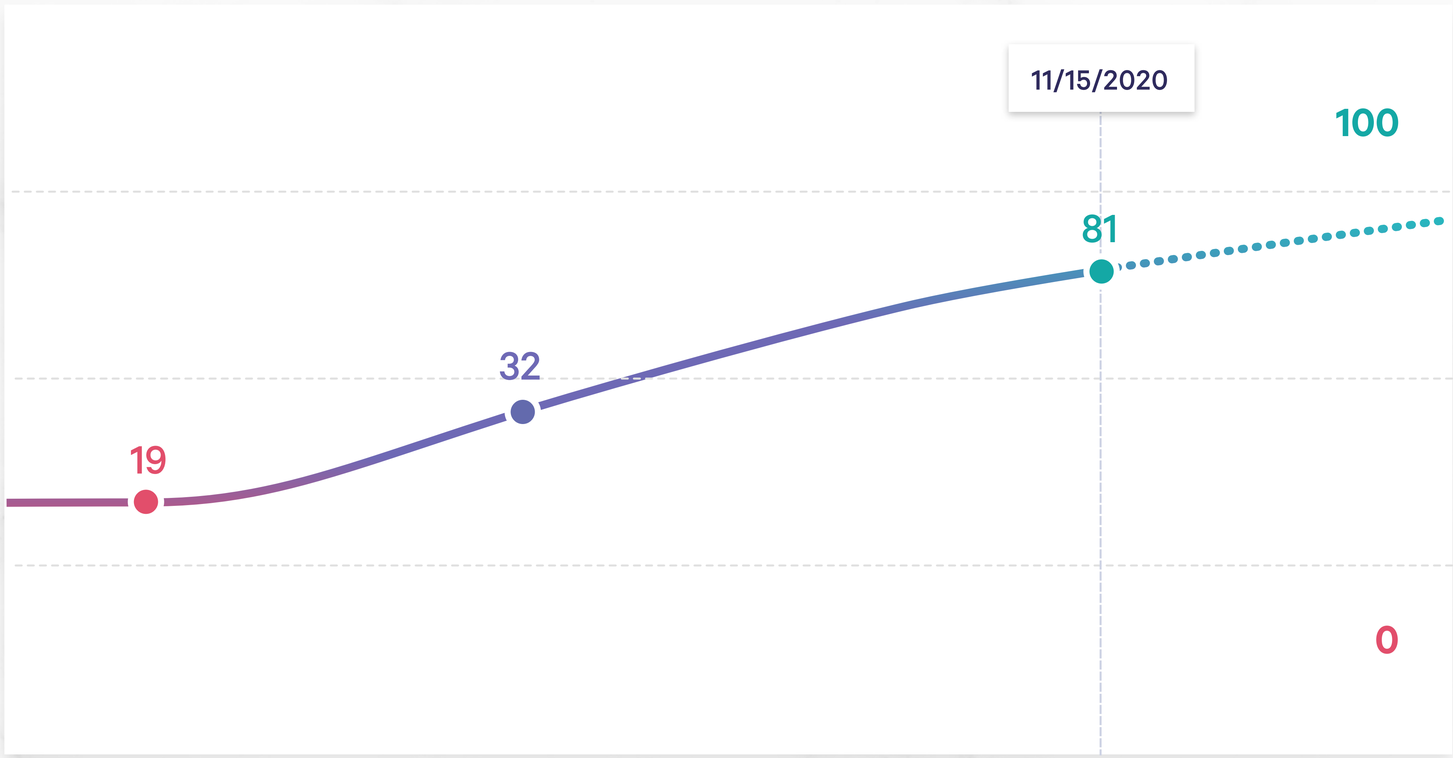
Sample ID: [redacted]

Cellular Stress

81

"Our Cellular Stress score measures pathway activities that either lead to or are reflective of cellular stress. Too much stress at a cellular level can contribute to damage and dysfunction, which can also expedite cellular aging. A score that is not optimal means that your body needs support in mitigating one or many of the following areas:

- Oxidative stress: excessive reactive oxygen species (ROS) and insufficient antioxidant activities needed to remove them (including Sirtuins and NRF2)
- Unfolded protein response (UPR) or Endoplasmic Reticulum (ER) stress which can be caused by inflammation, high-fat diet, environmental exposures or microbial sources of stress
- Genotoxic stress: DNA damage caused by toxins, which can elicit biochemical responses that either signal the need for quick repair or cell death (if the damage is too high).
- Hypoxia-induced stress: insufficient oxygenation levels in the blood, often accompanied by HIF1-alpha - pathway activation
- Stress-induced pro-apoptotic signaling, such as overly active p38/JNK or Calcium signaling pathways, all of which can cause otherwise healthy cells to die via programmed cell death, or apoptosis
- Antiviral or antimicrobial stress response (cell's lowered ability to defend and sustain itself from foreign invaders)



