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ADVANCED GENOMIC SOLUTIONS

MADE PERSONAL

SkinHealth™ Genetic Test

The Science Behind Healthy Skin

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Beautifully Unique. Outside and In.

Your skin reveals the stories of your life,
from the texture, color, and overall glow
to the smile-lines around your
mouth and eyes resulting from laughing.
Your skin plays a very important role
in your personality and
makes you who you are today.
Your genetic journey has begun!

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Your AGS Genetic Journey has Begun:

Healthy Skin at Every Age

Skin is our largest organ, first line of defense, and often one of the first things people notice about us. But how to take the best care of our skin can be a confusing problem. There are many products with big promises about youthful skin, but the evidence for their effects isn't always clear. It's easy to spend hundreds of dollars on products that may not work well for you, even when they seem to benefit many others. So why not let your unique genetics help guide your choices?

There are many genes associated with skin function and maintenance. Some genes produce the materials that make our skin firm and elastic, while others play a role in keeping skin hydrated. Whether or not you get sunburn easily, you can suffer from the sun's damages without even knowing it but your genes can give you the answers.

In this report, we reveal the genetics of your skin that can help you navigate the labyrinth of products available and choose the best strategies to help keep your skin healthy.

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Advanced Genomic Solutions

SkinHealth Genetic Test

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Explains impact of genotype on your body

Gene

SNP or rs number

Circle indicates your genotype

Your gene profile: Red: high risk Green: low risk

Genotype Headline	MMP1	rs1799750	-- G- GG	●●●●●●●● #

Gene description is written below each genotype headline for more information.

Possible genotypes

Study reference #

Your Skin Summary

How to read your Summary Page:
Below is your genetic summary page. Pay special attention to the RED High Risk items in the radial pie chart. These are the areas to make immediate changes to improve your skin's health.

- High Risk
- Mod Risk
- Low Risk

Elasticity and Firmness

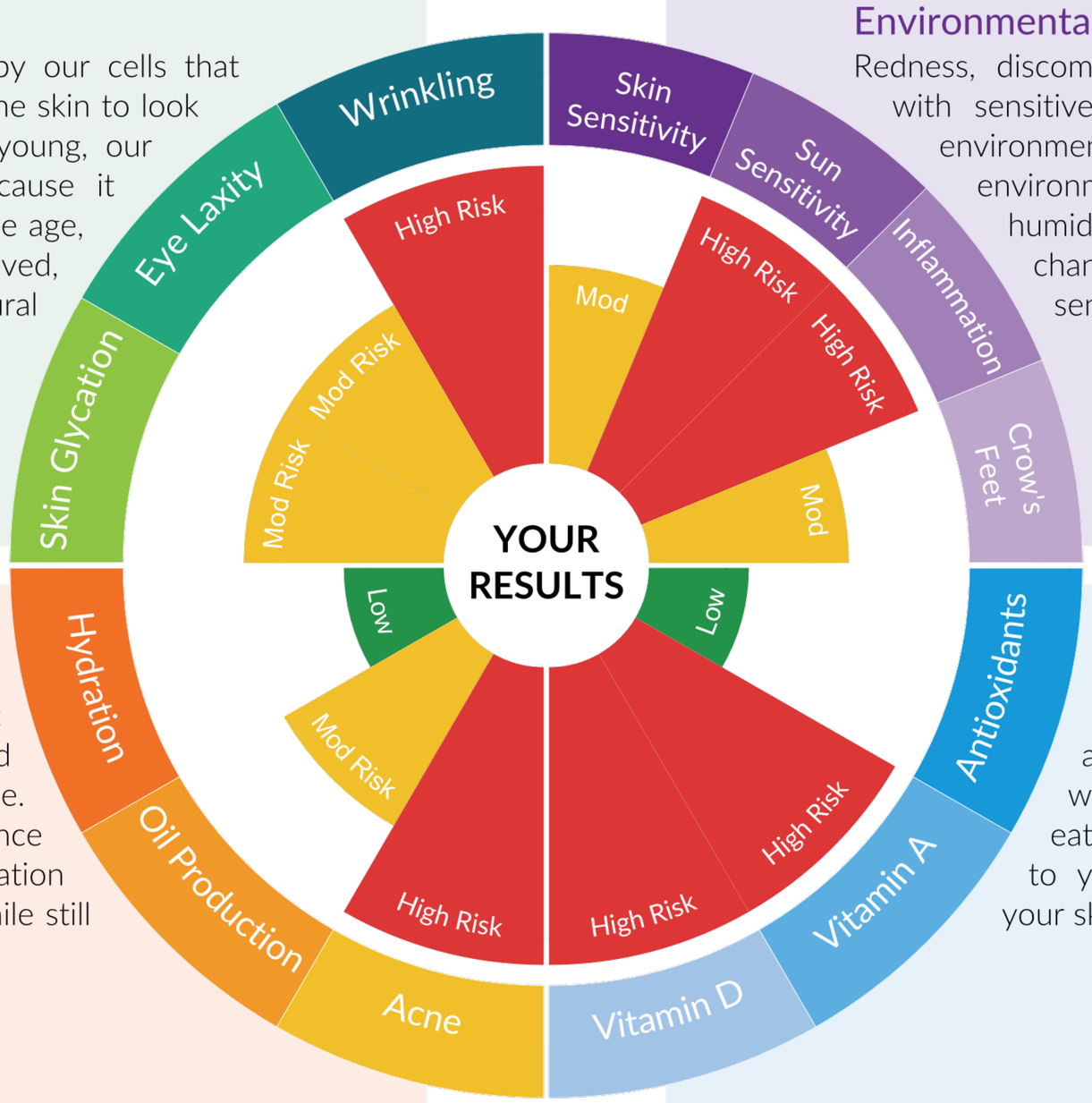
Collagen is a protein produced by our cells that helps to "hold" our skin, keeping the skin to look young and plump. When we're young, our skin stays firm and smooth because it constantly regenerates itself. As we age, certain variants of the genes involved, and will affect how quickly structural proteins break down.

