

SCD (Metabolic Syndrome)

Gene Report

REPORT CATEGORIES —



HEART & BLOOD
VESSELS



BLOOD SUGAR
CONTROL

Sample Client

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Table of Contents

03 How this works

- 04 Impact
- 05 Evidence
- 06 Some things to keep in mind

07 Introduction

08 Your genetics

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

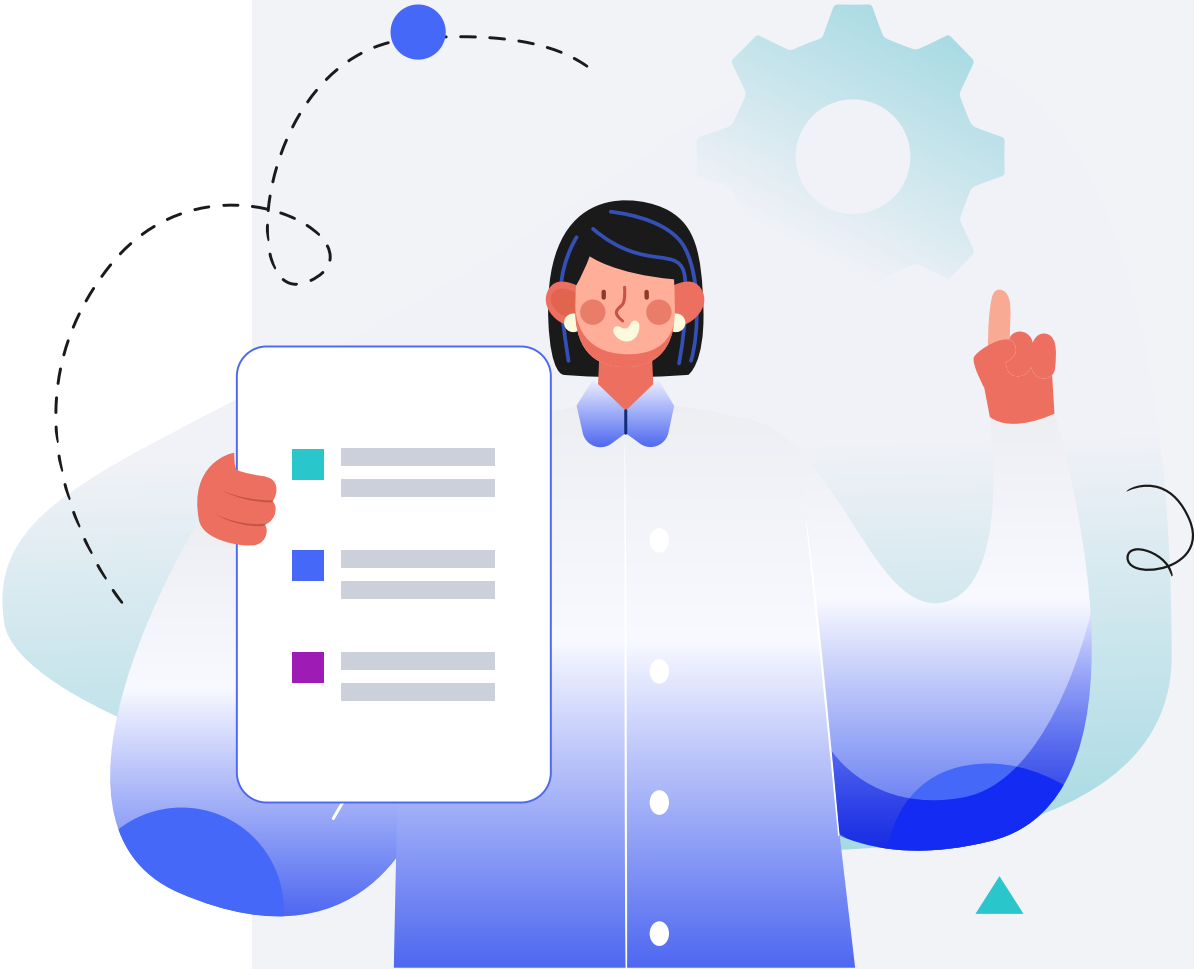
Male

HEIGHT

5ft 5" 165cm

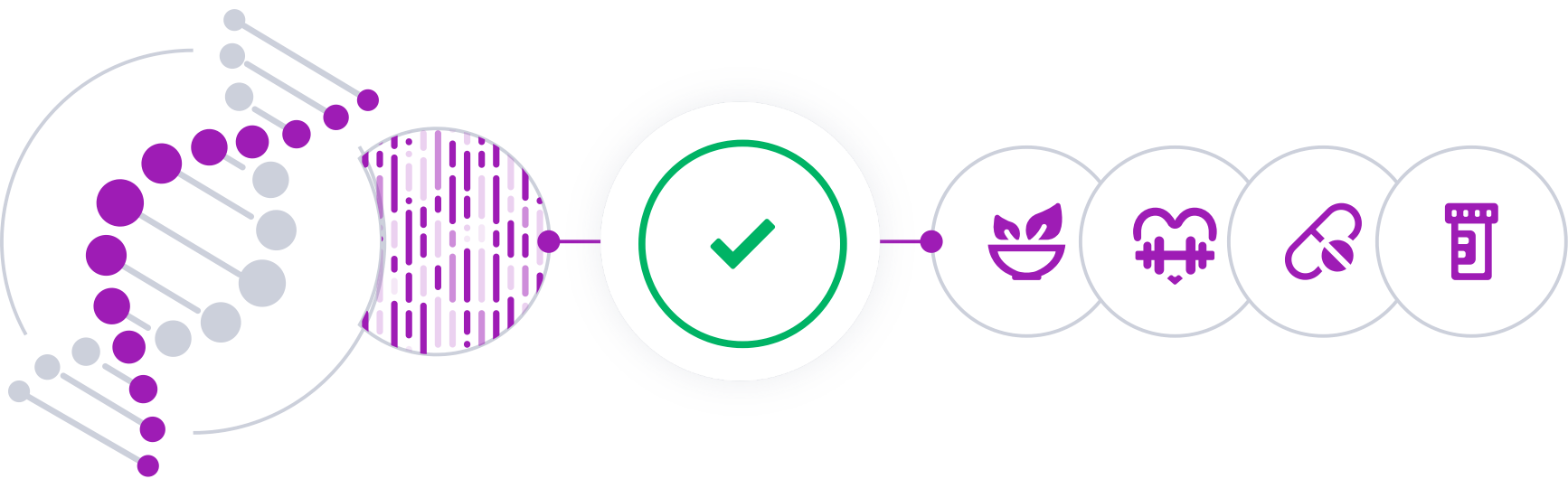
WEIGHT

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.

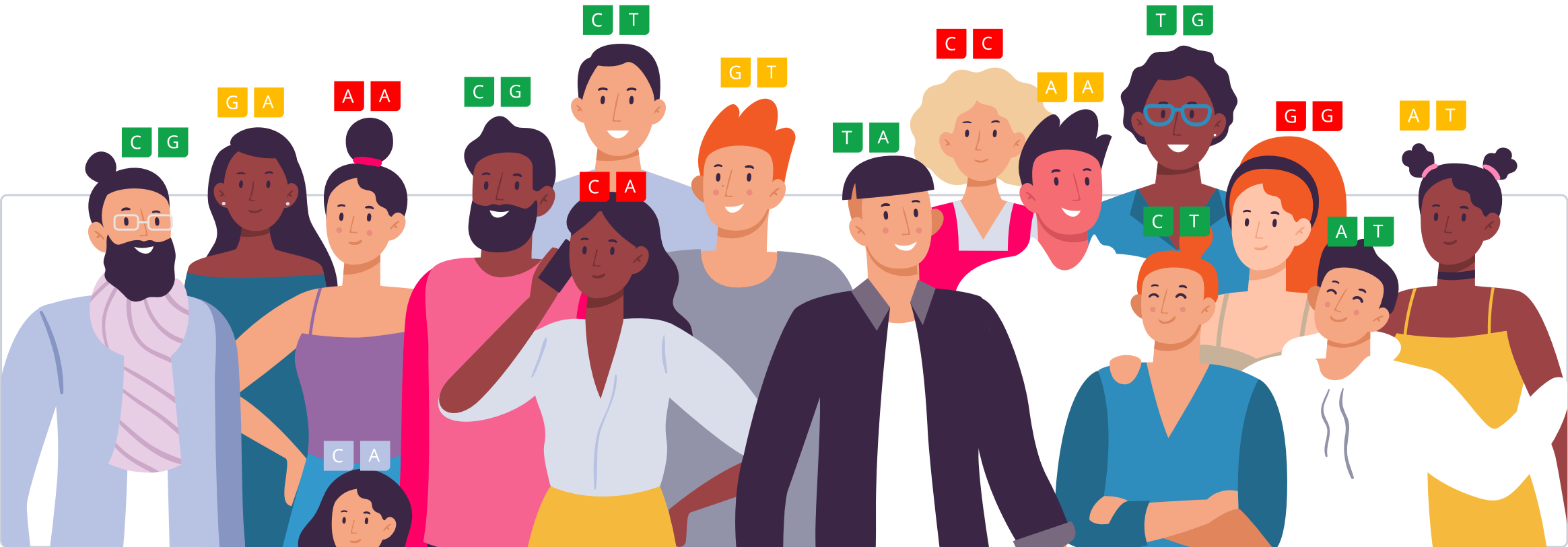


Similarly, our Trait Reports look at how your DNA influences your traits.