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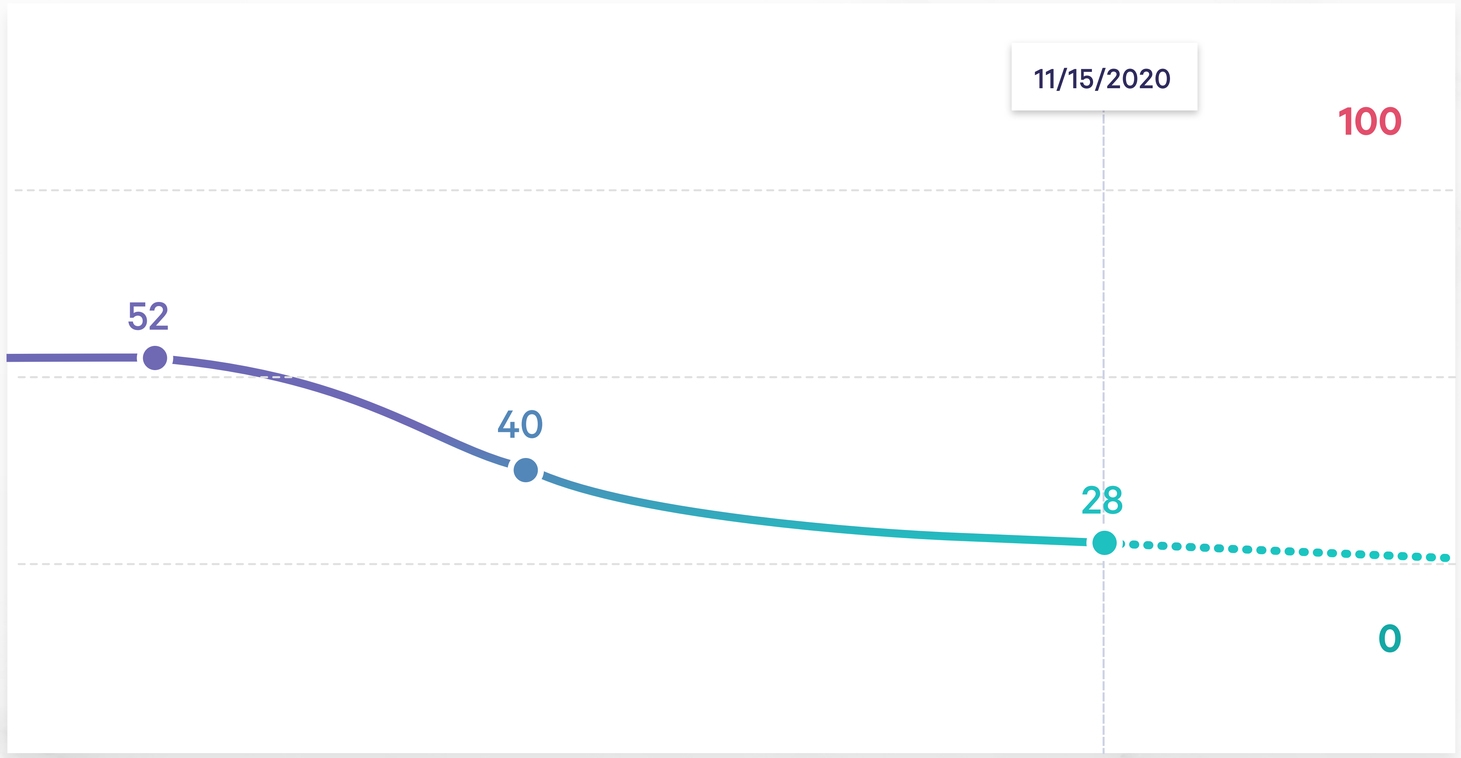
Date Amended: 4/24/2020

Sample ID: [redacted]

Microbiome Induced Stress

28

"Your Microbiome-Induced Stress score offers insights about those microbial activities that can lead to stress or inflammatory response not only in your gut, but also in your body. Toxins and other molecules produced by the gut microbiome may enter the bloodstream and contribute to cellular stress and pro-inflammatory pathways throughout your body. If this score is not optimal, it may suggest that these microbial activities need to be mitigated by either suppressing them, balancing them out with beneficial and protective microbial activities, or by strengthening your gut lining to prevent them from crossing the gut lining and affecting the rest of your body.



How We Calculate This Score

To arrive at the Integrative Health score you see above, we combine multiple functional activities measured in the scores you see below along with many other additional health markers and pathways. Each score below may contribute to multiple Integrative Health scores, but with a specific level of impact. This is based on the scientific knowledge to date and the data we derive from your test.

Biofilm, Chemotaxis, Virulence Pathways

Not Optimal

LPS Production Pathways

Good

Flagellar Assembly Pathways

Good

Putrescine Production Pathways

Good

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Date Amended: 4/24/2020

Sample ID: [redacted]

How We Calculate This Score (Microbiome Induced Stress) continued..

