

# IDO (Kynurenine)

## Gene Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

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## Personal information

NAME

**Sample Client**

SEX AT BIRTH

**Male**

HEIGHT

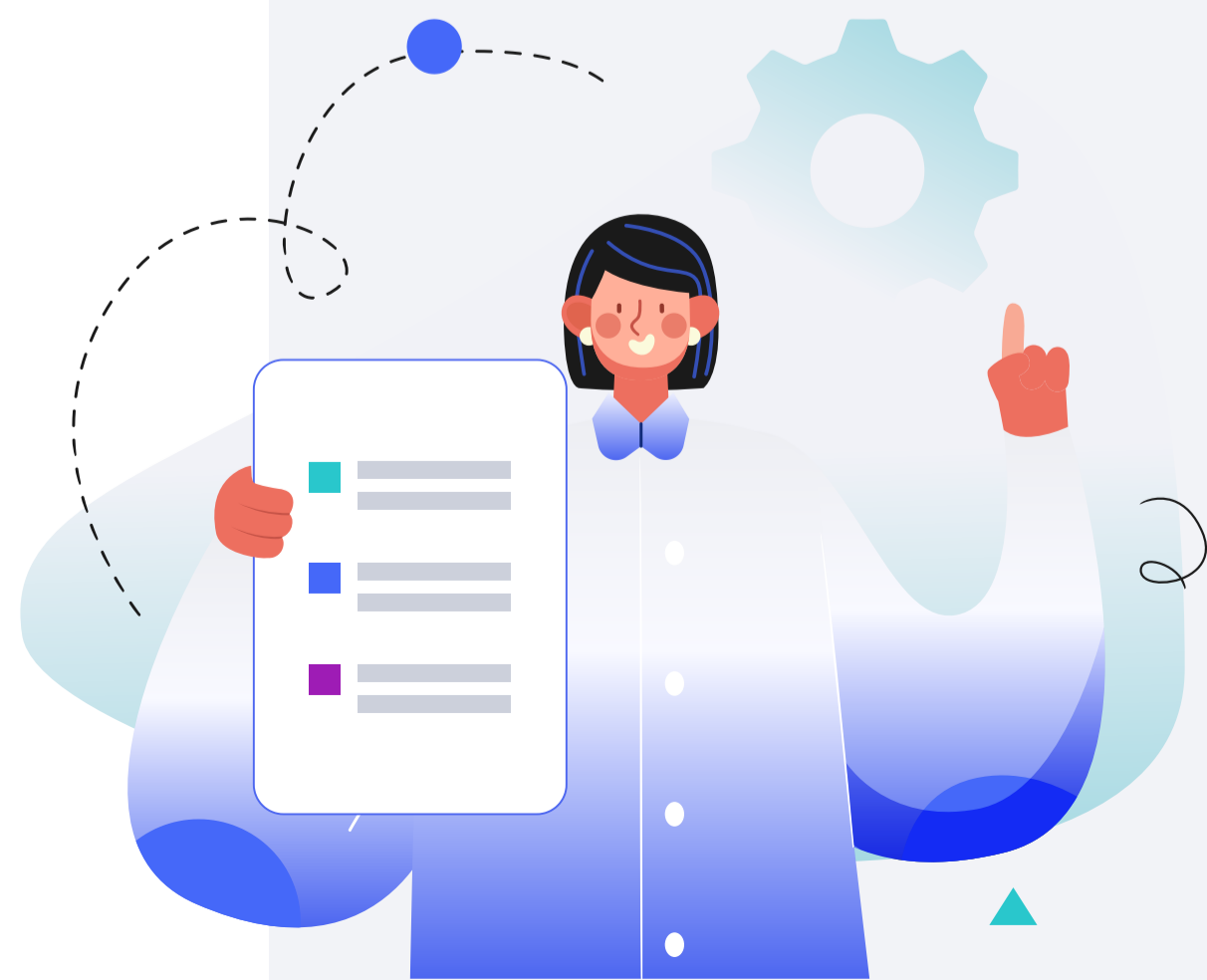
**5ft 5" 165cm**

WEIGHT

**137lb 62kg**

### 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.



# 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.



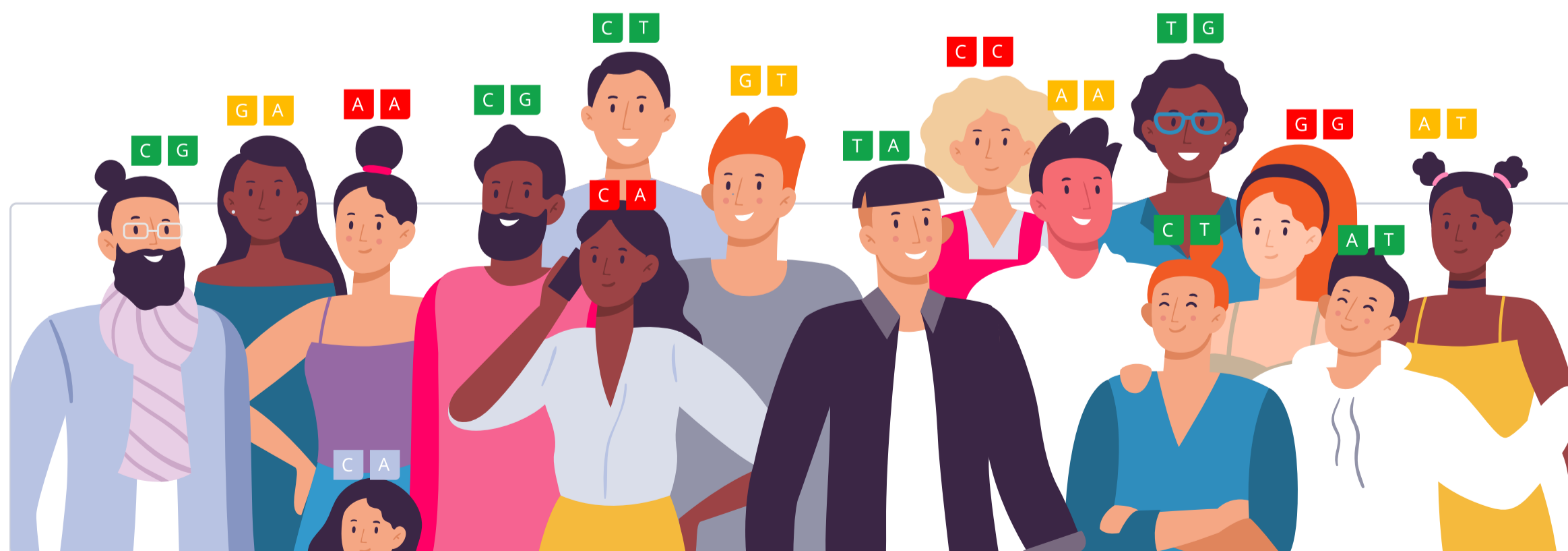
Similarly, our Trait Reports look at how your DNA influences your traits.



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.

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

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



**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, a few 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

Indoleamine 2,3-dioxygenase, commonly referred to as IDO, is an enzyme that plays a crucial role in the metabolism of [tryptophan](#), an essential amino acid. IDO catalyzes the first step in the kynurenine pathway, where tryptophan is broken down. This pathway is significant not only for tryptophan metabolism but also for the regulation of immune responses and maintaining immune tolerance [\[R, R\]](#).

IDO has a unique role in the immune system. By degrading tryptophan, it can help regulate immune responses, particularly in preventing overactive immune reactions. This function is important in various physiological contexts, including pregnancy (where it helps prevent the mother's immune system from attacking the fetus), cancer, and infectious diseases [\[R\]](#).

