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Genetic Woman's Health SAMPLE

Where Science Produces Health

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Swiss Center for Genetics

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CONFIDENTIAL

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

Contents

How to use this Report

This Report aims to support healthcare professionals in making informed care decisions by pinpointing the precise site of malfunction due to genetic predispositions enabling the development of highly effective personalized treatment protocols.

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."

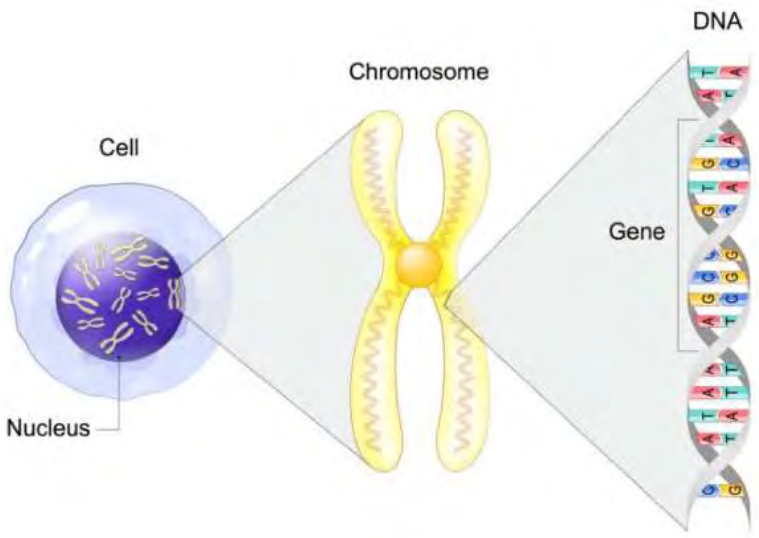
Friedrich Nietzsche

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.

Genetic Woman's Health *Explained*

We investigate genetic predisposition
within the 5 key areas of Woman's Health:

1. Emotional and Mental Stress

Genetic variations play a key role in programming individual's susceptibility to emotional and mental stressors. One critical factor is the regulation of neurotransmitters, such as serotonin, dopamine, and norepinephrine, which are involved in mood regulation. Genetic variations can impact the production, breakdown, or receptor sensitivity of these neurotransmitters, leading to differences in an individual's emotional responses, motivation, energy levels and stress resilience.

2. Hormonal System

Hormonal predispositions are the aging blueprint for a woman's body – from skin quality, fertility, and energy to premature aging – all revolves around hormones. It is extremely important to understand genetic predispositions that are responsible for hormonal synthesis and secretion, including estrogen, progesterone, follicle-stimulating hormone (FSH), luteinizing hormone (LH), and others, as they are essential for overall hormonal balance. These genes can affect the sensitivity and responsiveness of hormone receptors, influencing how effectively hormones exert their effects throughout the body.

3. Detoxification System

Genes control the production and activity of enzymes involved in detoxification processes of phase I and phase II metabolic pathways. Variations in genes encoding these enzymes can affect their efficiency, resulting in differences in an individual's ability to metabolize and eliminate toxins. Genetic factors can influence the functioning of liver enzymes, including cytochrome P450 enzymes, glutathione S-transferases, and N-acetyltransferases, which are crucial for detoxification. A well-functioning detoxification system is essential for protection against chronic diseases and premature aging.

Genetic Woman's Health *Continued*

4. Cardiovascular System

Genetic predispositions program the enzymes involved in homocysteine metabolism, such as methylenetetrahydrofolate reductase. It is essential in the breakdown and recycling of homocysteine. If the function of these enzymes is impaired, it can lead to reduced efficiency in homocysteine metabolism, which can lead to a higher risk of cardiovascular disease and stroke.

5. Bone Health

Bone health and bone aging is largely programmed by genetic predispositions, as they play a key role in production and regulation of proteins involved in bone formation, the rate of bone turnover, mineralization, and overall bone mass. They also program the absorption, utilization, and metabolism of nutrients essential for bone health, such as calcium and vitamin D.