Sulfide Gas Production Pathways

Average

Ammonia Production Pathways

Average

Methane Gas Production Pathways

Not Optimal

Salt Stress Pathways

Average

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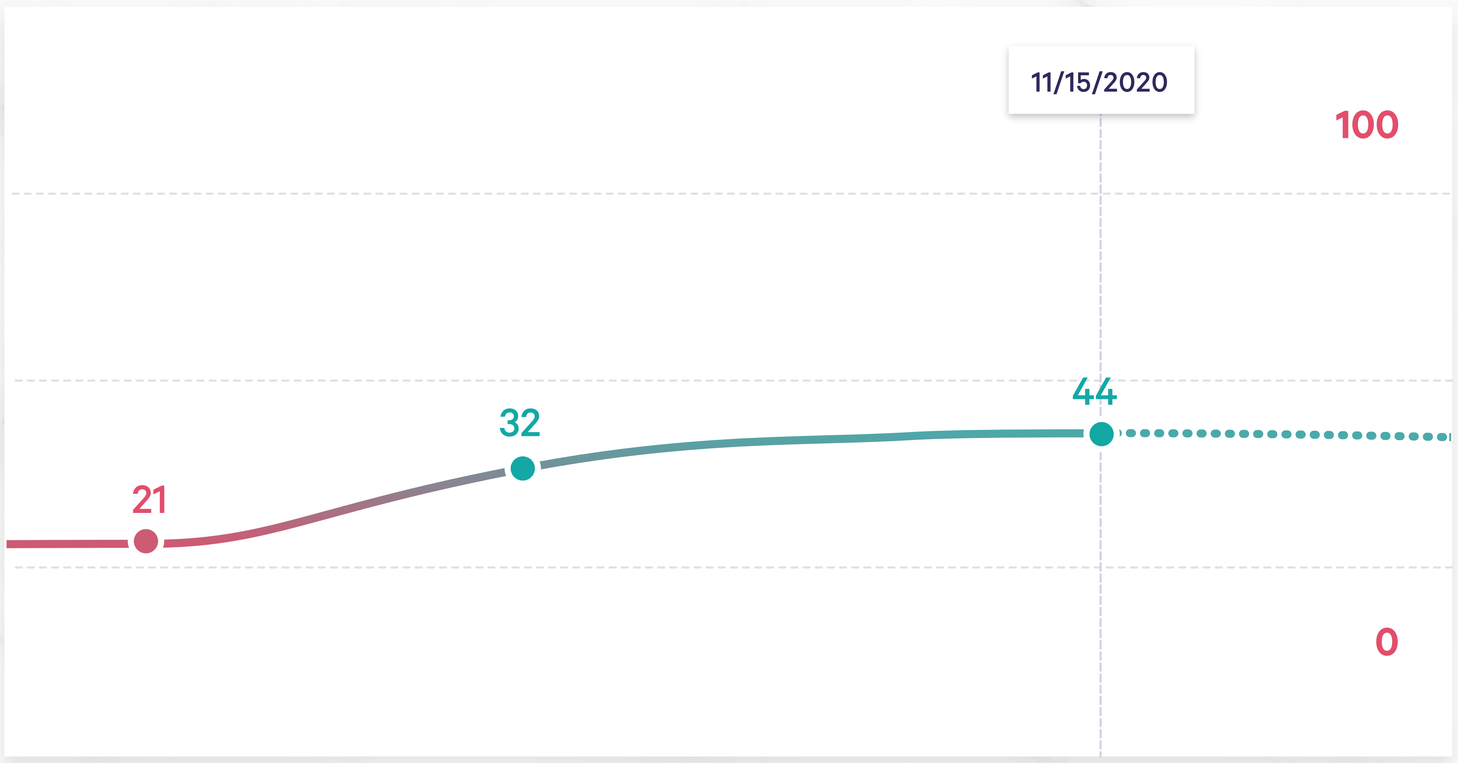
Immune System Activation



Your immune system keeps you alive by activating the right pathways and functions to fight off any threat. Too much immune system activation can be damaging to your body, while too little is not optimal either. When your Immune System Activation score is high (in the high red zone), it means there is too much immune system activation that could be due to stress, fighting some infection, something that immune cells recognize as foreign (even if it is own body cell components), an allergic reaction or food sensitivity, or there may be too many pro-inflammatory (and not enough anti-inflammatory) responses telling your immune system to "let the guard down." When there is too little expression (in the low red zone), it is also not optimal because it may suggest that too little activity is happening from the immune system side.

Pathway themes combined into the Immune System Activation score include:

- Antiviral or antibacterial defense response, needed to combat any foreign threat to the body by specialized immune system cells
- Proinflammatory cytokine signaling (including IL-1, IL-6, IL-8, TNF-alpha, and multiple pathways of activation of NF-kappa B gene expression)
- Tissue remodeling and wound healing (this can occur even in the absence of any wounds, when cellular conditions signal damage)
- Histamine signaling an allergic response
- Prostaglandin Biosynthesis (COX2), which can lead to increased inflammation and pain in various parts of the body



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Sample ID: [redacted]

