

FKBP5 (Stress/ HPA Axis)

Gene Report

REPORT CATEGORY —



MENTAL HEALTH

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

09 Your recommendations

12 Next Steps

- 12 Your Lab Results

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

The [FKBP5](#) encodes FK506 binding protein 5, or FKBP prolyl isomerase 5, an immune system protein that helps regulate many basic cellular processes and also plays key roles in the stress response. It regulates the sensitivity of glucocorticoid receptors, meaning that it may alter the way that stress hormones affect the body [\[R\]](#), [\[R\]](#), [\[R\]](#).

Excess FKBP5 activity may reduce your ability to recover from stressful events. It’s been associated with stress-related psychiatric disorders like [\[R\]](#), [\[R\]](#), [\[R\]](#):

- [PTSD](#)
- [Depression](#)
- Bipolar disorder

Variants in the *FKBP5* gene have also been associated with specific types of [pain](#) and pain disorders, including:

- Back pain [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Post-traumatic chronic muscle pain [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Nerve pain [\[R\]](#), [\[R\]](#)
- Headaches [\[R\]](#), [\[R\]](#)
- Chest pain [\[R\]](#), [\[R\]](#)
- Neck and shoulder pain [\[R\]](#), [\[R\]](#)
- Increased use of painkillers [\[R\]](#), [\[R\]](#)

Other conditions affected by this gene include:

- Response to medication in bipolar disorder [\[R\]](#)
- Systemic lupus erythematosus (SLE) [\[R\]](#)
- Coronary artery disease [\[R\]](#)
- Alcohol withdrawal severity [\[R\]](#)

FKBP5 Genetics

The following variants increase *FKBP5* expression and impair stress response. People carrying the risk alleles have a harder time recovering from childhood or early life traumas, leading to increased severity of PTSD [R, R, R]:

- ‘C’ at [rs3800373](#)
- ‘T’ at [rs1360780](#)
- ‘T’ at [rs9470080](#)

In contrast, these variants have also been associated with a reduced susceptibility to chronic pain, such as back pain and neuralgia [R, R, R].

Another variant believed to increase FKBP5 activity, ‘G’ at [rs9394314](#), was found to be protective against chronic neuralgia. However, this allele was associated with overall and neck pain after trauma [R, R].



Likely lower FKBP5 activity based on 4 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TULP1	rs3800373	AA
FKBP5	rs1360780	CC
TULP1	rs9470080	CC
FKBP5	rs9394314	AG

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.

	DOSAGE		DOSAGE
1	Cognitive-Behavioral Therapy (CBT)	2	Maintain Optimal Vitamin D Levels1000 iu

1



Cognitive-Behavioral Therapy (CBT)

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

Schedule weekly sessions with a certified cognitive-behavioral therapist for a period of 5 to 20 weeks. Engage actively in exercises assigned by your therapist both during sessions and as homework to apply CBT strategies to daily life.

Description

Cognitive-behavioral therapy (CBT) is a psychotherapeutic approach that has been effective in treating various mental health conditions by helping individuals identify and change negative thought patterns and behaviors. It is widely used for conditions like depression, anxiety, and phobias.

Psychotherapy (talk therapy) involves talking about your health with a licensed therapist. It may improve the way you react to certain experiences [\[R\]](#).

Talk therapy is a great way to improve many conditions, including [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Depression
- Anxiety disorders
- PTSD
- OCD
- Substance use disorder
- Bipolar disorder

Cognitive-behavioral therapy (CBT) is a type of talk therapy. CBT aims to change the way you think about your life and yourself. Through CBT, a therapist can help you develop healthy coping mechanisms [\[R\]](#).

How it helps

Cognitive-behavioral therapy (CBT) is the best type of talk therapy for stress relief. CBT can help almost anyone under stress, including [\[R\]](#), [\[R\]](#), [\[R\]](#):

- People with anxiety
- People with depression
- Students
- Caregivers
- Cancer patients

CBT may reduce your levels of the stress hormone [cortisol](#). After going through CBT, people often feel less anxious and more relaxed [\[R\]](#), [\[R\]](#), [\[R\]](#).

People with certain *FKBP5* variants respond better to cognitive-behavioral therapy for anxiety and stress reduction [\[R\]](#).

2



Maintain Optimal Vitamin D Levels

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE

1000 iu

Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs [vitamin D](#) for strong bones. Vitamin D also plays a role in [\[R\]](#):

- Mood
- Immunity
- Heart health
- Blood sugar control

[Sunlight](#) is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [\[R, R\]](#).

Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [\[R\]](#).

How it helps

Vitamin D can reduce *FKBP5* expression in human cells [\[R, R\]](#).

Low vitamin D levels may be associated with a higher risk of anxiety [\[R, R\]](#).

In line with this, supplementation with vitamin D may help reduce anxiety symptoms. Vitamin D may help by supporting the proper function of the gut bacteria [\[R, R, R\]](#).

Please note: *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

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.