

Alpha-Estradiol Response (Hair Loss)

Biohacker Report

REPORT CATEGORY —



SKIN & BEAUTY

Sample Client

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omicsedge

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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

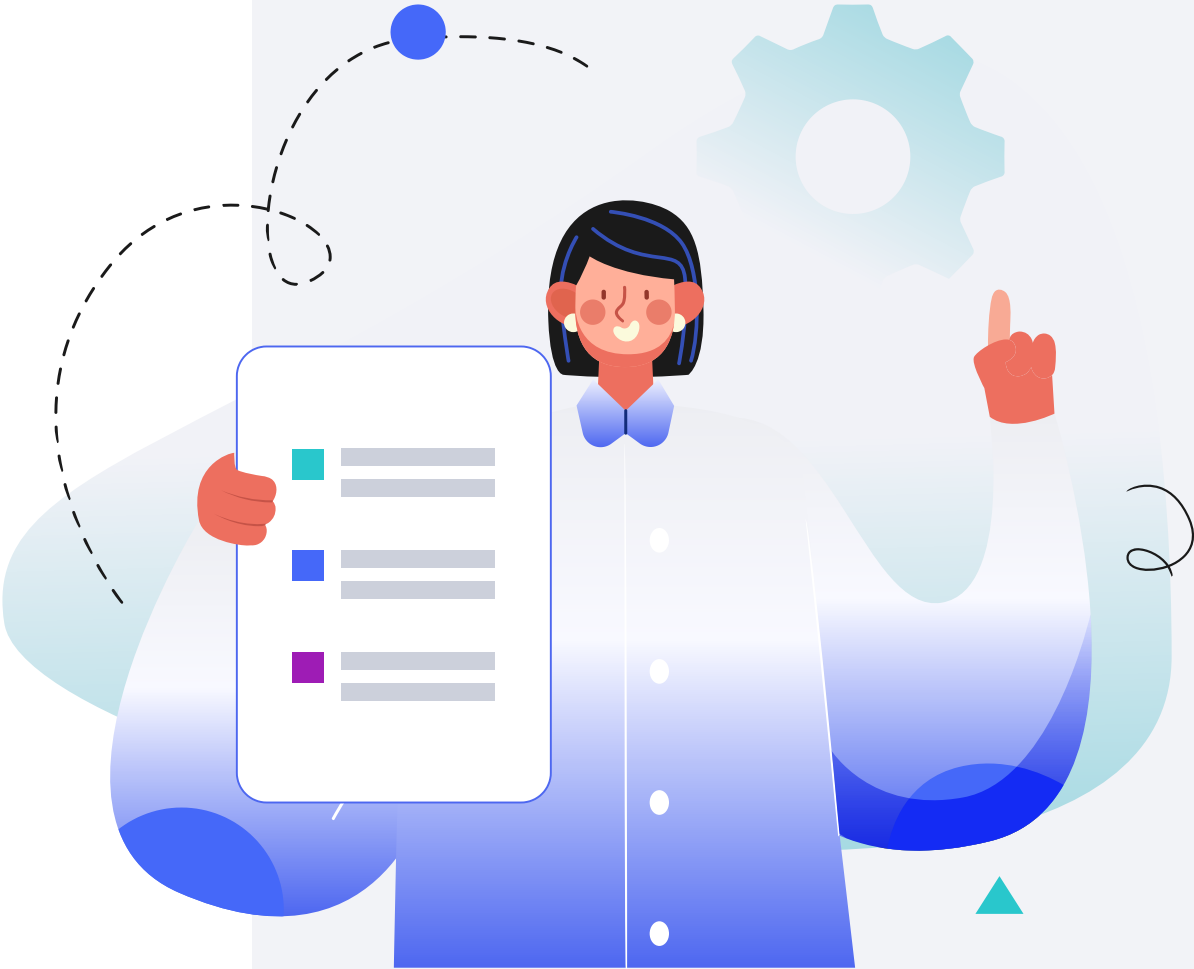
Male

HEIGHT

5ft 5" 165cm

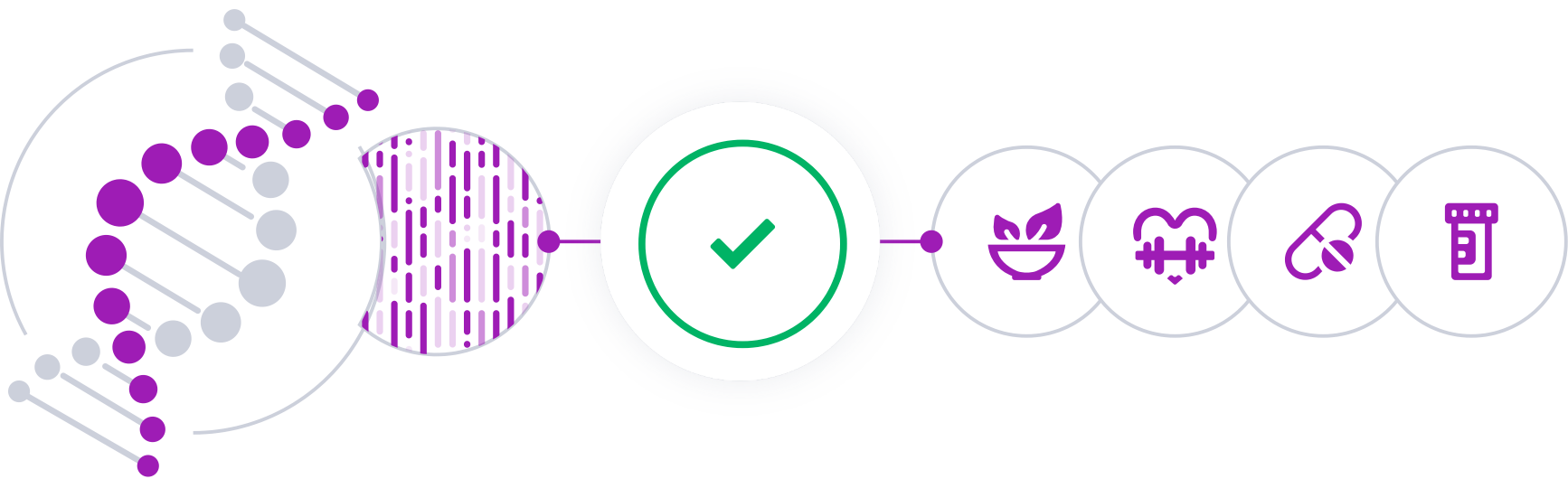
WEIGHT

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.

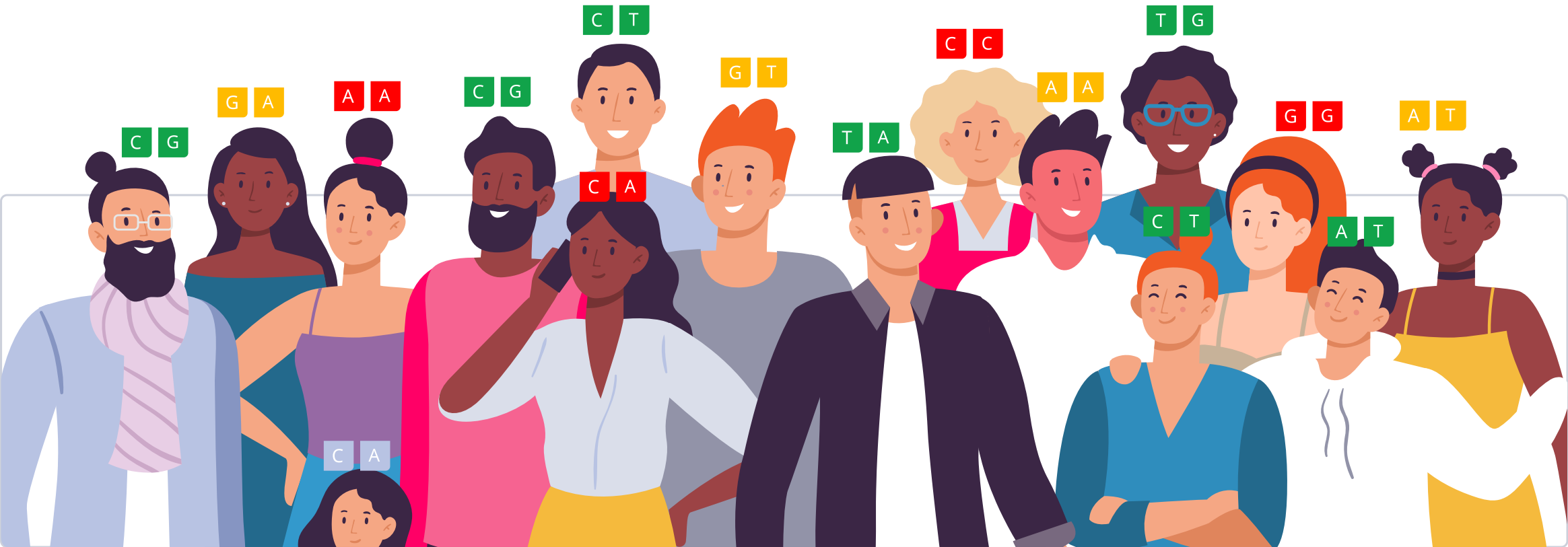


Similarly, our Trait Reports look at how your DNA influences your traits.