Cellular Senescence

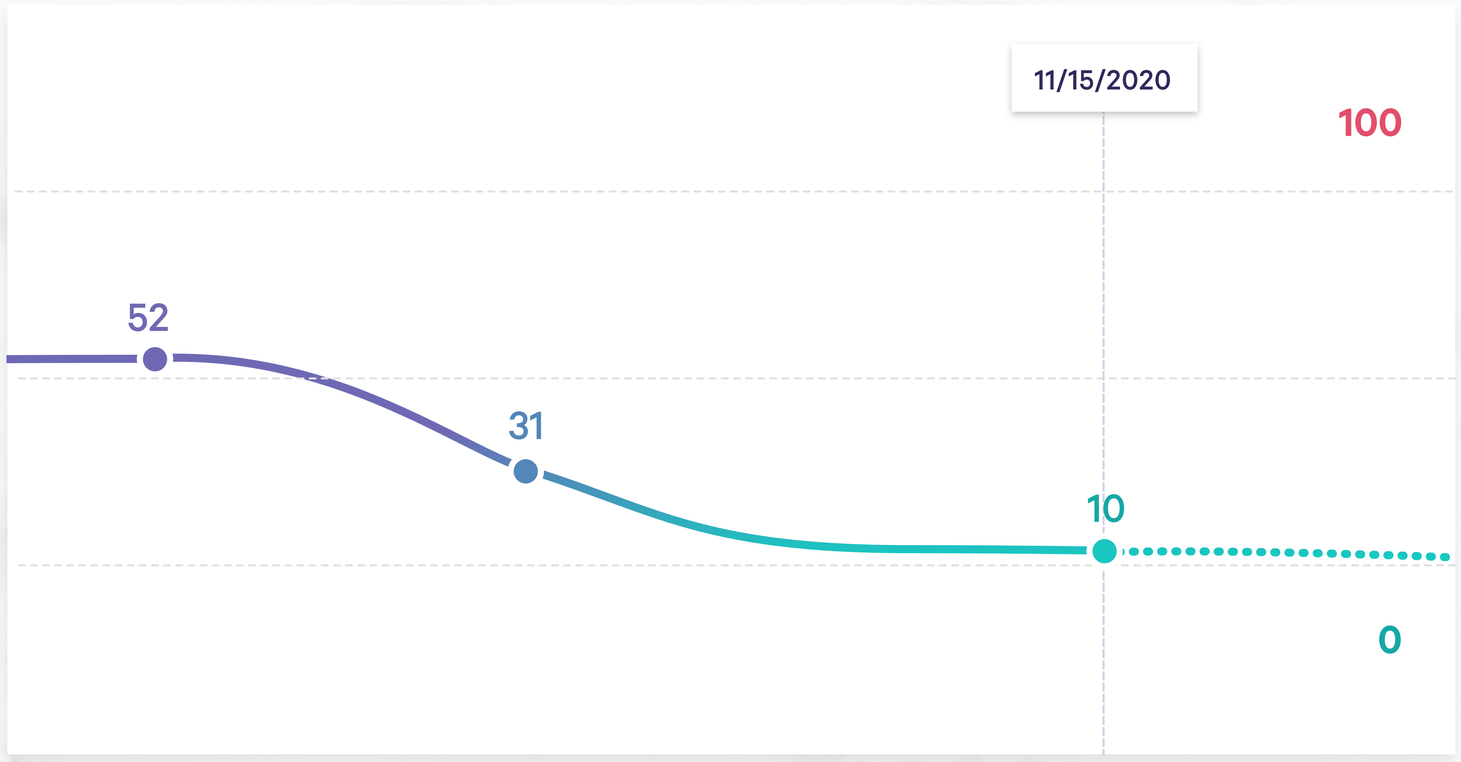
10

Your Cellular Senescence score assesses processes involved in progressive decline in your cells' vital functions usually associated with cellular aging such as:

- Cellular proteostasis (ability to make, fold, deliver and degrade various proteins)
- DNA damage markers and repair signaling
- Regulation of telomeres and cellular immortalization
- Oxidative and other stress-induced progressive functional decline
- Autophagy, stem-cell and regenerative signaling decline

A score that is not optimal suggests that your body is not providing the needed cellular activities to remedy the stress processes, restore homeostasis, and rid cells of debris in an efficient manner.

Did you know?
As cells age, they stop dividing. We call this cellular senescence. These aging cells become dysfunctional, excreting more and more of their harmful byproducts into your body and the bloodstream, causing further cellular inflammation, damage, and stress throughout the body.