- Wrinkling : High Risk
- Eye Laxity : Mod Risk
- Skin Glycation : Mod Risk

Environmental Sensitivity

Redness, discomfort, and dehydration associated with sensitive skin may be triggered by the environment. Studies are showing that environmental elements such as pollutions, humidity, and sudden temperature changes in climates can actually sensitize our skin.

- Skin Sensitivity : Mod Risk
- Sun Sensitivity : High Risk
- Inflammation : High Risk
- Crow's Feet : Mod Risk



Skin Condition

Our body produces oil to help keep our skin soft and supple, but if too much is produced, it can lead to acne flare-ups and an oily shine. Balance is the goal for everyone since too little oil can lead to dehydration with flaky patches or fine lines while still feeling greasy or oily.

- Hydration : Low Risk
- Oil Production : Mod Risk
- Acne : High Risk

Vitamins and Antioxidants

Eating plenty of fruits and vegetables rich in vitamins and antioxidants are good for your whole body, including your skin. By eating clean or adding supplements to your regular routine can improve your skin.

- Antioxidants : Low Risk
- Vitamin A : High Risk
- Vitamin D : High Risk

Your Overall Genetic Skin Recommendation:

Your skin category takes each of your genotypes into consideration and provides a general overview to help tailor your skin care regimen. There is no ideal skin type; you are beautifully unique, outside and in.

1 Elasticity and Firmness : Higher Associated Risk

Your skin would benefit from additional treatments to ensure healthy collagen and tissue support around eyes and mouth to reduce wrinkles and to ensure the skin stays firm. Make sure you moderate your diet and take special care to avoid simple carbohydrates and excess sugars, which may contribute to the signs of aging. Micro-needling can stimulate collagen production in the skin when done in moderation.

2 Environmental Sensitivity : Higher Associated Risk

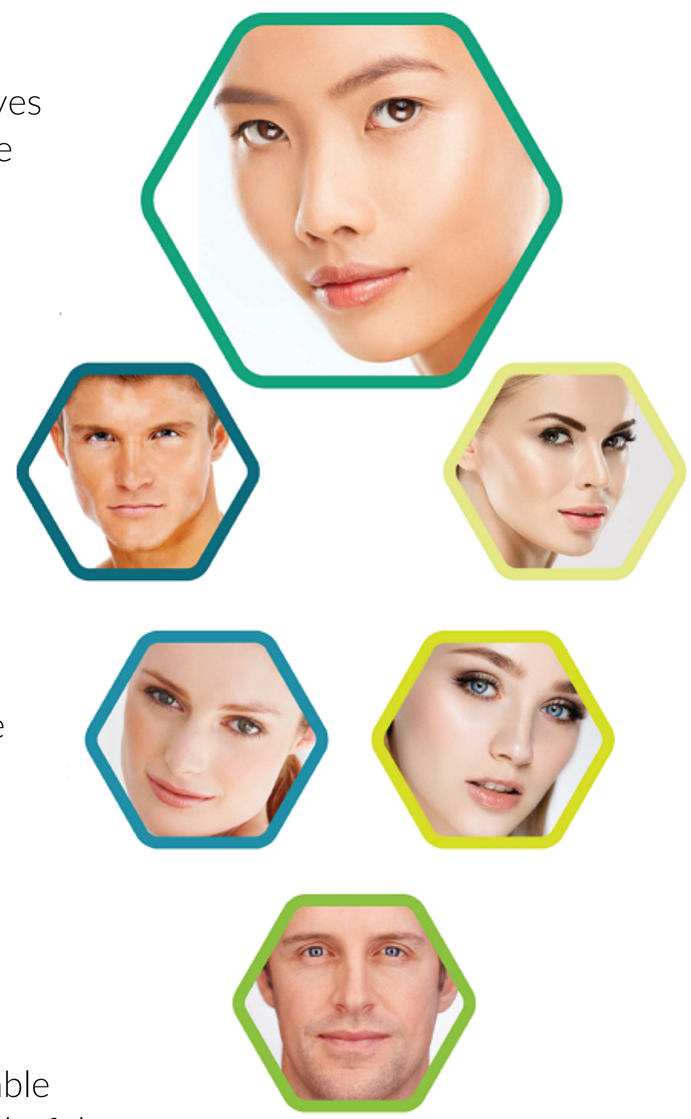
Your skin type requires extra attention against environmental factors. If you are sensitive to sunlight, use skin moisturizers which provide UV defense. Be wary of UV-based tanning and do so only in safe moderation. If you are sensitive to airborne contaminants, use facial cleansers and charcoal masks regularly to remove chemical and toxins. Removing the airborne chemicals can reduce inflammation and immune responses, hence reduce redness, puffy skin and long-term damages.

3 Skin Condition : Moderate Associated Risk

Your skin oil production is higher than the average and it may lead to occasional clogged pores and produce various types of skin breakouts such as pimples, irritation and inflammation. Regular face washing with specialized cleansers can reduce the likelihood of skin problems. Probiotic-enriched products may also cultivate healthy bacteria on your skin which combats against bad bacteria which contribute to acne breakouts. Additional moisturizer or a home humidifier may also help prevent water loss.

4 Vitamins and Antioxidants : Moderate Associated Risk

Your skin would benefit from moderate antioxidant support. Vitamin A enriched skin creams may be a valuable addition to your skin care regimen. Also, ensure your diet contains fresh fruits and vegetables - the more colorful, the better.



1 Elasticity and Firmness

Collagen and elastin provide the structural materials for the body's tissues, and the skin is no exception. Certain genes play roles in the formation and maintenance of these proteins, and variations in genes play a role in how quickly the structure breaks down. Fortunately, repair can be stimulated by proper nutrition and certain chemicals. Single Nucleotide Polymorphisms (SNPs) are genetic deviations from the normal genetic code. Below we evaluate five SNPs associated with aging. Some of these SNPs play a role in cellular processes such as glycation, where sugar molecules can bind structural proteins in the skin and disrupt elasticity and firmness.