Genetic Woman's Health Results *Summary*

Emotional & Mental Stress

Hormonal System

Detoxification System

Cardiovascular System

Bone Health

Color Key	
	Beneficial Properties
	Moderate Risk
	High Risk

Emotional & Mental Stress

YOUR RESULT:

Processing emotions

COMT	
MAOA	
MAOB	
ESR1	
ESR2	
CYP17A1	

Motivation

DRD2	
COMT	

RECOMMENDATIONS:

Emotional & Mental Stress *Continued*

YOUR RESULT:

Energy

ADRB1	
ADRB2	
COMT	
NQO1	

Stress resistance

COMT	
SRD5A2	
MAOA	
MAOB	
PNMT	

RECOMMENDATIONS:

Emotional & Mental Stress *Continued*

YOUR RESULT:

Social battery

DRD2	
MAOA	

Decisiveness

COMT	
DRD1	
ADRB1	
ADRB2	

RECOMMENDATIONS:

Hormonal System

YOUR RESULT:

Metabolic waste of hormones, estrogens

CYP1B1	
COMT	
MTHFR	
GSTM1	
GSTP1	
SULT1A1	
SULT1E1	
SULT2A1	
CYP19A1	
CYP3A4	

RECOMMENDATIONS:

Detoxification System

YOUR RESULT:

Metabolic waste: bilirubin, neurotransmitters

UGT1A1	
UGT1A6	
SULT1A1	
SULT2A1	
SULT1E1	
MAOB	
ABCB1	

RECOMMENDATIONS:

Cariovascular System

YOUR RESULT:

Homocysteine metabolism

GSTP1	
GSTM1	
UGT1A1	

RECOMMENDATIONS:

Bone Health

YOUR RESULT:

Bone formation & prevention of osteoporosis

GSTP1	
GSTM1	
UGT1A1	

RECOMMENDATIONS:

Genetic Woman's Health Results *Detailed*

CYP19A1

CYP19A1 plays a crucial role in the regulation of hormone levels, particularly in women. This gene encodes an enzyme responsible for the transformation of androgens to estrogens. The activity of the CYP19A1 gene is essential for normal sexual development and reproductive function, as well as the maintenance of hormonal balance throughout a woman's life. Dysregulation or mutations in the CYP19A1 gene can lead to hormonal imbalances.

CYP3A4

CYP3A4 is involved in the hydroxylation and subsequent inactivation of estrogens, including estradiol and estrone. By catalyzing the formation of hydroxylated estrogen metabolites, CYP3A4 contributes to the regulation of estrogen levels in the body. Genetic variations in the CYP3A4 gene can influence the activity and expression of this enzyme, potentially affecting the efficiency of estrogen metabolism.

CYP1A1

CYP1A1 programs a crucial enzyme in Phase 1 of the detoxification process, that belongs to the cytochrome P450 family and is involved in metabolizing various environmental toxins and xenobiotics (environmental pollutants, industrial chemicals, pesticides, drugs, food additives, and other synthetic substances), including polycyclic aromatic hydrocarbons (PAHs – chemical compounds that are produced when burning tobacco, grilling meat, burning wood etc.) and certain carcinogens. Its role involves catalyzing the oxidation and activation of these compounds, converting them into intermediate metabolites. Correct functioning of CYP1A1 ensures a reduced risk of damage from carcinogen metabolites.

Genetic Woman's Health Results *Detailed*

CYP1B1

CYP1B1 catalyzes the oxidation and activation of various endogenous and exogenous compounds, including polycyclic aromatic hydrocarbons (PAHs), hormones and drugs, converting them into intermediate metabolites. More importantly, CYP1B1 is responsible for converting estrogens (such as 17β-oestradiol) into their hydroxylated metabolites, including 4-hydroxyestradiol (4-OH E2). These hydroxylated estrogen metabolites, particularly 4-OH estrogens, have been implicated in various physiological and pathological processes that can be very harmful. Additionally, it has been implicated in the bioactivation of procarcinogens, that can cause DNA damage and contribute to carcinogenesis.

NQO1

NQO1 is involved in the cellular electron transport chain, specifically participating in the regeneration of NAD+ from NADH. By facilitating this reaction, NQO1 contributes to the efficient generation of ATP, the primary energy source of cells. Additionally, NQO1 has antioxidant properties, protecting cells from oxidative stress by reducing quinones and other reactive oxygen species.

COMT

COMT is involved in the methylation process by adding a methyl group to catechol-containing compounds, such as neurotransmitters (dopamine and serotonin) and hormones. This methylation reaction enhances the water solubility of these compounds, facilitating their elimination from the body through urine or bile. Genetic variations in COMT activity can impact the efficiency of Phase 2 detoxification.

Genetic Woman's Health Results *Detailed*

MTHFR

This gene is responsible for encoding the MTFHR enzyme, which is responsible for converting homocysteine to methionine, a key step in the methylation cycle. Methylation is an essential process involved in numerous biochemical reactions, including DNA synthesis, glutathione production, neurotransmitter metabolism, and detoxification pathways.

