SelfDecode™

MBL2 (Immunity)

Gene Report

REPORT CATEGORY —

IMMUNITY & INFECTIONS

Sample Client

Report date: 15 January 2026

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

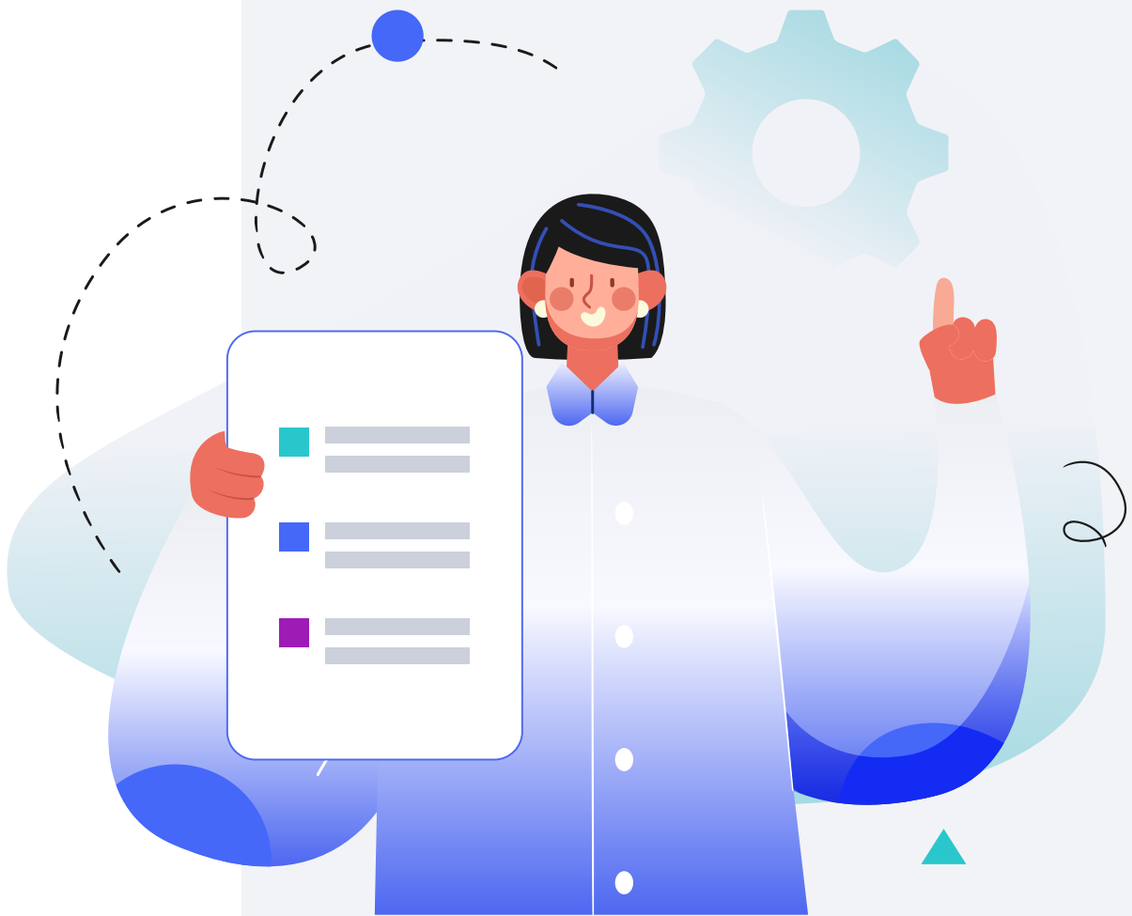
Male

HEIGHT

5ft 5" 165cm