Why Do We Experience Sagging Skin?

Sagging skin is due to two age-related reasons: loss of collagen, which gives skin its elasticity, and loss of facial fat, the absence of which causes the skin to droop. External factors such as sun exposure, dietary sugars, and exposure to chemicals (e.g. smoking) can induce premature wrinkling. Your skin's structural proteins can be altered by environmental factors, making them brittle and break down more easily, resulting in sagging and the formation of lines we associate with wrinkling.

Over time, it is normal, and expected to get visible lines on our face. It is also common to have thinner and drier skin. Our genes control these changes largely and the natural aging process is something we cannot change. On the bright side, there are many things we can do to reduce premature skin aging. By taking genetics into account, specific risk factors can be anticipated, helping you and your dermatologist to devise a targeted skin treatment to reduce and prevent wrinkles.

Your Genetic Result:

Wrinkling

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Increased risk of wrinkling	MMP1	rs1799750	-- G- GG	1

MMP1 is an enzyme which breaks down collagen in the skin, a process required during the body's normal maintenance of tissues. Variants of this gene can lead to increased activity and, therefore, higher levels of collagen breakdown in tissues. One study has associated a deletion of G allele in MMP1 (rs1799750) with increased age-associated skin wrinkling.

Increased MMP production and risk of wrinkling	MMP9	rs3918241	AA AT TT	2

MMP9 is associated with the breakdown of the extracellular matrix as part of normal physiological processes, for example in wound healing. The A allele is associated with increased activity of MMP9, leading to more breakdown in collagens and hense aging.

Increased susceptibility to wrinkling	EDEM1	rs7616661	GT TT GG	5

EDEM1 is partly responsible for ensuring proteins to be folded properly and eliminating those that are not. EDEM1 has been associated with the lifespan in model systems, and one study which focused on thousands of SNPs identified variant rs7616661 with signs of skin aging. This conclusion is likely due to higher levels of collagen as a result of EDEM1's protective effects against sun-damage to collagen-producing cells.

Eye Laxity

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
No reduced risk of developing eye laxity	COL1A2	rs11979919	CT TT CC	3

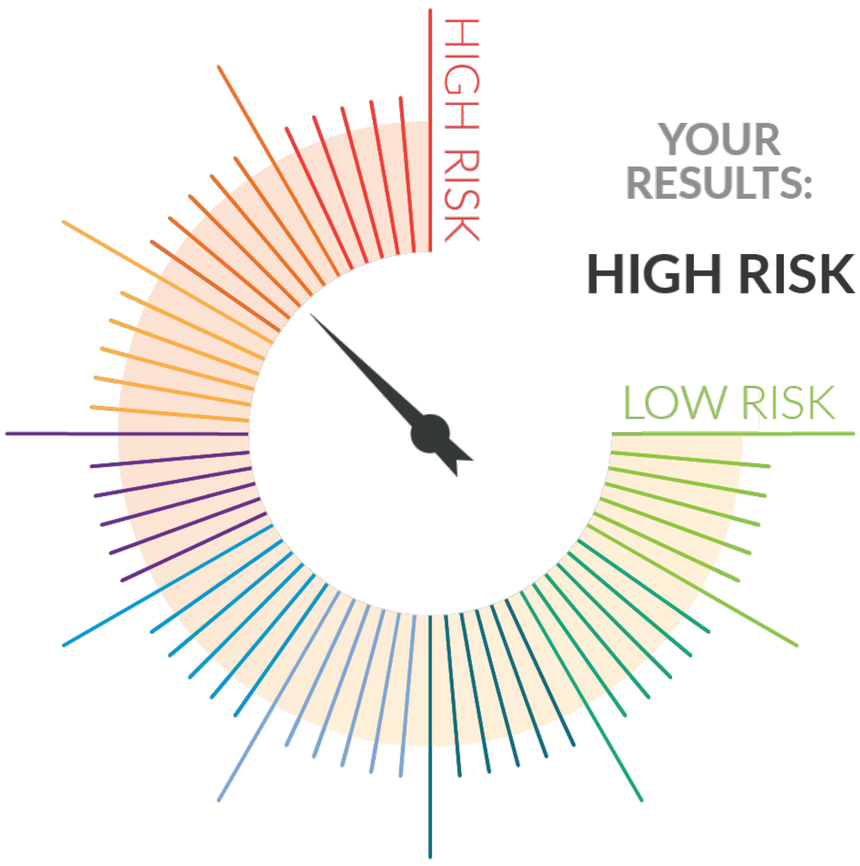
COL1A2 is a gene which encodes a component of type 1 collagen - the most abundant type of collagen in the human body. The C allele is associated with increased signs of aging and laxity of the eyelids.

Skin Glycation

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
No reduced risk of glycation products in skin	AGER	rs2070600	AA GA GG	4

AGER is a receptor protein that regulates glycation, the process where tissue-proteins accumulate sugar groups bonded to their cellular structure. Glycation can cause the skin fibers to become brittle and more prone to breaking. AGER also regulates inflammation and triggers MMPs to break down collagen, which also leads to loss of supporting structure in the skin. The G allele of AGER at rs2070600 is associated with an increased activity of the protein, increasing the risk to glycation and common visual effects of skin-aging.

Your Elasticity and Firmness Results:



YOUR RESULTS:

HIGH RISK

Your Results Explained:

Your skin would benefit from additional treatments to ensure healthy collagen and tissue support around eyes and mouth to reduce wrinkles and to ensure the skin stays firm. Make sure you moderate your diet and take special care to avoid simple carbohydrates and excess sugars, which may contribute to the signs of aging. Micro-needling can stimulate collagen production in the skin when done in moderation.