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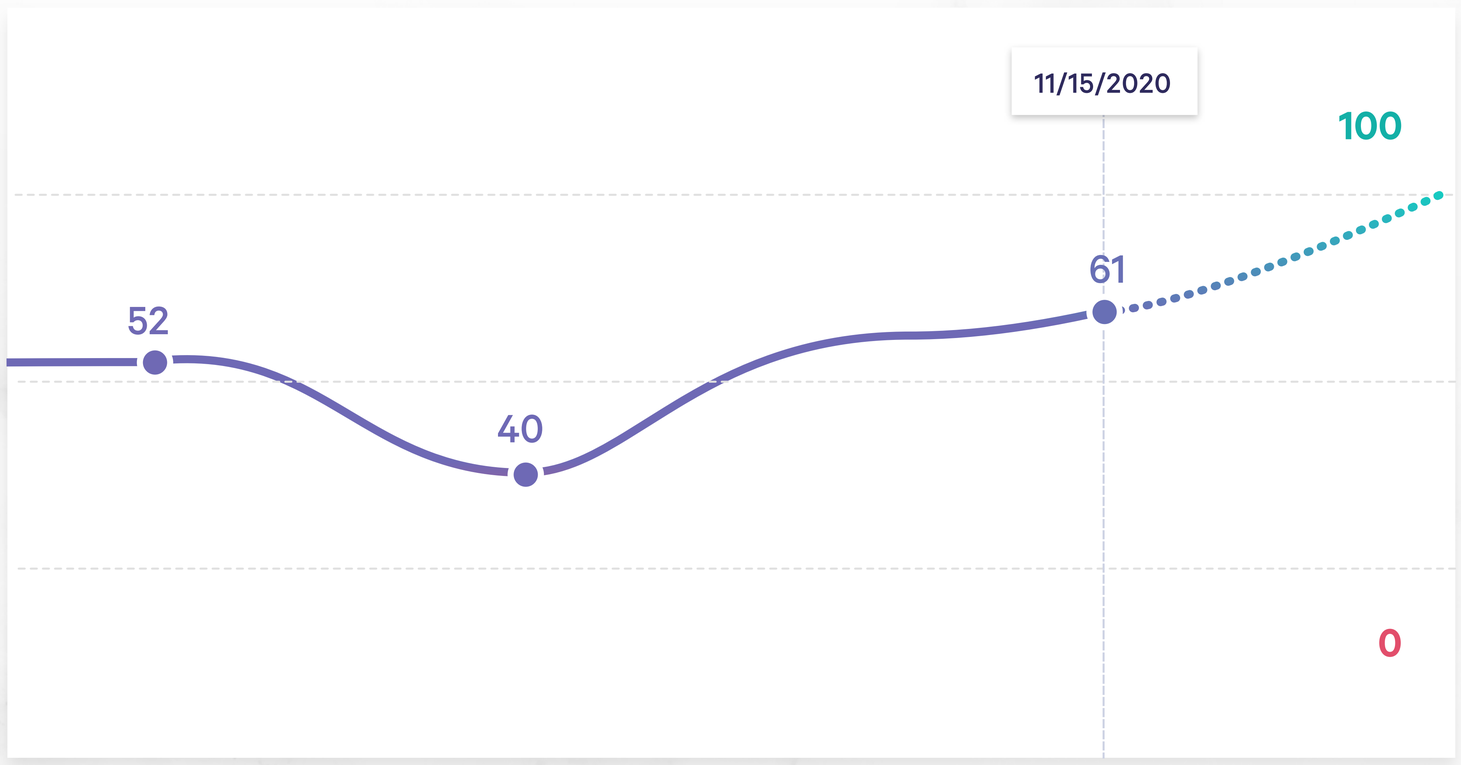
Sample ID: [redacted]

Mitochondrial Health

61

Your Mitochondrial Health score is an integrative score that assesses the efficiency of the functions of your mitochondria that are required to meet your body's energy and metabolic demands. If your Mitochondrial Health score is not optimal, it could mean that your cells are not receiving enough energy to function efficiently, resulting in accelerated aging, and poor metabolism, cardiovascular, and brain health. Your supplement recommendations may include nutrients to boost mitochondria production or other coenzymes needed to increase cellular energy (ATP). Scroll down below to the section titled ""How We Calculate This Score"" to learn more.

Did you know?
Mitochondria are considered the powerhouse of the cell, supplying energy for basic cellular functions like care and repair of cells in the body. Each cell contains hundreds to thousands of mitochondria that have their own DNA, known as mitochondrial DNA. In addition to analyzing microbial and human gene expression, Viome also analyzes the gene expression from your mitochondria.



How We Calculate This Score

To arrive at the Integrative Health score you see above, we combine multiple functional activities measured in the scores you see below along with many other additional health markers and pathways. Each score below may contribute to multiple Integrative Health scores, but with a specific level of impact. This is based on the scientific knowledge to date and the data we derive from your test.

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Sample ID: [redacted]

How We Calculate This Score (Mitochondrial Health) continued..

Mitochondrial Biogenesis Pathways

Average

Energy Production Pathways

Average

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Date Amended: 4/24/2020

Sample ID: [redacted]

Biofilm, Chemotaxis, Virulence Pathways

Good

This score assesses the levels of all activity of all metabolic pathways that suggest a pro-inflammatory or hostile environment in the gut. This includes virulence factors, biofilm formation, and chemotaxis signaling, which are all important parts of your overall inflammatory activity patterns. When this score is relatively high it means that there is some threat in the environment and your microbes are trying to either defend themselves, attack each other, or move. This type of a "microbial war zone" can negatively impact your gut environment, and some of the "bullets" secreted by the microbes may trigger an immune response. A good score means that these pathway activities are at low levels.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, “Pathway Activity,” it’s referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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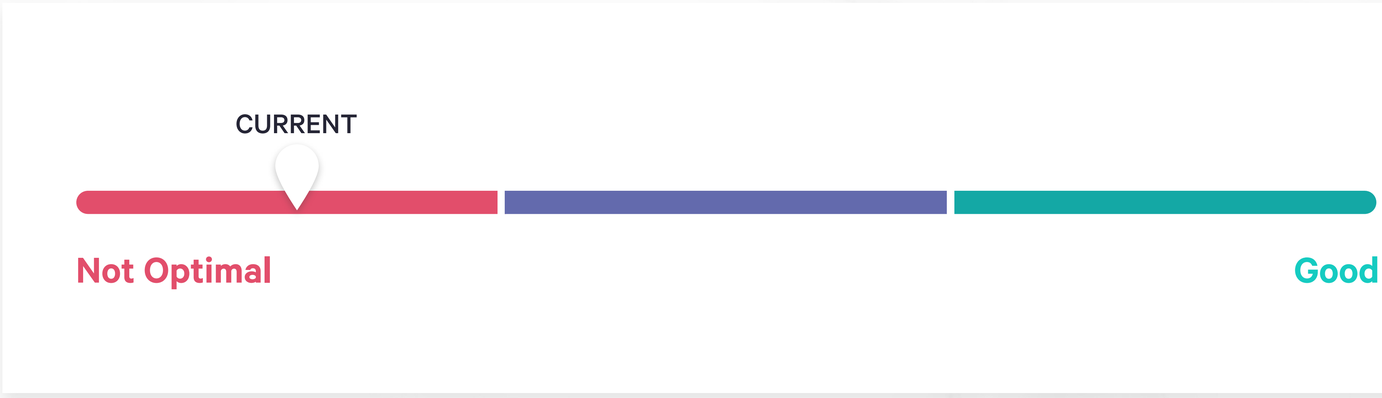
Date Amended: 4/24/2020

