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Genetic Skin Report SAMPLE

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Report No.:	XXXXX
Date of Research:	XXXXX
Patient Name:	XXXXX
Patient Code:	XXXXX
Date of Birth:	XXXXX
Requested by:	DRXXX

Legal Disclaimer:

If you are a health professional: This Report is only intended to inform about the health risks related to inherent genetic predispositions and biochemical reactions identified as a result of the laboratory tests performed at the Swiss Center for Genetics. It is not intended as a substitute for advice from you. This information is prepared using the best available scientific research data and is not intended to diagnose, treat or prevent any disease. This information cannot and does not in any way substitute your assessment as to the final diagnosis, treatment, or disease prevention of the patient.

If you are a patient: This Report is only intended to inform about the health risks related to inherent genetic predispositions and biochemical reactions identified as a result of the laboratory tests performed at the Swiss Center for Genetics. It is not intended as a substitute for advice from a health professional. You should not use the information in this Report for diagnosis or treatment of any health problem without receiving professional advice from a health professional. You shall not use information in this Report as a substitute for medication or other treatment prescribed by a health professional. You should consult with a health professional before starting any treatment, procedure, diet, exercise or supplementation program, or if you have or suspect you might have a health problem. This information is prepared using the best available scientific research data and is not intended to diagnose, treat or prevent any disease.

Contents

Genetics *Introduction*

"Every man knows well enough that he is a unique being, only once on this earth; and by no extraordinary chance will such a marvellously picturesque piece of diversity in unity as he is, ever be put together a second time."

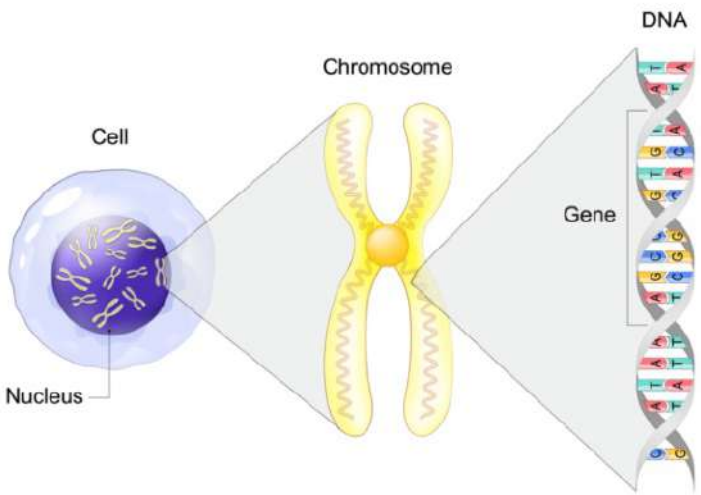
Friedrich Nietzsche

What is genetic code?

Discovered in 1953 at the University of Cambridge, genetic code is a unique set of rules that we are born with, which dictates how we develop and age.

It is composed of 4 'letter' combinations of chemicals (nucleobases) adenine A, guanine G, cytosine C and thymine T. Together, they instruct our bodies how to make proteins which are essential for all biochemical cellular processes.

DNA is found in every cell of our body functioning as a large databank of rules. If we stretch it out, the resulting strand would be around 67 billion miles long.



"It contains all information to build and maintain an organism"

What are genetic polymorphisms?

Genetic polymorphisms are variations in the programmed code that occur when one of the nucleobases or letter is replaced by another. As a result, protein formation is influenced, as it is given slightly different instructions.

We are testing for Single Nucleotide Variations - when base (or letter) is affected.

Is it bad to have genetic polymorphisms?

We are all born with different genetic polymorphisms, some have no effect, others can alter protein functions. Unlike genetic mutations that lead to serious conditions, polymorphisms mainly play a role in energy production, aging signs, weight gain, immune system and resistance to stress.

Such genetic variations can be influenced or 'blocked' through epigenetics.

What is epigenetics and why is it good to know my genes?

'Epi' – above (Greek), 'epi'genetic – above genetics, meaning factors beyond control of genetic code. It is the study of how the expression of 'bad' genes can be turned off by using external influences – lifestyle, diet and supplementation.

Knowing your unique genetic polymorphisms provides you with a powerful tool for managing your quality of life and preventing diseases.