Product Suggestions:

- Products containing Vitamins C, B3, and E are important antioxidants because of their ability to penetrate and repair the skin
- Use water-soluble, heat-labile local L-ascorbic acid (Vitamin C) in concentrations between 5 - 15% is proven to induce collagen production
- Use matrix metalloproteinase (MMPs) inhibitors to slow down MMP activity
- Reduce sun exposure, use sunscreen with SPF 30 or greater daily
- Exfoliate 2 to 3 times per week to prevent build up of dead cells and to allow products to be absorbed deeper into the skin

Professional Treatment Suggestions:

- MMP inhibitors
- Vitamin A acid (Retin A, Renova)
- Collagen Induction Therapy
- High Intensity Focused Ultrasound
- Photo-facial
- Dermaplaning
- Glycolic acid peels
- Microdermabrasion
- Dermabrasion
- Laser resurfacing
- Fractional resurfacing
- Non-ablative laser resurfacing
- Heat and radiofrequency
- Botox® and Fillers

Home Remedies: *Test a small area first to confirm no negative reaction.*

- ***Unsweetened Cocoa Powder*** is packed with antioxidants. It helps to keep skin looking younger and fresh. Mix 5 tbsp cocoa powder with 5 tbsp honey, 2 tbsp milk, and 1 tbsp chicory-free coffee powder. This mixture acts as an exfoliating agent as well as face mask. You can apply it on your whole body, twice a week, to tighten and brighten your skin.
- ***Egg Whites*** contain vitamin A and have astringent properties that help shrink pores by tightening the skin. An egg white face mask is a frugal approach to help firm up skin and smooth out fine lines. Mix one egg white with one squeeze of a lemon. Apply on the affected areas, leave it to dry and rinse off with warm water.

TIPS:

Wrinkling

Your genotype shows a high risk of developing premature wrinkles due to elevated MMP and EDEM1 activity. In addition to living a healthy lifestyle such as do not smoke cigarettes or being around cigarettes smoke, have plenty of sleep, and taking appropriate precaution with sun exposure, facial exercises and creams which encourages collagen production can help to keep your skin youthful and taut. Vitamin C is a good option to help reduce oxidative damage, while MMP inhibitors, such as retinol and ascorbic acid, can lower your MMP activity and allow your skin to build a better infrastructure.

Eye laxity

Your genotype is associated with a higher risk of developing eye laxity, causing the lids and skin around the eyes to droop. Supplementing your skin with ascorbic acid (Vitamin C) can stimulate the production of skin-firming proteins like collagen and elastin. Consume enough proteins in your diet to replenish your skin elastin and collagen. Use of sunglasses is also a big help - early protection against sun-damage is one of the best means of protecting against laxity-development.

Skin glycation

Your genotype shows a higher risk of glycation that causes damage your skin and increase risk of wrinkling. You should control your sugar intake (simple carbohydrates), as the risk of glycation increases as blood sugars level elevates. Use products containing green tea has been shown to be effective in reducing glycation and stimulate collagen production.

2 Environmental Sensitivity

How your body response to external stimuli can greatly affect your skin condition. These external stimuli include chemicals, toxins and UV light. Different genotypes have different responses to these stimuli, resulting in varying skin sensitivity. You may also be surprised to learn that Crow's feet, the wrinkles around your eyes and mouth, are largely due to tissue damage related to foreign chemicals. This section introduces your genetic makeup in your sensitivities to chemicals and sun, inflammation response and risk in developing Crow's feet.

Your Genetic Result:

Skin Sensitivity

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Moderate risk of atopic dermatitis	NAT2	rs1799930	AG GG AA	14

NAT2 plays an essential role in the processing of certain xenobiotics, such as foreign contaminants, through a chemical reaction called acetylation. However, processing these xenobiotics may produce toxic by-products that can result in irritation and inflammation. One study showed that the G allele of NAT2 is associated with a more rapid acetylation, resulting in increased risks of atopic dermatitis and inflammation when exposed to foreign contaminants.

Sun Sensitivity

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Increased risk of burn and skin-related wrinkling	BNC2	rs10733310	CA CC AA	3

BNC2 plays a role in skin color saturation and variants of the gene are associated with pigmented spots on the skin. Individuals with the C allele of rs10733310 are more likely to develop dark spots on their faces, hands, and forearms, especially after sun exposure.

Moderate risk of skin pigmentation	SLC45A2	rs26722	AA GA GG	10

SLC45A2 plays a role in lighter skin, especially for individuals of European ancestry, and it has also been associated with melanin production in some Asian populations as well. The A allele is associated with increased skin pigmentation, which often requires more protection against sun-related skin damage.

Vulnerable to lentigenes and sunburns	RXFP3	rs16891982	CG GG CC	11

A lentigo is a patch of darkened skin, typically the result of sun-exposure over time, and commonly associated with age. Individuals with the G allele appear to confer some protective effects against the development of lentigenes and reduce tendency for sunburn.

Inflammation

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Increased inflammatory response	IL6	rs1800795	CG GG CC	8

Interleukin 6 (IL6) helps regulate the inflammation response. Over-expression of IL6 has been shown to play a role in chronic inflammation. Possessing the G allele of rs1800795 results in higher expression of the IL6 gene, therefore higher levels of IL6 in the blood. The C allele is associated with reduced risk of psoriasis.

