

IL-17 (Th17)

Biohacker Report

REPORT CATEGORY —



INFLAMMATION &
AUTOIMMUNITY

Sample Client

Report date: 15 January 2026

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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 immune system uses [T helper cells](#), a type of white blood cell, to combat infections. They include:

- [Th1 cells](#)
- [Th2 cells](#)
- [Th17 cells](#)

These cells produce chemical messengers called **cytokines** — small proteins involved in the communication between cells [\[R\]](#).

One of these chemical messengers is interleukin 17 (IL-17), the best-known member of the IL-17 family [\[R\]](#).

Limited research suggests that some people may have a more potent Th1, Th2, or Th17 immune response. However, this is still a matter of research. Read [this post](#) for more information [\[R\]](#), [\[R\]](#).

About IL-17

Interleukin 17 (IL-17) is a proinflammatory cytokine, produced mainly by [Th17](#) cells [\[R\]](#).

The main role of IL-17 is to defend us against harmful microbes. It also supports our [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Gut
- Skin
- Lungs
- Brain

However, excessive IL-17 may cause harmful inflammation and contribute to inflammatory disorders, such as [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Obesity
- Type 2 diabetes
- Liver disease
- Asthma
- Autoimmune diseases (e.g., multiple sclerosis, psoriasis, rheumatoid arthritis, Crohn’s disease)
- [Lung failure](#)

The main factors that may influence IL-17 levels include health status and **genetics** [\[R\]](#).



Predisposed to typical IL-17 levels based on 13,199 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs117556572	CC
PTPMT1	rs139556855	AA
AMBRA1	rs148500124	AA
PTPRJ	rs185821266	GG
SLC1A1	rs7860087	GG
IKZF2	rs141312283	GG
/	rs187475560	CC
NAV3	rs184080173	TT
EPM2A	rs118117575	AA
/	rs148562661	CC
SHPRH	rs182530774	CC
EPM2A	rs187987903	GG
EPM2A	rs13215785	GG
GRM1	rs117785887	TT
GRM1	rs35548402	AA
MCFD2	rs1446499	TT
TRIB3	rs62191444	GG
/	rs78612928	TT
/	rs12735700	GG
/	rs11110094	GG
PCDH8	rs9568764	CG
GDNF	rs80004049	GG
ANKRD30A	rs146752254	AA
ANKRD30A	rs1148267	AA
EPHA8	rs45498698	GG
KLF7	rs17282552	TT
ZNF184	rs143334272	CC
H3C12	rs145168562	GG
EXTL3	rs149738638	TT
TCF25	rs11640734	CC
SPTLC2	rs17106604	CC
C1ORF174	rs57920188	TT

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
1Astragalus	500 mg	2Barberry	500 mg
3Krill Oil	1 g	4Maintain Optimal Vitamin D Levels	1000 iu
5Bacillus Clausii		6Lactobacillus Casei	10 billion CFU
7Lactobacillus Plantarum	10 billion CFU	8Omega-3 (Fish Oil)	2000 mg
9Probiotics	30 billion CFU	10Sleep for 7+ Hours	
11Curcumin	500 mg		

1



Astragalus

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Take a 500 mg astragalus supplement once daily with a meal. Continue this regimen for at least 4 to 6 weeks to evaluate its effectiveness on your overall health.

TYPICAL STARTING DOSE

500 mg

Description

Astragalus is an herb used in traditional Chinese medicine. It is believed to have immune-boosting properties and may help reduce stress and support overall vitality.

[Astragalus](#) (*Astragalus membranaceus*) is an herb used in traditional Chinese medicine. It is commonly used for “tonifying Qi” or fatigue. It may help [R, R]:

- Reduce inflammation
- Fight oxidative stress

Astragalus root is a staple of traditional Chinese medicine, where it is also known as *Huang Qi*.

How it helps

Astragalus can enhance the body's immune response by reducing the overactive Th17 response, which can lead to inflammation and autoimmune conditions. It helps by regulating the balance of immune cells, thus reducing inflammation and assisting with the overall improvement of IL-17 conditions.