Skin Aging *Explained*

We investigate 6 main areas related to Skin Aging:

Skin Firmness & Elasticity

Collagen and elastin are the main proteins that give our skin its turgor and youthful complexion. Genes investigated in this section play a key role in production and maintenance of elasticity building blocks.

Antioxidant Defence

Antioxidant defence system is keeping our skin protected from harmful environmental free radicals and oxidative damage. Here we look at genes responsible for maintaining a firm protective shield.

Sun Sensitivity, Pigmentation & Detox

Photoaging is skin damage caused by ultraviolet radiation from the sun. It accelerates skin deterioration and affects all layers of the derma.

Inflammation

Inflammation is our body's natural defence mechanism that is triggered by aging. However, if chronic, it accelerates skin aging as cells experience increased stress levels. Genes investigated in this section are responsible for inflammatory response and activation.

Dehydration

Dry, cracking, easily irritated skin is one of most common premature aging reasons. Here we target genes that are responsible for maintaining our skin sufficiently hydrated.

Glycation

Glycation is a spontaneous non-enzymatic reaction that is synonymous with skin aging. It is a known 'domino effect' trigger of other skin aging processes. We investigate the gene programming this reaction.

Genetic Skin Results *Summary*

Skin Firmness & Elasticity

COL 1A1	C
MMP1	CC/DEL
MMP3	DEL
ELN	T/C

Antioxidant Defence

SOD2	A/G
GPX1	A
NQO1	G
CAT	C

Sun Sensitivity, Pigmentation & Detox

TYR	G
IRF4	C
GSTM1	A
GSTP1	C
GSTP1	A
MC1R	C
PIGU	G
XRCC1	T/C

Inflammation

IL-1b	G/A
IL6	C/G
TNFa	G/A
IL13	G

Glycation

TCF7L2	C

Dehydration

AQP3	G
FLG	G

Color key	
	Beneficial properties
	Moderate risk
	High risk

Genetic Skin Results *Detailed*

Skin Firmness & Elasticity

COL 1A1	Encodes the process of type I collagen creation. Collagens are a family of proteins that strengthen and support many tissues in the body, including cartilage, bones, tendons, skin, and the white of the eye (sclera), and slow down the aging process, the appearance of deep wrinkles, and sagging skin. Type I collagen is the most abundant form of collagen in the human body.
MMP1	Encodes Collagenase 1. This enzyme is responsible for the breakdown of type I and III collagen fibers. Under normal conditions, a small amount of MMP1 is produced, but collagenase production can be increased under the influence of chemical and inflammatory agents, some growth factors, and age-related changes. In this case, collagen begins to break down faster than it can be restored, and as a result, the skin loses its elasticity and tensile strength.
MMP3	MMP3 (Stromelysin-1) breaks down type III collagen, elastin, laminin, fibronectin, gelatin, and proteoglycans. It also activates other enzymes that break down dermal proteins. In healthy skin, this gene is not active. However, MMP3 plays an important role in wound healing, so its activity is significantly increased in response to inflammation and tissue damage.
ELN	Encodes elastin which is a protein responsible for the elasticity of the skin, helping to restore its original characteristics after stretching. Polymorphic substitutions in the ELN gene lead to decrease in the amount of elastin, and consequently, to the appearance of stretch marks, decrease the strength of skin and blood vessels walls, and contribute to the development of varicose veins and rosacea.

Genetic Skin Results *Detailed*

Antioxidant Defence

SOD2	Superoxide dismutase SOD2 is one of the most effective components of natural defense against free radicals. A mutation in the SOD2 gene leads to a decreased efficiency of protein transport into mitochondria, which, in turn, creates an enzyme deficiency and increases oxidative stress.
GPX1	This gene encodes glutathione peroxidase-1 enzyme, which reduces hydrogen peroxide to water or alcohol with the participation of glutathione and selenium. GPX1 is an essential factor in the body's defense against oxidative stress. A mutation in this gene reduces the activity of the enzyme.
NQO1	N-dehydrogenase-1 is the main enzyme that provides protection from oxidative stress to all body cells, including the brain and skin.
CAT	One of the most important enzymes in the antioxidant defense of the body. Catalyzes the reduction of hydrogen peroxide, formed with the participation of MnSOD, to water. The genotype is associated with efficient removal of hydrogen peroxide from cells.