Sample ID: [redacted]

Butyrate Production Pathways

Not Optimal

This score assesses the levels of activity of all microbial pathways that lead to the production of a beneficial nutrient - butyrate. Butyrate is a short-chain fatty acid known to beneficially affect many wellness areas from gut lining to insulin sensitivity and satiety (feeling full). A score that is not optimal means that your microbial butyrate production could really use a good boost! Individuals with low butyrate production activity would benefit from supplements or foods that either feed or add butyrate producing microbes into your gut ecosystem.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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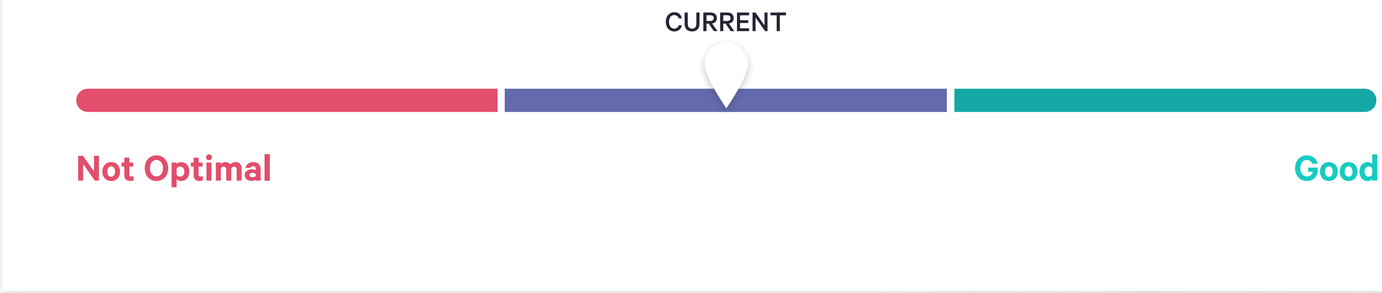
Date Amended: 4/24/2020

Sample ID: [redacted]

LPS Biosynthesis Pathways

Average

This score assesses the levels of activity of all microbial pathways leading to the production of LPS (lipopolysaccharides) in your gut. LPS is a pro-inflammatory molecule that gut microbes make, which can trigger your immune system response, especially if it passes to the bloodstream through the gut lining. This score is an important factor in assessing your inflammatory activity patterns.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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Sample ID: [redacted]

Flagellar Assembly Pathways

Not Optimal

This score assesses the levels of activity of all microbial pathways leading to the making of a structure called flagella. Flagellar structures serve as "fins" or "tails" for various microbes to help them move. A score that is not optimal suggests that these signaling pathway activities are high, indicating unrest in your microbiome as flagellar structures are helping beneficial organisms move away from a perceived threat. Higher than usual activity can also signal the presence of opportunistic organisms that are known to have these flagellar structures. This score is an important factor in assessing your inflammatory activity patterns.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, “Pathway Activity,” it’s referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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Date Amended: 4/24/2020

Sample ID: [redacted]

Sulfide Gas Production Pathways

Not Optimal

This score assesses the levels of activity of all microbial pathways that result in the production of hydrogen sulfide gas. It can be made from some proteins that contain sulfur amino acids or from ingested sulfate or sulfite molecules found in foods like dried fruit, preserved meats, and some alcoholic beverages. This kind of activity, when high, contributes to pro-inflammatory patterns potentially harmful to the gut lining, as well as slowing of your motility (moving the food down your digestive tract). A good score means that the activity of sulfide production pathways is low.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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Sample ID: [redacted]