Increased risk of skin inflammation	IL1RL1	rs1041973	AA CA CC	9

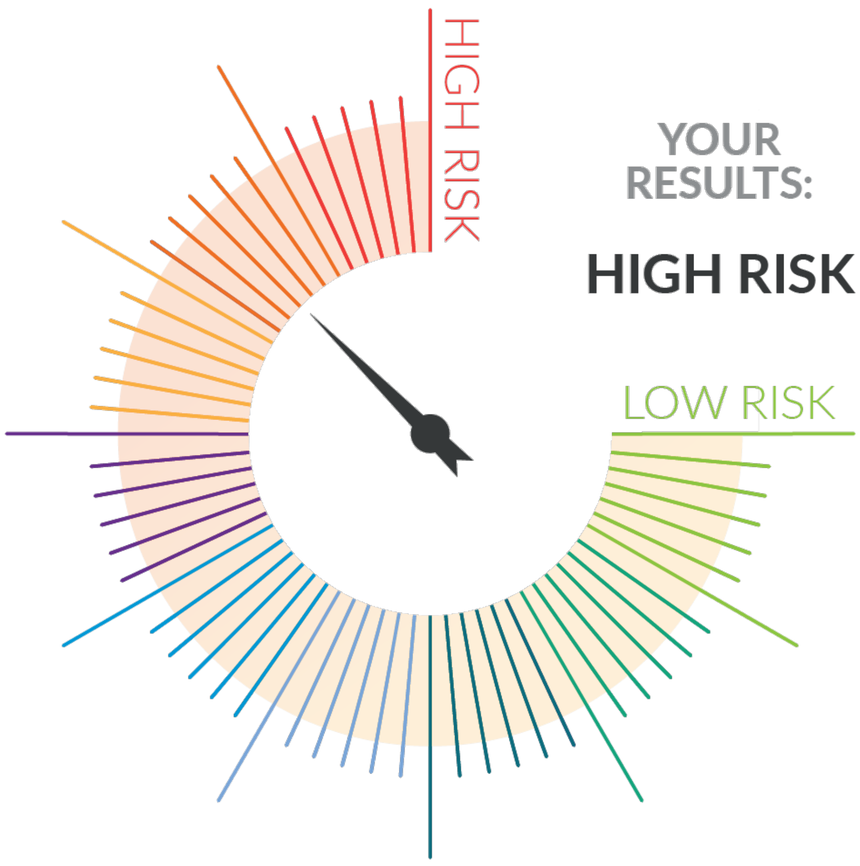
IL1RL1 is a gene associated with the inflammatory response and is implicated in atopic eczema. Individuals with the A allele have increased likelihood to develop skin inflammation. Atopic dermatitis affects nearly 20% of people. While some people grow out of the condition, changes in diet and lifestyle can also be made to reduce or eliminate inflammation symptoms.

Crow's Feet

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Moderate risk of developing crow's feet around the eyes	AHR	rs2066853	AA AG GG	3

The gene AHR encodes for a receptor that plays a crucial role in dealing with foreign substances in the body by regulating the proteins that break down and clear them. Individuals carrying the A allele have been shown to have a higher risk of accumulating DNA and tissue damages related to foreign chemicals. Consistent with these findings, the A allele has also been correlated with the development of crow's feet (wrinkles around the eyes), a sign of skin aging that is primarily induced by environmental factors, such as UV light and xenobiotics.

Your Environmental Sensitivity Results:



YOUR RESULTS:

HIGH RISK

Your Results Explained:

Your skin type requires extra attention against environmental factors. If you are sensitive to sunlight, use skin moisturizers which provide UV defense. Be wary of UV-based tanning and do so only in safe moderation. If you are sensitive to airborne contaminants, use facial cleansers and charcoal masks regularly to remove chemical and toxins. Removing the airborne chemicals can reduce inflammation and immune responses, hence reduce redness, puffy skin and long-term damages.

Product Suggestions:

- Avoid sugary foods and drinks, as sudden raise in blood sugar can increase chemical reactions that make skin and collagen brittle and susceptible to damage.
- Avoid heavily scented soaps and perfumes, which contain aromatic compounds that can irritate the skin.
- The use of cleansing masks, especially those made with charcoal can help absorb pollutants that have built up.
- Topical Vitamin C can also help rejuvenate skin, stimulate collagen production and firm lines.

Professional Treatment Suggestions:

- Fillers such as Juvederm® or the use of Botox® may help alleviate wrinkles and damages that have occurred over time. But please note that such treatments do not eliminate the root causes.

TIPS:

Skin Sensitivity

Your genotype shows a medium risk of irritation and inflammation related to environmental toxins and chemicals. Soothing creams containing moisturizers and aloe vera can reduce irritation. When dealing with a flare-up, you may need to avoid certain products, such as retinoid creams, at least until irritated skin heals.

Sun Sensitivity

Your genotype shows a higher risk of sun-related damage and developing lentigines. Cover up and wear tightly-woven clothing that blocks out light. Use sunscreen with a sun protection factor (SPF) of 15 or above can block 93 percent of UV rays. If you are planning an outdoor activity, a wide brim hat (not a baseball cap) is ideal because it protects the neck, ears, eyes, forehead, nose and scalp. Wear UV-absorbent eyeglasses and limit sun exposure.

Inflammation

Your genotype is associated with a higher risk of skin inflammation, meaning your skin is prone to a higher sensitivity, and could result in rashes and irritation. If you are prone to stinging skin and outbreaks of skin irritation, try to avoid fragrances, as they may exacerbate dermatitis. You should also avoid excessively hot water, which strips the skin of protective oils and makes your skin more prone to developing irritation.

Crow's feet

Your genotype is associated with a medium risk of crow's feet, which is wrinkling around the eyes and mouth due to external stimulants. Anti-wrinkle creams that contain retinoids, coenzyme Q10 and kinetin can reduce the fine lines. You can also employ face exercises to tighten the connective tissue to the facial musculature and reduce the appearance of wrinkles.

Home Remedies: *Test a small area first to confirm no negative reaction.*

- ***Honey*** is known for its anti-inflammatory, antibacterial, and antiseptic properties. You can use as a regular cleansing agent when mixed with water. For sensitive skin, add coconut oil and milk to make a scrub. This mixture can also be used as a face mask. Apply on the face and wash off with lukewarm water after 20 minutes. Honey also heals your sunburn. Just dab on the affected area and wash off after a while.
- ***Mayonnaise and Baby Oil*** have the ability to treat dry and chapped skin caused by harsh environmental elements. Combine 2 tbsp of real mayonnaise with 2 tbsp of baby oil and then smooth onto any dry skin area (face, neck, elbows, feet, etc.). Leave on skin for 20 minutes, then rinse off well.