Genetic Skin Results *Detailed*

Sun Sensitivity, Pigmentation & Detox

TYR	Tyrosinase is a key enzyme involved in the synthesis of hair, skin and iris pigments - melanin. The enzyme is built into the membranes of melanocytes - cells that ensure the distribution of the pigment to other cells and, thus, giving color to human skin. Polymorphic substitutions in this gene lead to an increase in UV damage to the skin and the risk of malignant tumors. A targeted decrease in the activity of this enzyme helps to prevent skin hyperpigmentation skin and age spots appearance.
IRF4	The interferon regulatory factor is involved in regulation of melanocytes (skin pigment cells) division and is associated with sensitivity to solar radiation, the appearance of freckles and age spots. IFR4 is the main gene associated with non-melanoma skin cancers. The polymorphic substitution in this gene is found predominantly in Europeans.
GSTM1	Glutathione S-transferases (GSTs) are a family of enzymes that play an important role in detoxification by catalyzing the conjugation of many compounds with reduced glutathione, facilitating their elimination from the body. GSTM1 is vital for the detoxification of compounds including carcinogens, pharmaceuticals, environmental toxins, and oxidative stress products.
GSTP1	Glutathione is a powerful antioxidant, which perfectly neutralizes the action of free radicals, eliminating the activation of the oxidative process in the skin. It also has a restorative effect and prevents damage to epidermal cells, reducing the risk of signs of aging, preserving the beauty and health of the skin. High levels of oxidative stress and low levels of glutathione slow down the GST activity regardless of genotype. It is recommended to reduce stress and inflammation and increase the amount of antioxidants, including glutathione.

Genetic Skin Results *Detailed*

Sun Sensitivity, Pigmentation & Detox (Continued)

MC1R

MC1R gene encodes a receptor for melanin-stimulating hormone, which regulates the synthesis and secretion of melanin. Polymorphic substitutions in the MC1R gene lead to a change in the synthesis of melanin, which externally manifests itself in the form of reddish chestnut, light brown with a red tint, and red hair. The skin often turns red, almost does not tan. This leads to a high risk of developing neoplasms when exposed to UV radiation.

PIGU

This gene encodes part of a regulatory protein involved in the division of skin pigment cells. It was found that a polymorphic substitution in the PIGU gene leads to a disruption in the process of cell division and can contribute to the appearance of neoplasms of various types.

XRCC1

The XRCC1 protein coordinates the correction of small damage to nitrogenous bases resulting from direct DNA damage caused by ultraviolet rays. Polymorphic substitution in this gene leads to the replacement of amino acids in the protein, which leads to a change in the efficiency of the protein.

Genetic Skin Results *Detailed*

Inflammation

IL-1β	Interleukin, a mediator of acute and chronic inflammation. Among the substances that cause the production of IL-1β, the most active are the components of bacterial cell wall and cytokines that appear in the focus of inflammation. Polymorphism in this gene is associated with increased secretion of IL-1β and, accordingly, with a predisposition to the development of inflammatory diseases.
IL6	IL-6 is involved both in the activation of inflammatory processes and in the protection against inflammation in case of infections and tissue damage. IL-6 is one of the most important mediators of the acute phase of inflammation. Active synthesis of IL-6 begins immediately upon tissue damage or after exposure of cells to bacteria or viruses. Polymorphism in this gene is associated with increased levels of IL-6, which increases the risk of both acute and chronic inflammation, as well as complications in the form of fibrosis.
TNFa	Multifunctional pro-inflammatory cytokine. TNFa has an immunomodulatory effect, affects lipid metabolism, blood coagulation, endothelial functioning; participates in antiviral, antitumor and transplantation immunity. TNFa is an important component of a large number of immune responses; it activates cells of the immune system. The polymorphism of this gene is associated with a multiple enhancement in inflammatory response.
IL13	Cytokine involved in the regulation of immune system cells division. IL13 has an anti-inflammatory function and is involved in the development of allergic reactions and atopic diseases. Polymorphism in this gene is associated with the risk of development of psoriasis, asthma, and allergic rhinitis.

Genetic Skin Results *Detailed*

Dehydration

AQP3	It is a membrane carrier of water and glycerol. Polymorphic substitutions in this gene are associated with deterioration in the transport of essential substances.
FLG	Filaggrin is a protein found in epidermal cells. Filaggrin is essential for the regulation of epidermal homeostasis. It is responsible for the skin barrier function and also helps retain water. Mutations in the gene lead to increased dryness of the skin, dermatitis.