Ammonia Production Pathways

Good

This score assesses the levels of activity of all microbial pathways that result in the production of ammonia. Ammonia gas can be made from amino acids as a byproduct of the breaking down of protein or from ingested nitrate or nitrite molecules found in things like food preservatives or additives, preserved meats, and dried fruit. This kind of activity, when high, contributes to pro-inflammatory patterns potentially harmful to the gut lining, as well as slowing of your motility (moving the food down your digestive tract), and is also one of the signs that your proteins may not be digested properly. A good score means that the activity of ammonia production pathways is low.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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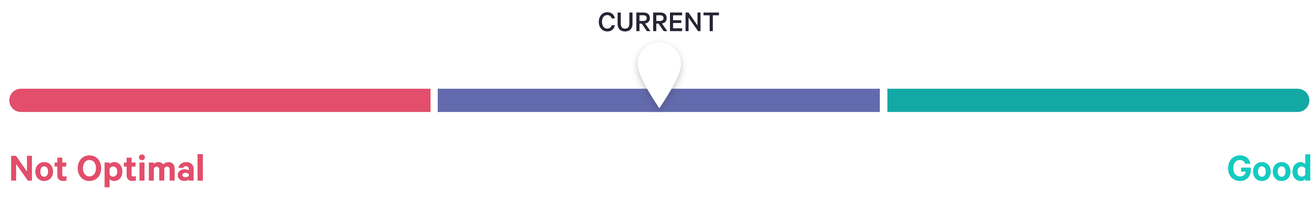
Date Amended: 4/24/2020

Sample ID: [redacted]

Bile Acid Metabolism Pathways

Average

This score is a comprehensive microbial reflection of your gastrointestinal (GI) tract functions. The score consists of multiple activity patterns related to digestion, such as the movement of food, specific macronutrient breakdown ability, and your gut lining health from your first bite of food to the time it leaves your body. When this score is suboptimal, it means that some of your digestive functions need support.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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Date Amended: 4/24/2020

Sample ID: [redacted]

Uric Acid Production Pathways

Average

This score assesses the levels of activity of all microbial pathways that lead to the production of uric acid (or urate). Uric Acid is a normal byproduct that comes from the breakdown of compounds called purines, which can be found in beer, sugary sodas, seafood and shellfish, turkey, veal, bacon, and organ meats. Excessive amounts of uric acid can contribute to gout. A good score means that your uric acid production pathway levels are low.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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Sample ID: [redacted]

Methane Gas Production Pathways

Good

This score assesses the levels of activity of all microbial pathways that result in giving off methane gas in your gut. This kind of activity, when high, has been linked with some motility issues in the gut (how your food moves along the digestive tract), as well as pro-inflammatory patterns that can negatively affect your intestinal lining. A good score means that the activity of methane production pathways is low.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

Mary's Report

Test Name: Health Intelligence Service

Authorized Order Person: Mary Wilson

Customer Name: Mary Wilson

DOB: 12/10/1955

Gender: Female

Customer ID: [redacted]

Sample Source: Fecal, Blood

Date Collected: 1/17/2020

Date Received: 1/20/2020

Date Issued: 1/29/2020

Date Amended: 4/24/2020

Sample ID: [redacted]

Salt Stress Pathways

Not Optimal

This score assesses the levels of activity of all microbial pathways that signal excessive salt in the gut environment. This kind of signaling activity, when high, suggests that you may need to adjust your salt or sodium intake and/or your hydration levels. Too much salt for your gut microbiome makes your gut environment less favorable for some beneficial or probiotic organisms to thrive. A good score means that that pathway levels that signal microbial salt stress are low.



How We Calculate This Score

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Date Amended: 4/24/2020

Sample ID: [redacted]

Putrescine Production Pathways

Good

This score assesses the levels of activity of all microbial pathways that lead to putrescine production. Putrescine is a molecular byproduct of protein fermentation - a microbial breakdown of protein. If the activities of putrescine production pathways are too high, it can be harmful to the gut environment and the intestinal barrier lining. It is also one of the signs that you may be eating too much protein that may not be digested properly.



How We Calculate This Score

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Sample ID: [redacted]

TMA Production Pathways

Not Optimal

This score assesses the levels of all activity of metabolic pathways that result in TMA production. TMA (trimethylamine) is a molecule that gets converted to TMAO (Trimethylamine N-oxide) in the liver. TMAO is associated with unfavorable metabolic and cardiovascular effects. Since one of the substances used for microbial TMA production is choline, reducing high-choline-containing foods in the diet may be one of the options for improving this pattern. A good score means these TMA production pathway activity levels are low.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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Date Amended: 4/24/2020

Sample ID: [redacted]

Mitochondrial Biogenesis Pathways

Not Optimal

Your Mitochondrial Biogenesis Pathways score assesses the activity levels of molecular pathways needed to biologically generate and maintain the cellular functions of your mitochondria to meet your body's energy and metabolic demands. This includes PGC1-alpha signaling - known as the master regulator of mitochondrial biogenesis. If this score is not optimal it may imply insufficient activity in your mitochondria support functions, either due to too much oxidative stress or deficiency in specific nutrients that may serve as cofactors needed for your specific mitochondrial biogenesis pathways (such as PGC1-alpha activators or NAD+ precursors).