3 Skin Condition

Keeping your skin hydrated is essential. Certain genes play a role in the transportation of water and a chemical called glycerol, which helps keep skin moisturized. People who has a predisposition to dry skin will benefit from products that supply water and essential vitamins to the skin. Products that stimulate oil production may also keep skin hydrated. Many factors come into play with oily skin but to explain it simply, too much oil can clog pores and create an environment where favors bacterial growth and infection that may lead to blemishes and pimples. We look at SNPs involved in the production of the hormone dihydrotestosterone (DHT). Skin oil production from the skin is positively correlated with circulating level of DHT.

What is Combination Skin and What Causes it?

Combination Skin, more commonly referred to as "T-zone", means you may sometimes feel your skin has a split personality - oily with large pores on the forehead, nose and chin; meanwhile feeling dry and sometimes even flaky on the cheeks and under the eyes. In general, the nose, chin, and forehead of those with combination skin have more active oil glands, which is why these areas may be prone to clogging pores. The cheeks, on the other hand, may have less active oil glands and thus they may appear dry.

In many cases, if you have combination skin and you use harsh products or products with drying ingredients like sulfates and alcohol to treat the oily sections, you may unintentionally make the dry areas even more dry and stimulate the skin to produce more oil in the T-zone areas. It can quickly turn into a viscous circle.

Your Genetic Result:

Hydration

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Moderate water retention and skin protection	AQP3	rs17553719	AA GG (AG)	6

AQP3 facilitates water transportation through our body's cells. It also transports glycerin, a substance that attracts water and helps maintain the water balance in the skin. Lower AQP3 levels results in poor moisture retention and dry skin. The G allele is associated with decreased production of AQP3, hense reduce moisture in the skin.

Lower water loss and risk of skin dryness	Intergenic	rs11103631	GA GG (AA)	7

Some SNPs with physiological effects occur in regulatory parts of the genome. rs7594951 is an intergenic SNP associated with the regulatory function of two genes involved in skin barrier maintenance and function. The G allele is associated with higher skin water loss and dryer skin.

Oil Production

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Moderate increase of oil production	SRD5A2	rs7594951	AA (GA) GG	13

Dihydrotestosterone (DHT) is a hormone produced by both sexes, but DHT is produced more in men than women. The circulating level of DHT is positively associated with oil production in the skin. The A allele is associated with increased DHT production and may therefore result in more oils on the skin.

Acne

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
High risk of acne occurrence and potential scarring	FST	rs38055	TC (TT) CC	17

FST is the gene which encodes follistatin, which impacts tissue repair, healing, and acne occurrences when expressed at high levels. In those of European descent, the T allele is associated with increased risk of acne, and is likely to have a higher risk of acne-related scarring.

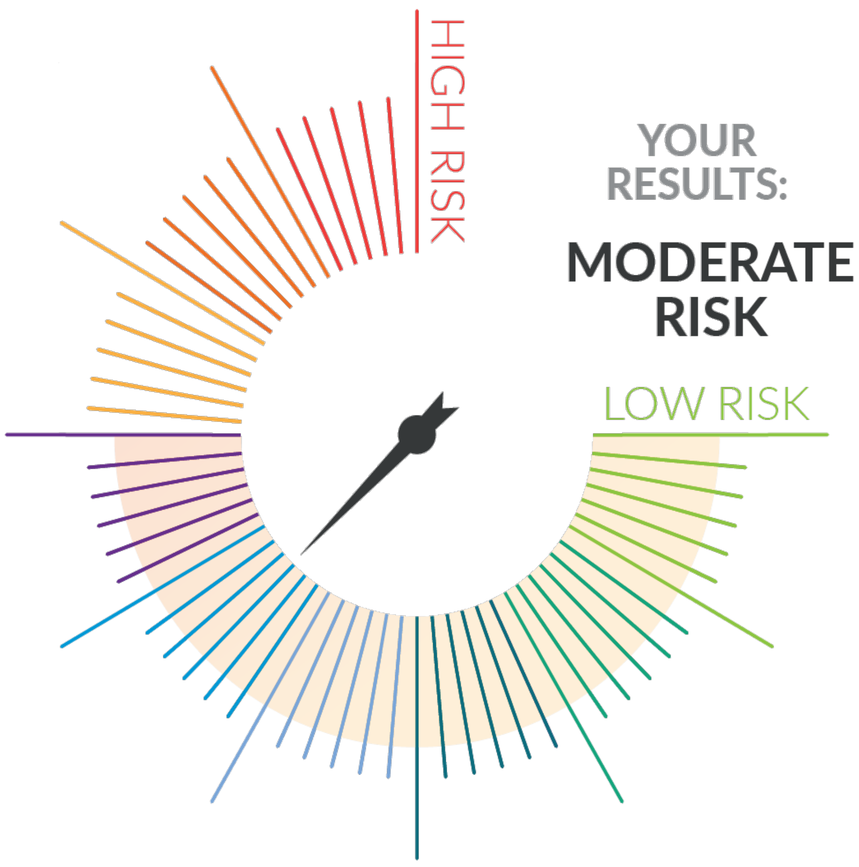
High risk of acne occurrence and related inflammation	DDB2	rs747650	(AA) GA GG	18

DDB2 plays a role in androgen metabolism and inflammatory response. The A allele is associated with increased incidence of acne, an effect that was abundant in the Asian populations.

Increased risk of acne occurrence	SELL	rs7531806	(AA) GA GG	18

The SELL variant rs7531806 is associated with selectins, which are proteins that influence skin inflammation and immune response. The A allele is associated with an increased incidence of acne and related symptoms. Changes to selectin function have been implicated in increased acne and resulting scar-formation.