Genetic Skin Results *Detailed*

Glycation

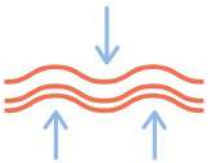
TCF7L2

Latent insulin resistance negatively affects the beauty and youthfulness of our skin. Gradual accumulation of products of interaction of sugars and structural components of our skin leads to aging. The more such advanced glycation end products we accumulate, the flabbier the skin becomes, the more foci of inflammation appear.

The genotyping was conducted on the MassARRAY® System from Agena Bioscience using a validated proprietary panel. The interpretation of the genotype is based on the current knowledge from scientific and medical literature. Genomic references of the analyzed variants are available upon request.

Genetic Predisposition to Skin Aging

Based on identified genetic predispositions, the following factors have a strong influence on patient's skin aging :

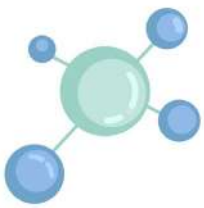


Skin Firmness & Elasticity

Possible signs:
decrease in firmness and elasticity; prolonged redness; poor wound healing; accelerated aging; weakness and sagging of the skin; pronounced scarring; formation of stretch marks; decrease in the strength of blood vessels; increased risk of osteoporosis; delayed tissue regeneration.

Antioxidant Defence

Possible signs:
weakened skin antioxidant protection; skin inability to withstand the effects of free radicals; dullness and lifelessness of the skin; uneven skin tone; dark circles under the eyes.



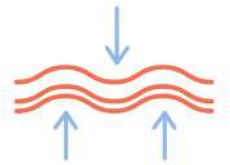
Glycation

Possible signs:
early appearance of deep wrinkles and folds; increased rate of aging; sagging skin; thinning of the skin; uneven skin texture.

Recommendations

To improve:

Skin Firmness & Elasticity



Your Skin's Nutrition:

- Proline
- Lysin
- Vitamin C
- Hydrolysed Elastin
- Hydrolysed Collagen

Your Skin's Cosmetics:

- Palmitoyl Tripeptide-1
- Palmitoyl Tripeptide-4
- Hyaluronic Acid
- Phytoestrogens
- Glycine soja (soybean) seed extract
- N-acetyl-D-glucosamine
- DMAE

Professional Beauty Treatments for you:

- Matrixyl
- Mesotherapy with amino acids
- Injections of organic silicon
- Bio revitalization with hyaluronic acid
- Peeling with glycolic acid
- Skin face massages
- Plasm lifting
- Microcurrent facials
- Ultra phonophoresis

Laboratory Notes:

Predisposition to violation in the skin collagen framework structure is revealed. The balance of synthesis of alpha-chains of collagen types alpha-1 and alpha-2 is impaired. This leads to violation in collagen fibrils assembly and increases the risk of premature aging.

Recommendations

To improve:

Antioxidant Defence

Your Skin's Nutrition:

- Glutathione
- SOD
- Coenzyme Q10
- Glycine
- Vitamin B2 (R-5-P)
- Vitamin B6 (P-5-P)
- Selenium (Selenomethionine)
- Vitamin C

Your Skin's Cosmetics:

- Tocopherol
- Palmitoyl Tripeptide-1
- Palmitic Acid
- Butyrospermum parkii (shea) butter
- Acetyl Hexapeptide-8
- Hydroxy acetophenone
- Nicotinamide
- Glutathione

Professional Beauty Treatments for you:

- Ultrasound peeling
- Infrared sauna
- HydraFacial treatment
- Veloshape
- Endosphere

Laboratory Notes:

Decreased level of antioxidant defence is revealed. It is recommended to regularly hold measures to reduce the level of oxidative stress in the body.

Recommendations

To improve:

Glycation

Your Skin's Nutrition:

- All types of Phospholipids
- Alpha-Linolenic acid
- Glutathione + co-factors
- Active forms of Group B Vitamins
- Carnosine

Your Skin's Cosmetics:

- Benfotiamine
- Tocopherol Acetate
- Pyridoxamine

Professional Beauty Treatments for you:

- Injections with carnosine, DMAE
- Collagen induction therapy

Laboratory Notes:

It is revealed that the skin as a whole does not have a high resistance to glycation.
The use of antiglycation cosmetics is mandatory. You should also avoid insulin peaks and give preference to long-chain carbohydrates.