In a systematic review and meta-analysis of 19 RCTs, all of which were conducted in China, Astragalus injection **decreased the levels of pro-inflammatory TNF- α , IL-6, IL-17, IL-8, IL-1, CRP, and IFN- γ** , and increased the total effective rate of treatment (RR=1.225, 95% CI=1.17 to 1.29) in people with viral myocarditis [R].

A randomized controlled trial with 30 people undergoing heart valve replacement found that astragalus may modulate cytokines to **reduce inflammation** in patients during the procedure by **increasing IL-10 levels and reducing TNF-alpha and IL-8 levels** [R].

2



Barberry

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a barberry supplement of 500-1000 mg daily, divided into two or three doses with meals for up to 12 weeks. Do not exceed the recommended dose without consulting a healthcare provider.

TYPICAL STARTING DOSE
500 mg

Description

Barberry is an herbal remedy used in traditional medicine for its potential to support digestive health and reduce inflammation. It contains compounds that may have antimicrobial and antioxidant properties.

How it helps

In a placebo-controlled trial of 80 women with active rheumatoid arthritis, supplementation with barberry (2 g/day) for 12 weeks lowered IL-17 levels [\[R\]](#).

Barberry contains berberine, which can inhibit the production of IL-17.

3



Krill Oil

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 1 to 3 grams of krill oil daily as a dietary supplement, preferably with a meal to enhance absorption. It's often available in soft gel form, making it easy to swallow. Continue this regimen consistently for best results, typically reviewing its effectiveness and any need for adjustments with a healthcare provider after a few months.

TYPICAL STARTING DOSE
1 g

Description

Krill oil is a source of omega-3 fatty acids, primarily in the form of phospholipids. It can promote cardiovascular health, joint comfort, and may have anti-inflammatory properties.

How it helps

In a placebo-controlled trial of 54 patients with mild to moderate dry eye disease, supplementation with krill oil (945 mg/day EPA + 510 mg/day DHA) for 90 days was more effective than fish oil at lowering IL-17A levels [\[R\]](#).

Krill oil is rich in omega-3 fatty acids, which have anti-inflammatory properties that may reduce the levels of IL-17.

4



Maintain Optimal Vitamin D Levels

IMPACT

1 / 5

EVIDENCE

1 / 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

In a placebo-controlled trial of 94 patients with multiple sclerosis, supplementation with a high dose of vitamin D (50,000 IU) every 5 days for 12 weeks lowered IL-17 levels [\[R\]](#).

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* [\[R\]](#).

5



Bacillus Clausii

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take Bacillus clausii as an oral probiotic supplement, usually found in liquid or capsule form. For adults and children, the typical dosage is one or two capsules (or one or two vials of liquid, if using that form) daily. The duration of use can vary; some may take it for a few weeks during or after antibiotic treatment, while others might use it for longer periods to support digestive health.

Description

Bacillus causii is a type of beneficial bacteria that can be found in probiotic supplements, potentially contributing to digestive health and a balanced gut microbiome.

How it helps

In a placebo-controlled trial of patients with IBD, supplementation with *B. clausii* UBBC-07 for 4 weeks increased *Firmicutes*, *Lactobacillus*, *Bifidobacterium*, and *Faecalibacterium* bacteria while decreasing *Bacteroidetes*. The treatment also increased IL-10 while decreasing IL-1β, TNF-α, IL-6, IL-17 and IL-23 [R].

6



Lactobacillus Casei

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing Lactobacillus casei daily, with a dosage recommended by the product's manufacturer or a healthcare professional. The specific amount can vary, but it is commonly found in doses around 10 billion colony-forming units (CFUs). Continue this regimen for at least 4 weeks to observe potential health benefits.

TYPICAL STARTING DOSE

10 billion CFU

Description

Lactobacillus casei is a probiotic bacterium known for its potential to support gut health and immune function. It contributes to a balanced gut microbiome and may help alleviate digestive issues like diarrhea.

[Lactobacillus casei](#) is a [probiotic](#) bacterium found in fermented foods (e.g., cheese), as well as in the reproductive and gastrointestinal tracts of humans and other animals [R, R].

People mainly take *L. casei* to support a healthy gut microbiota [R].

How it helps

In a placebo-controlled trial of 92 cirrhotic patients, supplementation with *L. casei* Shirota for 6 months reduced IL-17 levels in those with non-alcoholic cirrhosis [R].