During certain infections, the activation of IDO can be part of the body's defense mechanism. IDO also plays a role in preventing autoimmune reactions. Dysregulation of this enzyme might contribute to the development of autoimmune disorders [\[R\]](#).

On the other hand, some cancers can exploit the IDO pathway to evade the immune system. Therapies targeting the IDO pathway are being researched, particularly in the field of cancer treatment, where inhibiting IDO could potentially enhance the immune system's ability to fight cancer [\[R\]](#).

# IDO Activity and Health Conditions

Factors influencing IDO activity include:

- Inflammatory responses: Certain cytokines released during inflammation can induce IDO production.
- Stress and psychological factors: Stress and other psychological factors can influence the kynurenine pathway, potentially affecting IDO activity.
- Diet and nutrition: The availability of tryptophan, the substrate for IDO, can influence its activity.

A few genetic variants have been associated with IDO levels. **Genetically higher IDO levels** may protect against the following conditions [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Ischemic heart disease
- Type 2 diabetes
- Prostate cancer



TYPICAL LEVELS

**Predisposed to typical IDO levels based on 3 genetic variants we looked at**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NLRP12	rs4632248	GG
IDO1	rs7010461	TC
IDO2	rs4503083	TA
MST1	rs3197999	GG
IDO2	rs10109853	CC

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

# Next Steps

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

## Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.