Your Skin Condition Results:



Your Results Explained:

Your skin oil production is higher than the average and it may lead to occasional clogged pores and produce various types of skin breakouts such as pimples, irritation and inflammation. Regular face washing with specialized cleansers can reduce the likelihood of skin problems. Probiotic-enriched products may also cultivate healthy bacteria on your skin which combats against bad bacteria which contribute to acne breakouts. Additional moisturizer or a home humidifier may also help prevent water loss.

Product Suggestions:

- Avoid harsh soap, wool, fragrances and hot water
- Humectants (ceramides, glycerin, sorbitol, hyaluronic acid, lecithin)
- Sealants (petrolatum, silicone, lanolin, mineral oil)
- Drink plenty of water (coffee, soda, juices, cocktails do not count)
- If acne prone, consider dietary changes and avoid dairy when possible
- Encourage a healthy gut by consuming probiotics and prebiotics

Professional Treatment Suggestions:

- Humidification treatment
- Exfoliate
- Gentle peel
- Blue light LED therapy
- Treatments that use shea butter, sunflower seed oil, argan oil, olive oil, sweet almond oil, jajoba oil, avocado oil, and other plant extracts
- Hyaluronic acid for internal hydration and moisture protection

Home Remedies: *Test a small area first to confirm no negative reaction.*

- ***Lemon*** is one of the best ingredients that you can use to promote clear skin. The citric acid present in lemon helps keep the skin clear and its Vitamin C content helps reduce dark spots. Apply fresh squeezed lemon juice to your entire face and neck and leave on for 10 minutes and then wash off with lukewarm water.
- ***Pure Baking Soda*** balances pH level of the skin which is very important to maintain clear skin. It also works as an excellent exfoliating agent. Mix 2 tbsp of pure baking soda with 2 tbsp of water or lemon juice to make a paste. Cleanse your face and use the paste to gently exfoliate the skin.

TIPS:

Hydration

Your genotype is not associated with a higher risk of skin dehydration. You may use a light moisturizer and focus on other aspects of skin health risk such as collagen repair.

Oil Production

Your genotype is associated with medium skin oil production. Daily use of blotting papers and cosmetic clays can help absorb excess oil before they clog pores and produce irritations and infections. Skin products and masks that use oatmeal or honey can also help retain moisture while removing excess oils.

Acne

Your genotype is associated with a higher risk of acne problem due to higher oil production risk. To reduce the risk of outbreaks, you may consider facial cleansers that keep pores and hair follicles clear. Viable and non-viable probiotics may also be used to shift the balance of your skin microbiome or compensate for imbalanced skin bacteria.

4 Vitamins and Antioxidants

Vitamins and antioxidants are naturally occurring substances that may protect cells. Antioxidants can help to develop defenses against free radicals such as UV and toxins, while Vitamin A (retinoids) can improve oily skin, wrinkles and acne. Vitamin D is highly responsible for constant skin renewal. Vitamins and antioxidants are also known to prevent and treat cancer. These ingredients are commonly found in a number of skin care products available both over-the-counter and by prescription.

Your Genetic Result:

Antioxidants

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Moderate protection against oxidative stress	NQO1	rs1800566	CC TT (TC)	12

NQO1 prevents organic molecules called quinones from being converted to free radicals which casue oxidative stress. Carriers of the T allele may have reduced protection against free radicals, due to a decreased production of NQO1.

Reduced protection against oxidation	SOD2	rs4880	CC TC (TT)	12

SOD2 is responsible for breaking down the toxic chemical superoxide into less damaging molecules. Increased expression of SOD2 implies a higher protection against oxidative stress. However, over-expression of SOD2 is also linked to uncontrolled cell growth. The C allele is associated with increased production of SOD2, and may provide more protection against oxidative stress-related damage in skin.

Reduced risk of oxidative stress	CAT	rs1001179	CC CT (TT)	12

The CAT gene encodes catalase, an important enzyme in protecting the body against oxidative stress by converting reactive oxygen molecules to water and oxygen. The T allele is associated with increased expression of catalase, and may strengthen the defense against oxidation-related skin aging.

Lower risk of oxidative damage	GPX1	rs1800668	(TT) CC TC	12

GPX1 is considered one of the most essential proteins with antioxidant property and fighting oxidative stress. The T allele of rs1800668 is associated with increased production of GPX1, while the C allele appears to produce less of the enzyme. Reduced production of GPX1 is associated with lower GPX1 activity and therefore an increased risk of oxidative damage to skin health.

Vitamin A

	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Reduced ability to form active Vitamin A	BCMO1	rs12934922	(AT) TT AA	15

BCMO1 is associated with converting beta-carotene into Vitamin A which is an antioxidant and nutrient. Vitamin A plays an essential role in vision, the immune system and skin health. Individuals with a T allele would benefit from enriching their diet with foods containing beta-carotene or supplements. High level of beta-carotene encourages skin renewal and protects against sun-damage and abnormal pigmentation.

Reduced ability to form active Vitamin A	BCMO1	rs7501331	(CT) TT CC	15

BCMO1 is essential in converting beta-carotene to Vitamin A that is obtained from diet or supplement to benefit overall health. Skin health in particular, benefits from active Vitamin A molecules to heal damaged skin and, in some cases, reduces the appearance of wrinkles. Therefore, a reduced formation of active Vitamin A can lead to a weakened skin health. Skin richer in Vitamin A is often present with fewer wrinkles and a clearer, brighter complexion.