ESR1

ESR1 encodes a nuclear receptor that binds to estrogen and regulates the expression of target genes involved in bone remodeling and maintenance. Estrogen, through its interaction with ESR1, promotes osteoblast activity, inhibits osteoclast formation, and enhances calcium absorption. Genetic variations in the ESR1 gene can affect estrogen receptor function and alter the responsiveness to estrogen, potentially influencing bone density and osteoporosis risk.

ESR2

The ESR2 gene produces a nuclear receptor that binds to estrogen and controls the expression of genes involved in the maintenance and remodeling of bones. By interacting with ESR2, estrogen affects the activity of osteoblasts, resulting in a well-regulated turnover of bone tissue and enhanced bone density.

CYP17A1

Hormones such as cortisol and testosterone are known to influence mood, stress response, and emotional regulation. CYP17A1 gene encodes an enzyme called cytochrome P450 17A1, which plays a crucial role in the biosynthesis of steroid hormones, including cortisol and sex hormones such as progesterone and testosterone.

Genetic Woman's Health Results *Detailed*

PNMT

PNMT encodes an enzyme responsible for the conversion of important stress hormones (norepinephrine to epinephrine) which are involved in the body's response to stressors. Epinephrine plays a key role in mobilizing energy resources, enhancing alertness, and promoting adaptive responses to stress.

DRD2

This gene provides instructions for the dopamine D2 receptor, which is a G-protein coupled receptor involved in dopaminergic neurotransmission. The D2 receptor plays a crucial role in modulating dopamine signaling in the brain, influencing various physiological and behavioral processes. It is involved in the regulation of reward, motivation, cognition, and emotion.

MAOA

The function of MAOA is related to the metabolism of various endogenous and exogenous amines, including neurotransmitters and dietary amines. MAOA is an enzyme that catalyzes the oxidative deamination of these compounds, leading to their inactivation and subsequent elimination from the body. By regulating the levels of neurotransmitters such as serotonin, norepinephrine, and dopamine, MAOA plays a crucial role in maintaining neurotransmitter balance and overall physiological homeostasis.

Genetic Woman's Health Results *Detailed*

MAOB

MAOB is key in metabolism of biogenic amines and xenobiotics. The MAOB enzyme is responsible for the oxidative deamination (removal of an amino group from an amino acid) of various neurotransmitters, such as dopamine and adrenaline. By catalyzing the breakdown of these compounds, MAOB contributes to the inactivation and elimination of harmful substances from the body.

GSTM1

GSTM1 belongs to the glutathione S-transferase (GST) family and plays a crucial role in the conjugation of toxic substances with glutathione, a tripeptide molecule that acts as a powerful antioxidant. By facilitating the transfer of glutathione to electrophilic compounds, GSTM1 helps in their neutralization and elimination from the body.

GSTP1

By facilitating the transfer of glutathione, GSTP1 contributes to the detoxification and elimination of a wide range of xenobiotics, including environmental pollutants, carcinogens, and chemotherapeutic agents.

Genetic Woman's Health Results *Detailed*

ABCB1

The primary function of ABCB1 gene is to protect cells from potentially harmful substances by actively pumping them out of the cell. It plays a crucial role in substance transport regulation across the cellular membrane, more specifically in drug pharmacokinetics by limiting the entry of certain drugs into tissues, thus influencing their distribution, bioavailability and toxicity.

SULT1A1

This gene programs an enzyme called phenol sulfotransferase, which takes part in conjugation of various xenobiotics (pesticides, cosmetics, flavorings, fragrances and food additives) with sulfate molecules. The sulfonation process catalyzed by SULT1A1 results in the formation of sulfated metabolites that are more water-soluble and easily excreted from the body.

SULT1E1

The SULT1E1 gene programs the correct function of the enzyme estrogen sulfotransferase, which is responsible for the sulfonation of estrogens. The sulfonation process facilitated by SULT1E1 converts these hormones into more water-soluble sulfated forms, aiding in their elimination from the body.

Genetic Woman's Health Results *Detailed*

UGT1A1

UGT1A1 is primarily involved in glucuronidation reactions. Its programmed enzyme catalyzes the transfer of glucuronic acid from UDP-glucuronic acid to various compounds, facilitating their conjugation and subsequent elimination from the body. This process increases the water solubility of these compounds, aiding in their clearance through urine or bile. UGT1A1 is particularly known for its involvement in the conjugation of bilirubin, steroids and some medications (aspirin).

