

WFS1 (Blood Sugar)

Gene Report

REPORT CATEGORY —



Sample Client

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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

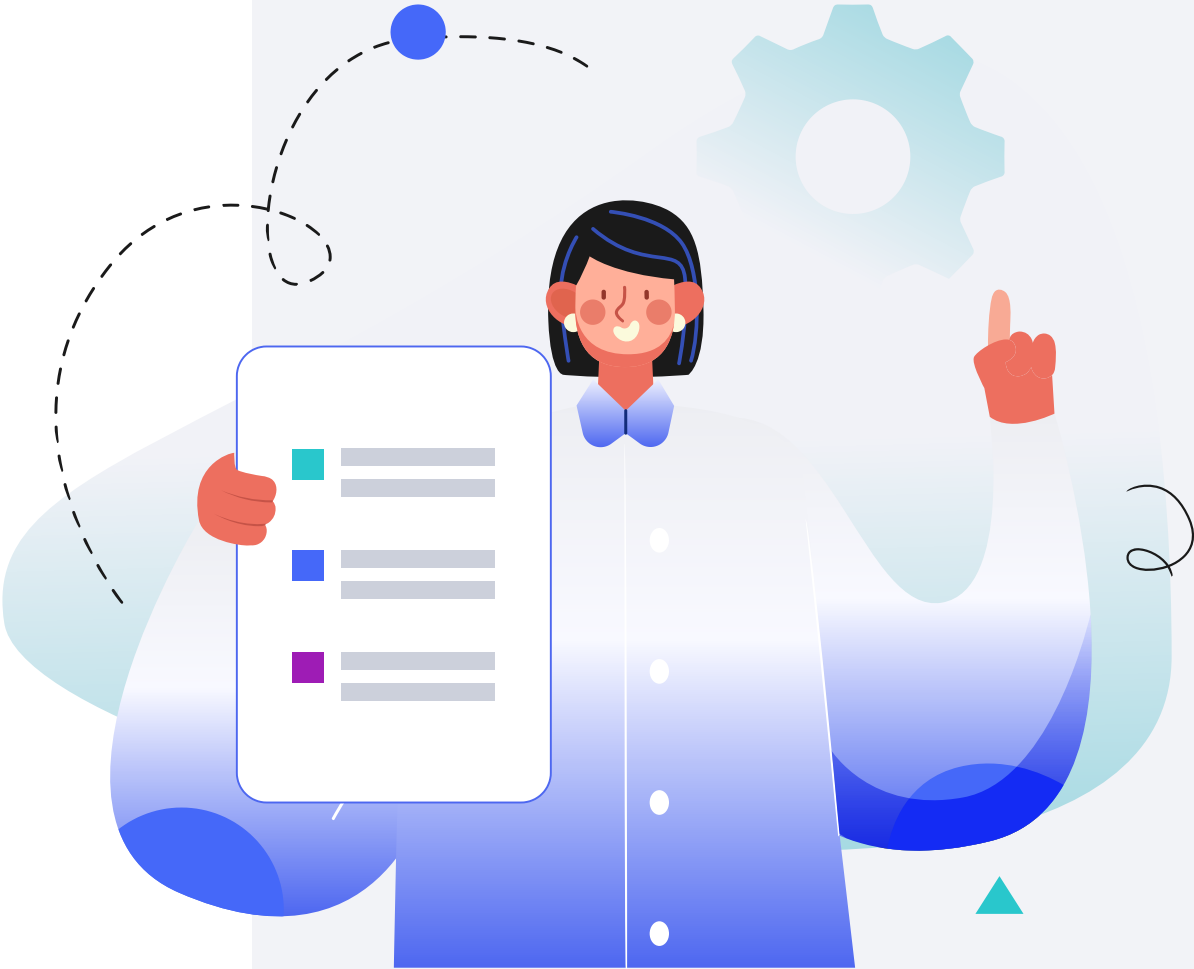
Male

HEIGHT

5ft 5" 165cm