Vitamin D

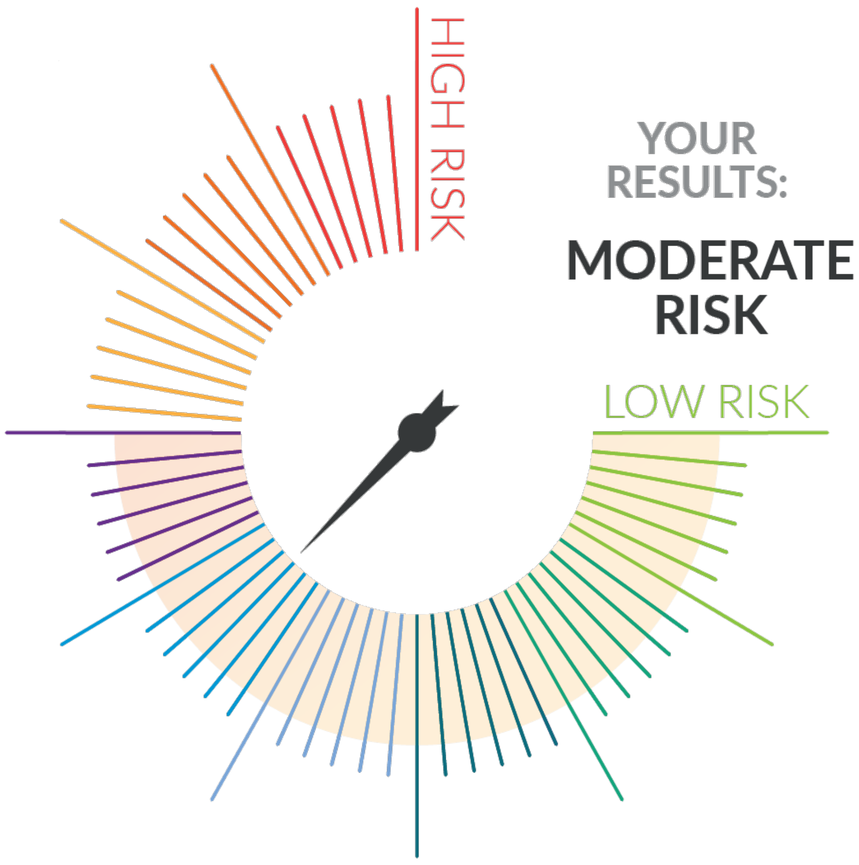
	GENE	SNP	YOUR GENOTYPE	YOUR GENE PROFILE
Reduced Vitamin D serum level	near-CYP2R1	rs10741657	AG (GG) AA	16

CYP2R1 is an important gene in Vitamin D metabolism, which converts the molecule into calcidiol - the main form of Vitamin D circulates through our bloodstream. Carriers of the GG genotype tend to circulate lower levels of Vitamin D compared to the AA genotype.

Reduced Vitamin D serum level	near-DHCR7	rs12785878	GG (GT) TT	16

Vitamin D contributes to skin cell growth, repair, and metabolism. It optimizes the skin's immune system and helps destroy free radicals that can cause premature aging. A study of nearly 34,000 people showed a clear association between the G allele and vitamin D levels. Carriers of the G allele have a reduced level of circulating Vitamin D in their body, while individuals with two G alleles average even lower levels leading to increased risk of premature aging.

Your Vitamins and Antioxidants Results:



Your Results Explained:

Your skin would benefit from moderate antioxidant support. Vitamin A enriched skin creams may be a valuable addition to your skin care regimen. Also, ensure your diet contains fresh fruits and vegetables - the more colorful, the better.

Product Suggestions:

- You can combat free radicals by ensuring a diet rich in antioxidants, which can provide protection. Antioxidants are plentiful in strawberries or blueberries.
- You may also consider skin creams with antioxidant ingredients such as green tea and Vitamin E.
- Look for anti-aging skin treatments with powerful antioxidants from certified organic botanical juices, vitamins and peptides such as lycopene, green tea, coffee berry, resveratrol, grape seed, genistein, or niacinamide.

Professional Treatment Suggestions:

- Nourishing Antioxidant Wrap
- Vitamin C Serum
- Microdermabrasion
- Dermaplaning
- Hydrofacial
- 30% TCA Peel
- Hyaluronic Acid Serum with Vitamin A, C, D, E

Home Remedies: *Test a small area first to confirm no negative reaction.*

- ***Mint*** contains menthol, which has cooling and soothing properties, and Vitamin A, B6 and C that help keep the skin glowing. It also has healing properties that help fight off skin infections. Put 1 tsp of mint powder and 1 tbsp of plain yogurt in a bowl. Stir to get a smooth paste. Apply the mixture to face and neck. Leave until it dries naturally, then rinse off.
- ***Aloe Vera*** is beneficial for the skin as it has antibacterial properties that helps kill bacteria that cause acne. It can also help soothe irritated skin and heal scars. It is also a great natural skin moisturizer. Extract the gel from an aloe vera leaf, apply the gel on your face using a cotton ball. Allow it to dry on its own for about half an hour and then rinse off with lukewarm water.

TIPS:

Antioxidants

Your genotype suggests a higher ability to produce antioxidants. This is good news, as it means your skin has better defenses against sun and toxin-related damages. Make sure you continue to consume a diet that provides additional antioxidants (e.g. cranberries or blackberries). You may also consider using creams or other products that emphasize other aspects of skin health, such as skin hydration or collagen repair.

Vitamin A

Your genotype shows that you have higher difficulty in converting plant-based Vitamin A to its active form. To counter this, consume more foods rich in the activated form of Vitamin A that are easier to absorb. Examples include organic butter, eggs, fish and liver. You may also consider Vitamin A creams to deliver the supplement to skin directly.

Vitamin D

Your genotype shows you tend to have a lower level of circulating Vitamin D. You can increase your Vitamin D by incorporating D3-rich foods such as egg yolk and beef liver. Getting sun exposure of 15-20 minutes daily can also help generate Vitamin D, but make sure precautions against sun-related skin damage are taken.

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Methodology and Limitations

Testing for genetic variation/mutation on listed genes was performed using PCR with allele-specific probes and/or the application refractory mutation system (ARMS). Test results do not rule out the possibility that this individual could be a carrier of other mutations/variations not detected by this gene mutation variation panel. Rare mutations surrounding these alleles may also affect our detection of genetic variations. Other non-genetic and genetic factors that are not tested by this assay can affect the responses and phenotype results.

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