L. casei modifies the gut microbiota and influences the body's immune system, including IL-17-producing cells (Th17).

7



Lactobacillus Plantarum

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a probiotic supplement containing *Lactobacillus plantarum* 299V daily. The typical dosage is 10 billion colony-forming units (CFUs). Continue for at least 4 weeks to assess benefits on digestive health.

TYPICAL STARTING DOSE
10 billion CFU

Description

[Lactobacillus plantarum](#) is a [probiotic](#) bacterium found in many fermented plant products such as sauerkraut, pickles, brined olives, and Korean kimchi [\[R\]](#).

People take *L. plantarum* supplements to improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Diarrhea
- Skin appearance
- IBD
- High cholesterol

How it helps

In 2 placebo-controlled trials of 30 adults and 22 children with atopic dermatitis, supplementation with *L. plantarum* IS-10506 (1-2 × 10^10 CFU/day) for 12 weeks improved the symptoms while decreasing IL-17 and other inflammatory markers [\[R\]](#), [\[R\]](#).

8



Omega-3 (Fish Oil)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 1-2 g of omega-3 (fish oil) supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

2000 mg

Description

Omega-3 fatty acids are essential fats found in fatty fish like salmon, flaxseeds, and walnuts. They are known for their potential cardiovascular and brain health benefits, including reducing the risk of heart disease and supporting cognitive function.

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

How it helps

Supplementation with omega-3 fatty acids lowered IL-17 levels in the following groups of people:

- Gas station workers [\[R\]](#)
- Patients with gum disease [\[R\]](#)

However, it failed to lower this cytokine in migraineurs or healthy volunteers during exercise [\[R\]](#), [\[R\]](#).

9



Probiotics

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a probiotic supplement containing 10 billion or more live cultures once daily, preferably with a meal or as directed by the packaging or a healthcare provider.

TYPICAL STARTING DOSE
30 billion CFU

Description

Probiotics are live beneficial bacteria and yeasts that can support gut health and digestive function when consumed as supplements or found in fermented foods like yogurt and sauerkraut. They may be beneficial to gut health, immune function, blood sugar, and mood.

Probiotic bacteria are “good” bacteria found mainly in the large intestine. They support your body and mind by [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Maintaining gut health
- Supporting a healthy immune system
- Improving your mood
- Helping to maintain healthy blood sugar

Prebiotics are certain types of fiber and other complex carbs that serve as food for gut bacteria. **They support gut health by helping boost the activity and growth of “good” bacteria** [\[R\]](#), [\[R\]](#).

Prebiotics are also added to foods and supplements. Common prebiotic ingredients are [\[R\]](#), [\[R\]](#):

- Oligo-fructose
- Oligo-galactose
- [Inulin](#)

Mixtures of probiotics and prebiotics are known as **synbiotics** [\[R\]](#).

How it helps

Certain strains of probiotics can influence immune function and may have a regulatory effect on IL-17 production.

10



Sleep for 7+ Hours

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Ensure you allocate enough time in your schedule to achieve a minimum of 7 hours of sleep each night. This might involve going to bed earlier or adjusting your evening routine to promote relaxation and make it easier to fall asleep.

Description

Optimizing sleep involves adopting healthy sleep habits and creating a sleep-conducive environment to ensure restorative and sufficient sleep duration. It supports cognitive function, mood stability, and overall physical health. Most experts recommend getting **at least 7 hours of good-quality sleep each night**.

[Sleep](#) supports your body and mind [\[R, R\]](#). More precisely, sleep helps:

- Support brain health [\[R, R\]](#)
- Maintain a healthy weight and appetite [\[R, R, R\]](#)
- Regulate blood pressure [\[R, R\]](#)
- Balance blood sugar [\[R, R\]](#)

Ways to sleep better include [\[R\]](#):

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that’s cool, dark, and quiet

How it helps

Adequate sleep is important for immune regulation, and it can help manage levels of inflammation associated with IL-17.

How to implement

TYPICAL STARTING DOSE

500 mg

Description

Turmeric is a yellow spice from India. It may reduce inflammation and **oxidative stress** [R].

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health

How it helps

Curcumin possesses anti-inflammatory properties that may inhibit the production of IL-17.

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.