SRD5A2

SRD5A2 is responsible for an enzyme that participates in the conversion of testosterone into dihydrotestosterone (DHT), a more potent androgen. DHT is involved in various physiological processes, including the regulation of stress response.

SULT2A1

SULT2A1 is responsible for the function of hydroxysteroid sulfotransferase 2A1, which is primarily involved in the sulfonation of various compounds, particularly steroids and bile acids. The sulfonation process facilitated by SULT2A1 allows for easier excretion of toxic compounds out of the body. This enzymatic activity is essential for regulating the levels and activity of steroid hormones and bile acids contributing to overall detoxification and maintaining physiological homeostasis.

UGT1A6

The glucuronidation process, which is crucial for the detoxification and elimination of various endogenous and exogenous compounds depends on predisposition of the UGT1A6 gene. Glucuronidation facilitates the conjugation of glucuronic acid to substances, making them more water-soluble and easily excreted from the body. Glucuronidation processes may indirectly influence bone metabolism through the modulation of hormonal and metabolic pathways.

Genetic Woman's Health Results *Detailed*

ADRB1

ADRB1 provides a blueprint for the beta-1 adrenergic receptor, which is involved in the regulation of the sympathetic nervous system response. This receptor interacts with the stress hormone (adrenaline), influencing heart rate, blood pressure, and other physiological responses to stress. Genetic variations in the ADRB1 gene can impact receptor function, potentially affecting an individual's stress response, resilience, cognitive performance and decision-making abilities under stress.

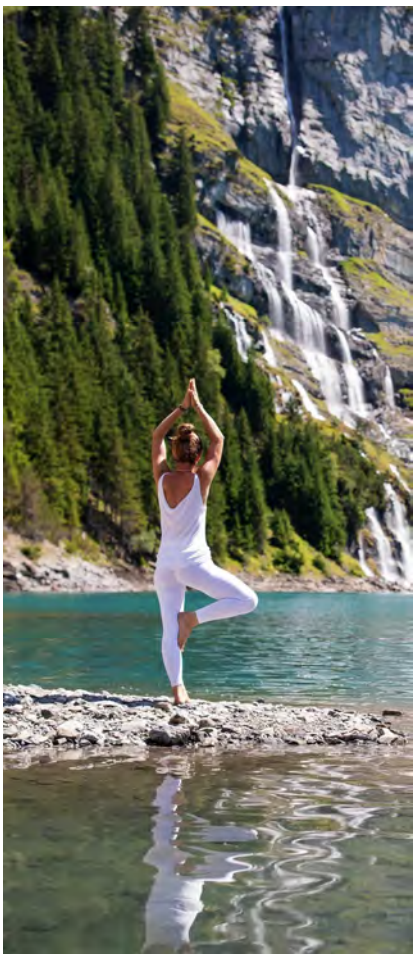
ADRB2

Beta-2 adrenergic receptor is encoded by the ADRB2 gene, which is involved in the regulation of the sympathetic nervous system response and interacts with the stress hormone adrenaline. This receptor influences various physiological responses, including bronchodilation, vasodilation, and glycogenolysis. Genetic variations in the ADRB2 gene can impact receptor function, potentially influencing an individual's stress resilience, decisiveness and decision-making.