Personalized Formulation *Optional*

Here is your personalized formulation based on your unique genetic predispositions to support XXXXX. It has been crafted with a selection of active ingredients that are a perfect match for your body.

Made in Switzerland

1 month supply

Directions:

As stated on the label or as directed by your health professional.

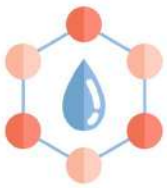
FORMULA NAME

Main Ingredients:	Targets: XXXXX
	To promote
	To build
	To boost
	To support
	To boost
	To help
	To repair
	To protect

NO ANIMAL TESTING · VEGETARIAN · NON GMO · GLUTEN FREE · NO ADDED SUGAR

Patient follow-up tools for Health Professional:

Depending on patient's health targets, the health professional shall determine check-up and follow-up plan. Suggestions below are intended for information purpose only, for the attention of health professional. This information does not replace a professional consultation.



Personalized Skin Nutrition Re-supply

To order another month's supply of Personalized Skin Nutrition, please email us on genetics@rclin.com mentioning patient's full name and date of birth. We will produce their personalized formulation and ship it to you.

Laboratory Diagnostics

Suggested for twice a year follow-up for this patient:

Oxidative Stress Panel

Antioxidant capacity; Glutathione total; Glutathione reduced; Glutathione oxidized l; Glutathione index; Glutathione peroxidase; Superoxide dismutase; Vitamin A; Vitamin E; Vitamin C; Q10; Selenium; Zinc; 8Hydroxydeoxyguanosine.

Please email us on genetics@rclin.com to inquire about 'Oxidative Stress' follow-up testing panel.

Suggested for once-a-year follow-up for this patient:

Yearly general check

Glucose; Insulin; Glycohemoglobin; HOMA index; MSH; Intestinal flora; Intestinal permeability; Oestradiol; DHEA; Testosterone; Cortisol.

Genetic Predispositions & Recommendations

Genetic Predispositions

Lifestyle Recommendations

Recommended Additional Testing

Recommended Supplementation

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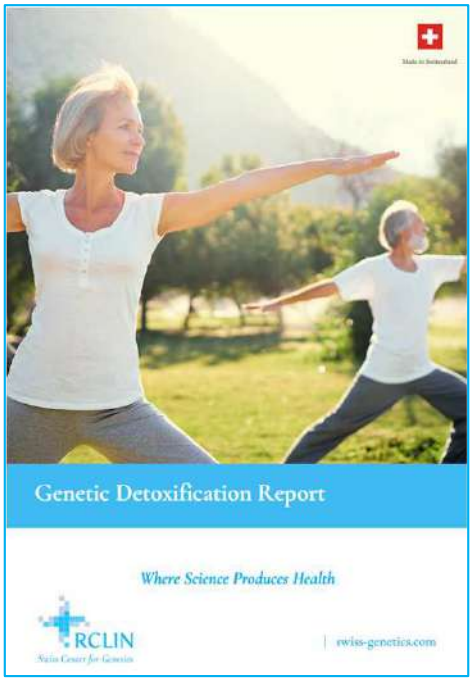
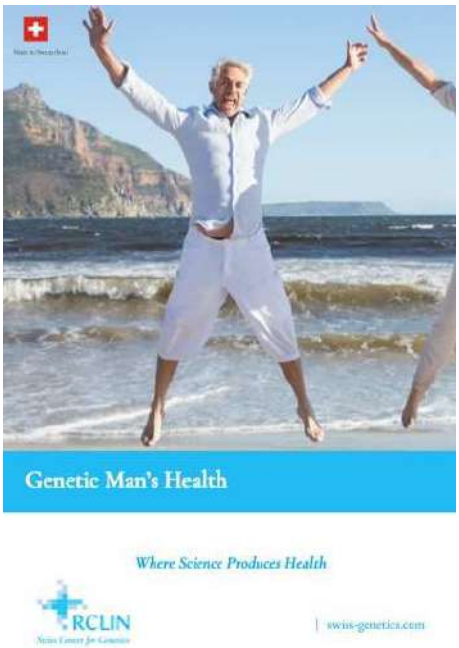
Discover Our Genetic Tests:





Each Genetic Test Report includes:

- Introduction
- Theme *Explained*
- Test Results *Summary*
- Test Results *Detailed*
- Genetic Predispositions & Recommendations
- Personalized Formulation *Optional*

End of Report