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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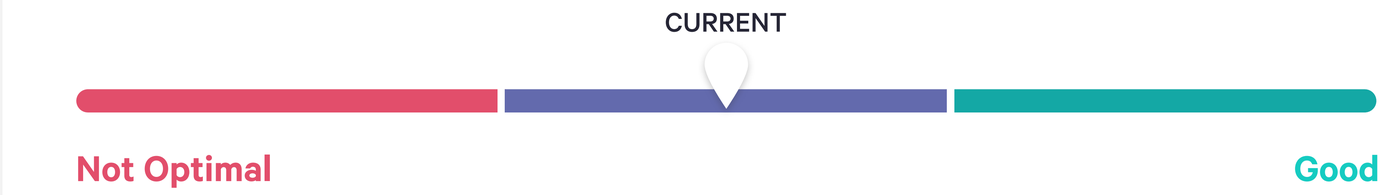
Date Amended: 4/24/2020

Sample ID: [redacted]

Oxalate Metabolism Pathways

Average

This score assesses the levels of activity of all microbial pathways needed to break down or metabolize oxalate. Oxalates are a major contributor to kidney stones. Oxalate-metabolizing microbes can help you by removing and digesting oxalate that you ingested from food. A good score means oxalate-metabolizing activities are high in your microbiome. When this score is not optimal, you may see some of the foods high in oxalate content on your list to minimize or even avoid.



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.

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Date Amended: 4/24/2020

Sample ID: [redacted]

Energy Production Pathways

Average

Your Energy Production Pathways score evaluates the efficiency of your cell's ability to convert carbohydrates (glucose) into energy molecules that fuels our cells (otherwise known as ATP). If this score is not optimal it suggests that your mitochondrial metabolic activity may be relatively sluggish and could use a little boost from specific molecular targets or vitamin and cofactor or coenzyme supplements, such as CoQ10, NAD+ precursors, L-Carnitine, or various activators of AMPK (an activator of metabolic pathways, which stimulates mitochondrial ATP production).



How We Calculate This Score

Our high-resolution data allows us to see which metabolic and signaling pathways are activated and to what degree. When you see the phrase, "Pathway Activity," it's referring to what is actively happening in your cells or what your microbes are actively doing in your gut, that is, how molecules (enzymes or metabolites) are being processed to form others. To develop our scores we first build our own custom pathways, then define the logic needed to score them based on the expressed genes that have known molecular roles. Your unique levels of pathway activities help our understanding of your overall biology and give us the ability to address your health-related functions with molecular-level precision.



My Active Microbes

Mary's Report

Test Name: Gut Intelligence

Authorized Order Person: Mary Wilson

DOB: 12/10/88

My Active Microbes

(B) *Bacteria* (A) *Archaea* (E) *Eukaryote* (P) *Probiotic* (V) *Virus*

B — Acetivibrio ethanolgignens strain ACET-33324
Bacteria

B — Acinetobacter baumannii 24975_5
Bacteria

B — Acinetobacter baumannii 855125
Bacteria

B — Actinobaculum sp. oral taxon 183 str. F0552
Bacteria

B — Actinomyces graevenitzii
Bacteria

A — Candidatus Methanomassiliicoccus intestinalis Issoire-Mx1
Archaea

E — Saccharomyces cerevisiae
Eukaryote

P — Bifidobacterium longum
Probiotic

P — Streptococcus thermophilus
Probiotic

V — Blueberry shock virus isolate Berkely
Virus

V Garlic common latent virus
Virus

V Pepper mild mottle virus
Virus

V Polerovirus
Virus

V Shallot latent virus
Virus

V uncultured phage crAssphage
Virus

Mary's Report

Test Name: Gut Intelligence

Authorized Order Person: Mary Wilson

DOB: 12/10/88

Viome Methodology

Microbial total RNA is extracted, ribosomal RNA molecules are removed from total RNA, and the remaining RNA molecules are sequenced on Illumina NextSeq or NovaSeq. Proprietary bioinformatics algorithms are used to perform taxonomic classification and functional analysis of the sequencing data.

Method Limitation

Viome's results and recommendations are based on our ability to identify and quantify thousands of microbial taxa . Such vast diversity has not been captured in the genomic databases, so it is impossible to assess it comprehensively. There are microorganisms that thrive in the gut whose genomes have not been sequenced. Viome is unable to identify those specific organisms, but can identify their near neighbors, which have similar homology. There are also taxa that we cannot discriminate because of their sequence similarity, for example at the strain level. There are some RNA transcripts that may not always align and match to specific known organisms, which may be due to the fact that these sequences are poorly characterized, reliable consensus sequence may not be available for reference.
Viome monitors the growth of public genomic databases and will update its own databases when there is sufficient new information to be worthy of incorporation.

Detection of a microorganism by this test does not imply having a disease. Similarly, not detecting a microorganism by this test does not exclude the presence of a disease-causing microorganism. Further, other organisms may be present that are not detected by this test. This test is not a substitute for established methods for identifying microorganisms or their antimicrobial susceptibility profile. Results are qualitative and identify the presence or absence of identified annotated organisms.

The Gut Intelligence Test was developed by, and its performance characteristics determined by Viome Inc. It has not been cleared or approved by the US Food and Drug Administration. The FDA has determined that such clearance or approval is not necessary. This laboratory is registered under CLIA (32D2156145) to perform high complexity testing. Sequencing was performed at The OMRF Clinical Genomics Center (CLIA 37D2111727). Contact Viome for any further questions.

VIOME

Mary Wilson's Results

Version 2.2.0