Genetic Predispositions & Recommendations

Genetic Predispositions

Lifestyle Recommendations



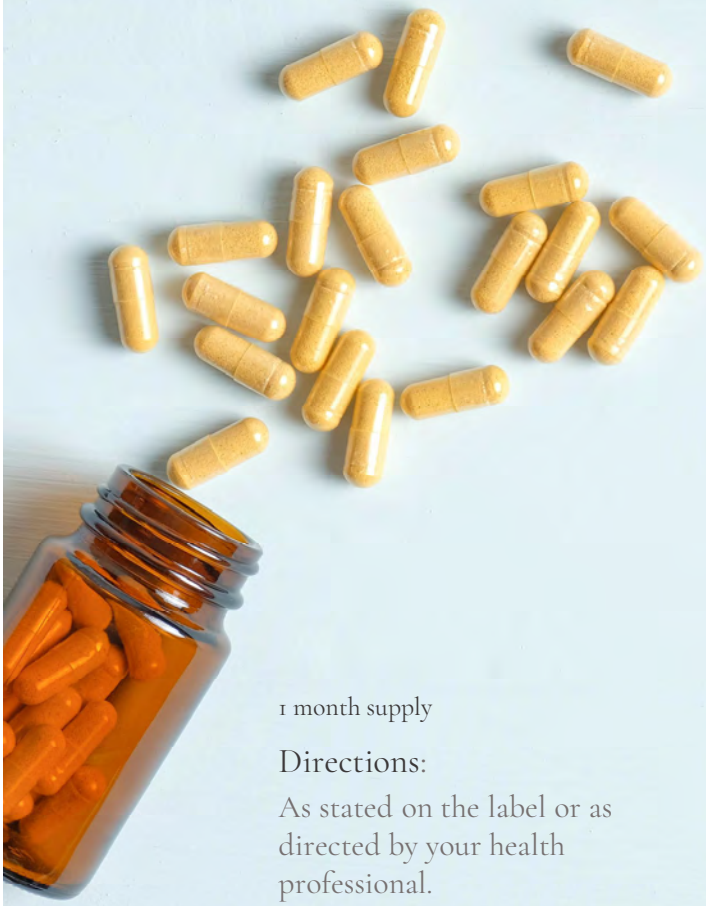
Recommended Additional Testing

Recommended Supplementation

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

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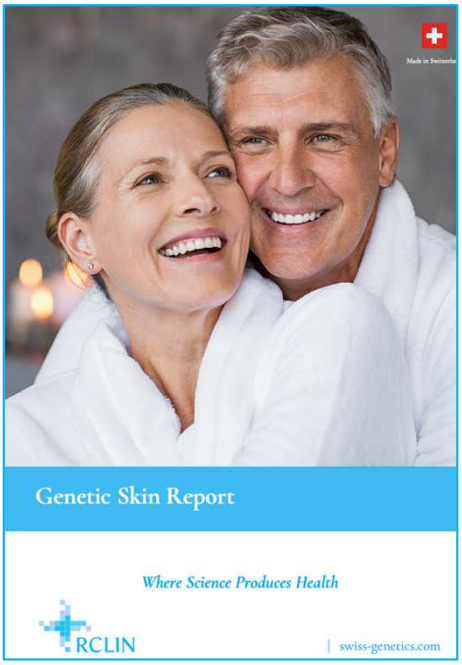
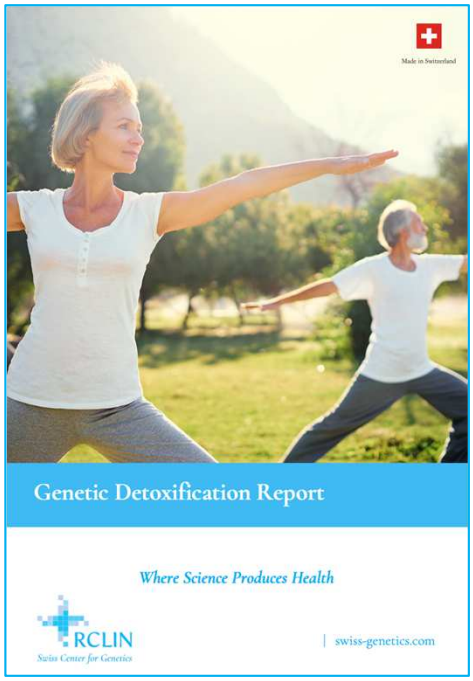
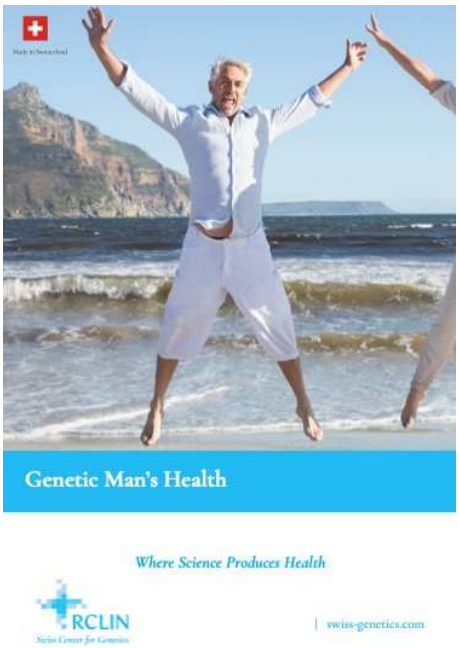
Discover Our Genetic Tests:







Each Genetic Test Report includes:

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

End of Report