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

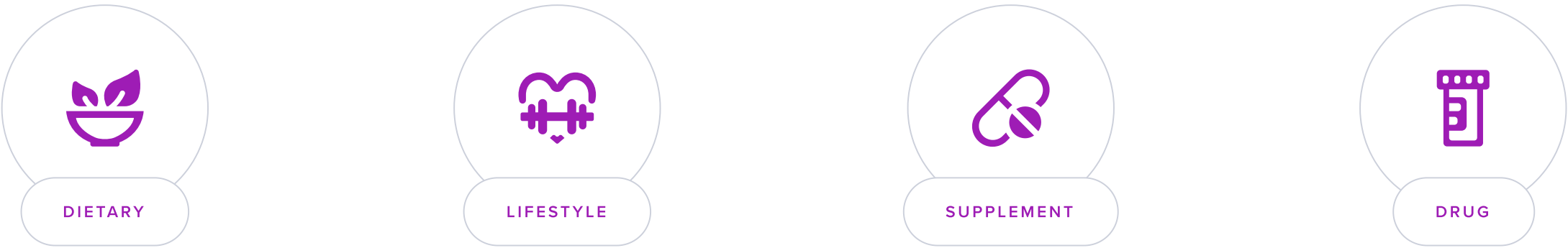
You have 2 risk alleles

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 [CYP19A1](#) gene provides instructions for making a [cytochrome P450](#) monooxygenase called aromatase. While many of this enzymes eliminate toxins and drugs from the human body, aromatase converts [androstenedione](#) and testosterone to estrone and [estradiol](#), respectively [\[R\]](#).

In cells, aromatase is found in a structure involved in protein production, processing, and transport (the *endoplasmic reticulum*). Aromatase is found in the ovaries, placenta, testis, fat tissue, brain, liver, muscles, and hair follicles [\[R\]](#), [\[R\]](#), [\[R\]](#).

By controlling estrogen production, *CYP19A1* affects a variety of processes in the body, such as:

- Sexual development [\[R\]](#)
- Fat production and distribution [\[R\]](#)
- Bone density [\[R\]](#)
- Female fertility [\[R\]](#)
- Brain function and development [\[R\]](#)

Variants in this gene may increase the risk of male- and female-pattern hair loss by altering the balance of androgen and estrogen [\[R\]](#).

CYP19A1 Genetics

The following *CYP19A1* alleles have been associated with an increased risk of female-pattern hair loss:

- ‘C’ at [rs4646](#) [R]
- ‘G’ at [rs6493497](#) [R]
- ‘C’ at [rs7176005](#) [R]

The weak estrogen **17α-estradiol** is commonly used as a topical treatment for hair loss. Although its main mechanism is the inhibition of 5-alpha-reductase (which converts testosterone to DHT), it also binds estrogen receptors and thus "competes" with androgens contributing to hair loss. Its local application on the hair scalp might block the androgens, potentially reducing the negative effects of these variants on hair growth [R].

However, the above is just a hypothesis. **No studies associate CYP19A1 variants with a 17α-estradiol response.**



TYPICAL RESPONSE

Likely typical response to 17α-estradiol based on 3 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CYP19A1	rs4646	CC
CYP19A1	rs6493497	GG
CYP19A1	rs7176005	CC

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

Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You’ll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

1

Topical 17-a-Estradiol

1



Topical 17-a-Estradiol

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Apply to clean, dry scalp using the dropper. Create partings to ensure direct scalp contact and distribute evenly across affected areas. Massage gently but thoroughly. Allow complete drying before applying other products. If irritation occurs, reduce frequency and consult your provider.

Description

17-a-estradiol is a naturally occurring estrogen that works locally on the scalp to combat hair loss. It's designed to counteract androgenic effects at the follicle level without significant systemic absorption, making it an attractive option for those seeking a hormone-based treatment with minimal systemic impact.

How it helps

While it's related to estrogen, 17 α -estradiol doesn't have strong estrogen-like effects in the body. Instead, it mainly works by reducing DHT and competing for androgen receptors in hair follicles, essentially blocking DHT from binding there. It also seems to help by improving blood flow to hair follicles and reducing inflammation [\[R\]](#), [\[R\]](#).

When applied to the scalp, it appears to be safe since very little gets absorbed into the bloodstream. Early research shows promising results, particularly when combined with other treatments like minoxidil [\[R\]](#), [\[R\]](#).

The main challenge is that it's not as widely available as other treatments, and some people might have trouble finding a reliable source. While the evidence is growing, we still need more large-scale studies to fully understand its effectiveness compared to established treatments.