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

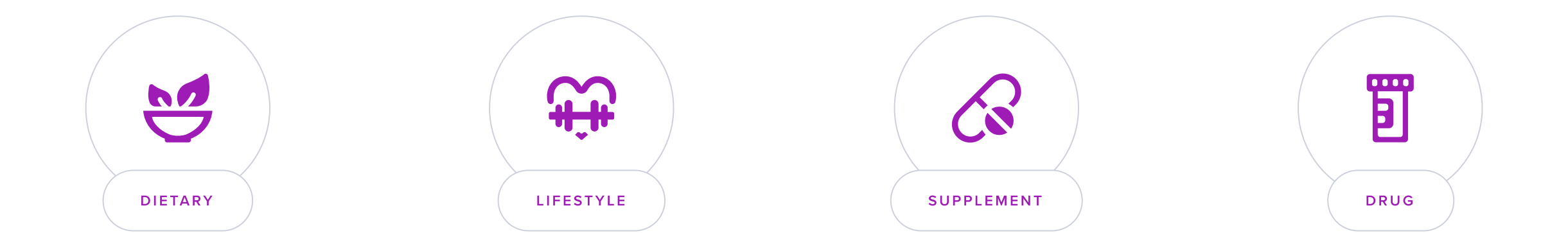
You have 2 risk alleles

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 [SCD](#) gene encodes an enzyme called ‘stearoyl-CoA desaturase’ that is involved in fatty acid biosynthesis. Specifically, SCD is the rate-limiting step in the conversion of saturated into monounsaturated fatty acids. SCD transforms stearic into oleic acid or palmitic into palmitoleic acid [\[R\]](#).

Interestingly, this enzyme is more abundant in people with obesity and metabolic syndrome. As a result, people with these conditions have higher monounsaturated to saturated fatty acid ratios in their fatty tissues. Animal studies found that the lack of SCD promotes leanness by increasing the β -oxidation of fatty acids to produce energy [\[R, R, R\]](#).

On the contrary, low levels of monounsaturated fatty acids such as oleic acid and palmitoleic acid due to SCD activity have been causally associated with insulin resistance. This increases the risk of type 2 diabetes, especially in people eating a diet high in refined sugars [\[R\]](#).

SCD Genetics

One of the main *SCD* polymorphisms is [rs3071](#). Its ‘C’ allele has been associated with higher fasting glucose levels in response to an oil with a high saturated-to-monounsaturated fatty acid ratio but lower levels in response to higher MUFA intake. Moreover, people with the ‘CC’ genotype lowered their IL-6 levels more in response to supplementation with omega-3 fatty acids in a study of 210 participants [\[R\]](#), [\[R\]](#).

The ‘TT’ genotype of [rs2060792](#) has been associated with lower stearic acid levels, suggesting increased SCD activity. This variant has also been associated with higher inflammation (measured as CRP levels) [\[R\]](#).

A study of 323 dialysis patients associated the ‘AA’ genotype of the [rs1393492](#) polymorphism with an increased risk of metabolic syndrome [\[R\]](#).

Another *SCD* variant associated with metabolic syndrome is the ‘A’ allele of [rs1502593](#). This allele has also been associated with a smaller reduction of fasting glucose levels after consuming a control oil with a high saturated-to-monounsaturated fatty acid ratio [\[R\]](#), [\[R\]](#).

A study of 1143 elderly men associated the minor ‘C’ allele of [rs7849](#) with 23% higher insulin sensitivity and 4 cm less waist circumference. Other variants associated with improved insulin sensitivity and decreased BMI and waist circumference in the same study were ‘C’ of [rs10883463](#), ‘A’ of [rs2167444](#), and ‘A’ of [rs508384](#) [\[R\]](#).



Predisposed to a typical SCD genetics based on 8 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SEC31B	rs3071	AA
SEC31B	rs10883463	TT
SCD	rs2167444	TT
SCD	rs1393492	AA
SEC31B	rs1502593	GA
SCD	rs7849	CT
SCD	rs508384	AC
SEC31B	rs2060792	TC

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