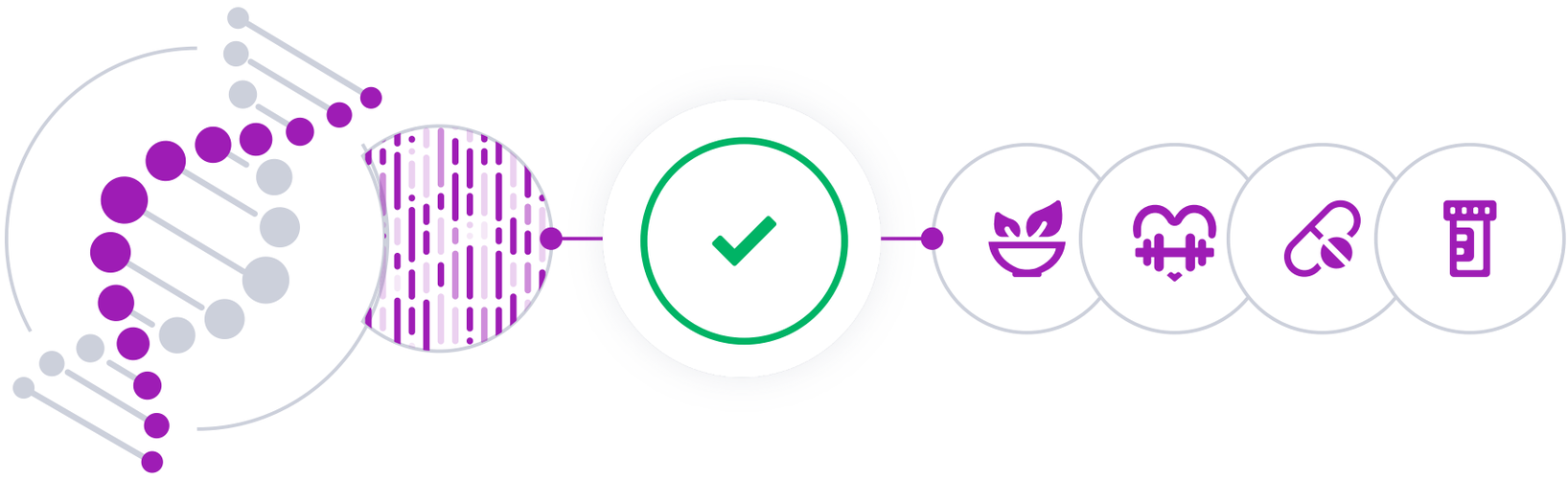
WEIGHT

137lb 62kg



How this works

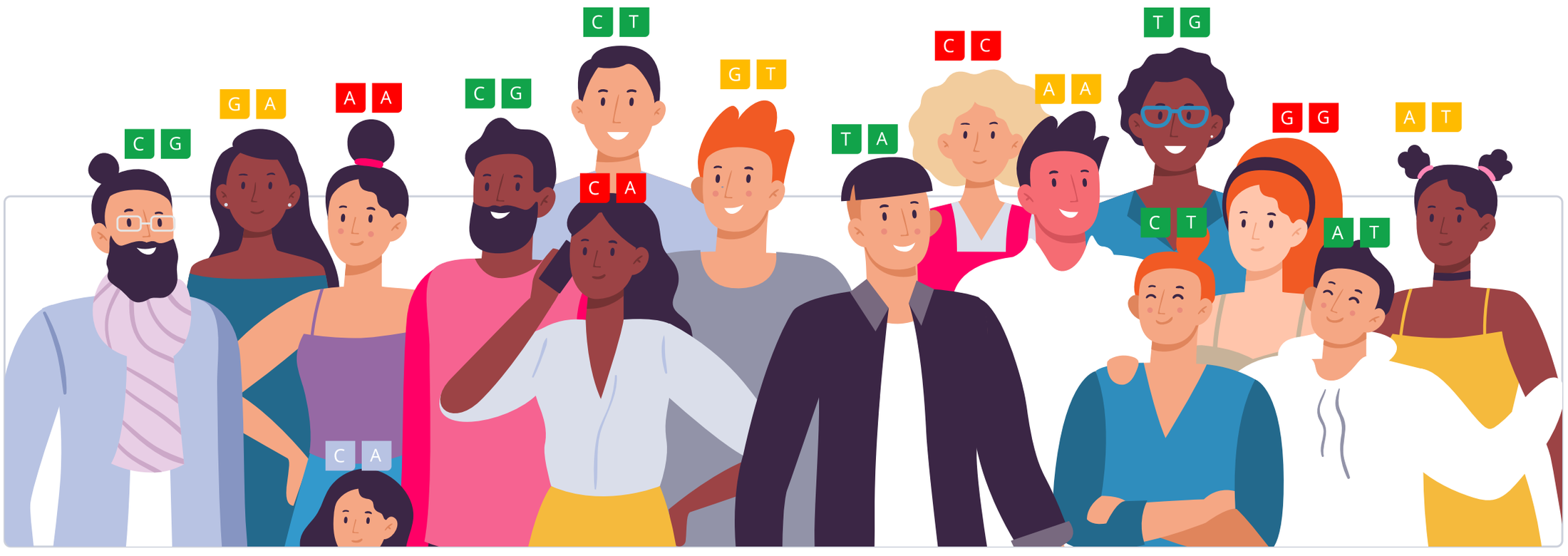
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



Similarly, our Trait Reports look at how your DNA influences your traits.

Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

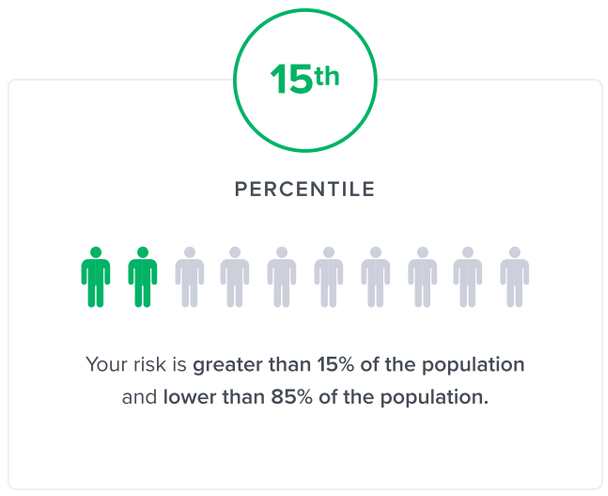
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information. We then summarize your results as a risk score or display it on a gauge.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:

In total, we analyze up to 83 million genetic variants.



Genotype color info: AA You don't have any risk alleles | AA You have 1 risk allele | AA You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:

Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):

Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, afew large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

The *MBL2* gene encodes a protein complex called *mannose-binding lectin* (MBL). This protein complex is one of the body's first lines of defense against infection. MBL recognizes and binds to sugar molecules on the surface of bacteria, viruses, and yeast. This binding acts as the "on" switch for heightened immune activity [R].

Pulling this switch first activates the complement system, a group of proteins that help kill microbes. The way MBL activates the complement system is extremely old in an evolutionary sense. Scientists say it's our most basic, primal form of immune defense. The MBL switch also activates immune cells called leukocytes that "eat" microbes by engulfing them [R].

MBL activates the immune system, but MBL deficiency won't necessarily shut it down completely. It will likely have more subtle effects, along with other genetic and environmental factors [R].

Studies in children and hospitalized patients show that low MBL may increase susceptibility to many bacterial, viral, fungal, and parasitic illnesses. On the other hand, low MBL might not affect susceptibility to infections in healthy adults. In one study, MBL-deficient adults were *not* more likely to get sick or die from infections than controls with normal MBL levels [R].

High enough MBL may decrease inflammatory compounds (like TNF-alpha and other cytokines) and increase anti-inflammatory compounds (IL-10). Low MBL, on the other hand, increases inflammatory compounds. Critically ill patients with rare *MBL2* variations may get severe inflammation due to a lack of MBL [R].

MBL2 Genetics

The best-researched polymorphism is **rs1800450**, whose minor 'T' allele reduces MBL levels. In line with its link to MBL deficiency, this variant has been associated with an increased risk of [R, R, R, R]:

- COVID-19 infection and severity [R, R, R, R]
- SARS infection [R]
- Staph and MRSA infection [R, R]
- Tuberculosis [R, R]
- Acute pneumonia and bronchiolitis in children [R]
- Vaginal infections [R]
- ARDS in critically ill patients [R, R]
- Sepsis [R, R, R]

Another well-researched variant is **rs7096206**. Its minor 'G' allele, linked to lower MBL levels, has been associated with an increased risk of:

- HTLV-1 infection [R]
- Tuberculosis in non-smokers [R]
- Young-onset lupus [R]
- Liver cancer [R]
- Liver transplant rejection [R]

Another variant with reduced MBL levels, the 'T' allele of **rs1800451**, has been associated with an increased risk of tuberculosis but lower COVID-19 infection rates [R, R, R, R, R, R].

Likewise, the 'A' allele of **rs5030737** has been associated with lower MBL levels and an increased risk of tuberculosis but a lower risk of COVID-19 infection [R, R, R, R, R, R].

Finally, the 'C' allele of the **rs11003125** polymorphism has been associated with higher MBL levels and a decreased risk of [R, R]:

- Tuberculosis [R]
- Dilated cardiomyopathy [R]
- Cavities [R]

TYPICAL ACTIVITY

Predisposed to typical MBL2 activity based on 5 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MBL2	rs1800450	CT
MBL2	rs11003125	CG
MBL2	rs1800451	CC
MBL2	rs7096206	CC
MBL2	rs5030737	GG

The number of "risk" variants in this table doesn't necessarily reflect your overall result.