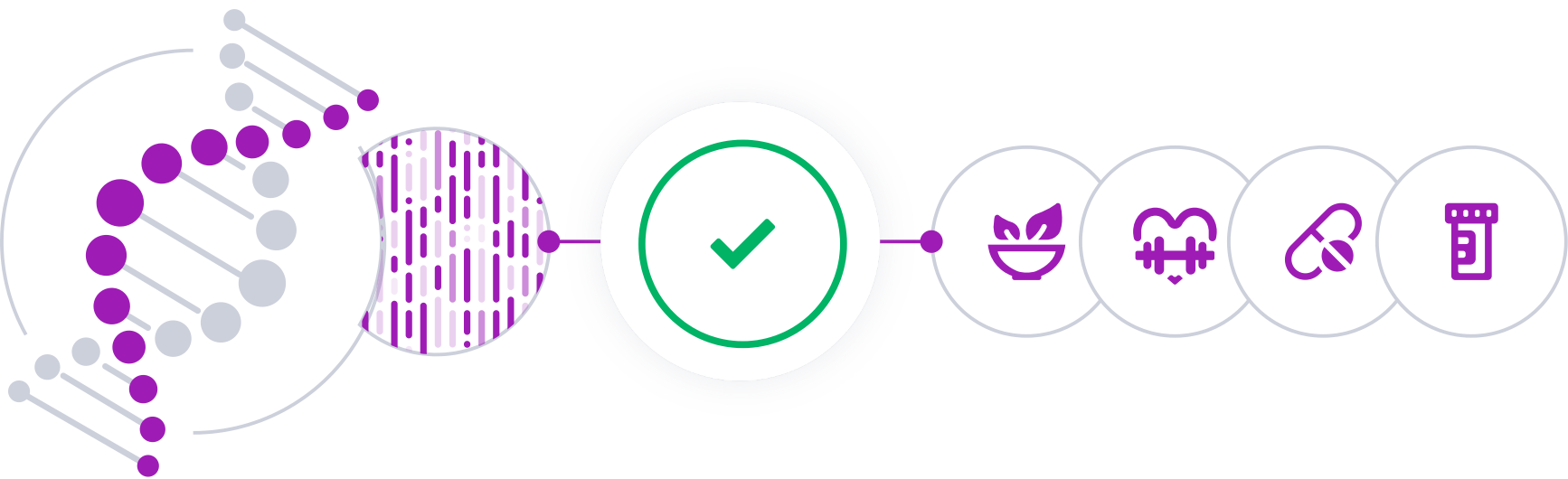
WEIGHT

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.

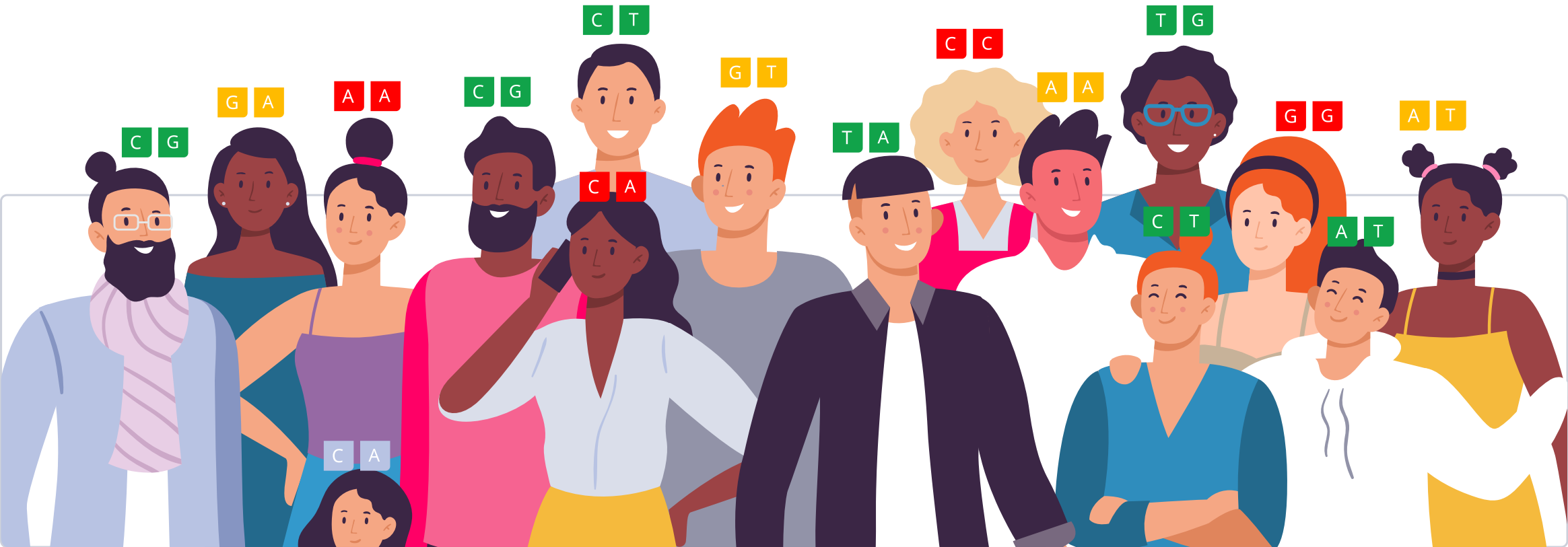


Similarly, our Trait Reports look at how your DNA influences your traits.



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.

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

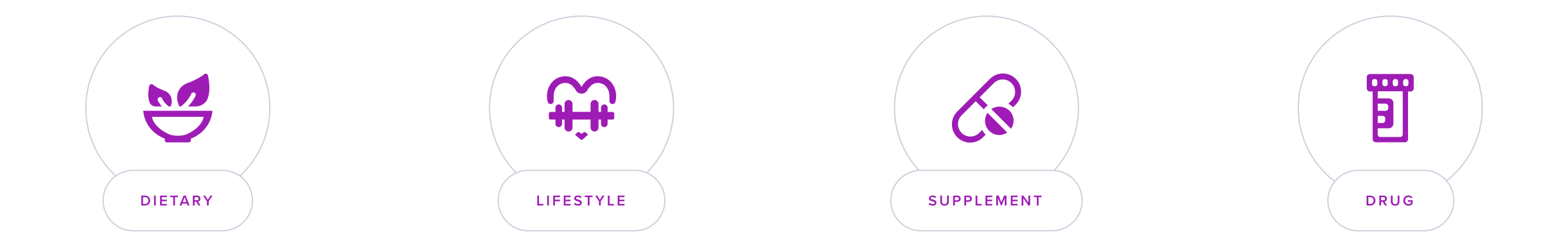
You have 2 risk alleles

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

The [WFS1](#) gene encodes a protein called wolframin that is thought to regulate the amount of calcium in cells. The protein encoded by this gene is located in the endoplasmic reticulum and found in many different tissues, such as the pancreas, brain, heart, bones, muscles, lungs, liver, and kidneys [\[R\]](#), [\[R\]](#).

Wolframin is thought to play a role in protein folding and aid in the maintenance of endoplasmic reticulum function by regulating calcium levels. In the pancreas, wolframin may help fold a protein precursor of insulin (called proinsulin) into the mature hormone that controls blood glucose levels [\[R\]](#), [\[R\]](#).

Mutations in this gene are associated with Wolfram syndrome, also called DIDMOAD (Diabetes Insipidus, Diabetes Mellitus, Optic Atrophy, and Deafness), an autosomal recessive disorder characterized by a lack of insulin leading to increased blood glucose (diabetes mellitus), a degeneration of nerves that carry information from the eyes to the brain (optic atrophy), and other features involving the urinary tract, the brain, and hearing [\[R\]](#).

Mutations in this gene may also cause a form of nonsyndromic hearing loss called DFNA6. People with this condition have hearing loss (especially of low tones) without related signs and symptoms affecting other parts of the body [\[R\]](#).

WFS1 Genetics

The main *WFS1* gene variant is [rs10010131](#). Its minor ‘A’ allele has been associated with a decreased risk of type 2 diabetes, metabolic syndrome, gestational diabetes, and diabetic retinopathy [[R](#), [R](#), [R](#), [R](#), [R](#), [R](#), [R](#)].

Greater GLP-1-induced insulin secretion and insulin sensitivity in ‘A’ carriers may explain its protective effects. Because the WFS1 protein is required for insulin maturation, this variant may increase *WFS1* activity [[R](#), [R](#)].

Moreover, a study of 50 adults with obesity and without diabetes found that those with the ‘A’ allele lost more weight after receiving oral dapagliflozin (10 mg/day) and subcutaneous long-acting exenatide (2 mg) for 24 weeks [[R](#)].

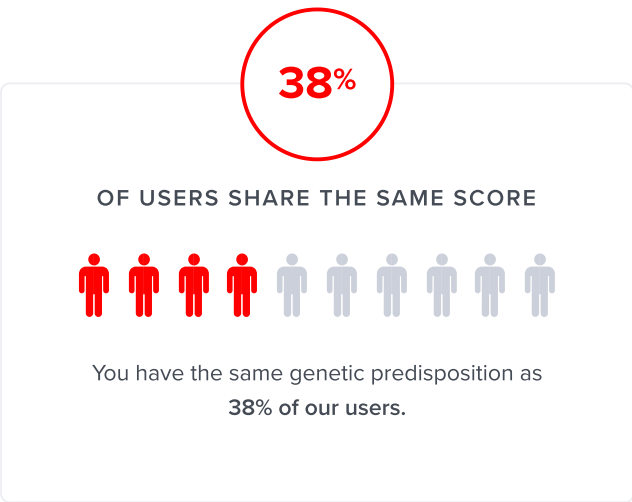
However, this allele has been associated with lower eGFR and a higher urinary albumin-to-creatinine ratio in patients with type 2 diabetes [[R](#)].

Another variant associated with a reduced risk of diabetes is the ‘G’ allele of [rs1046320](#). This variant is usually inherited together with the minor allele of rs10010131, meaning you will most likely have both or neither of them [[R](#)].



LOWER ACTIVITY

Predisposed to a lower WFS1 activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
WFS1	rs10010131	GG
WFS1	rs1046320	AA

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