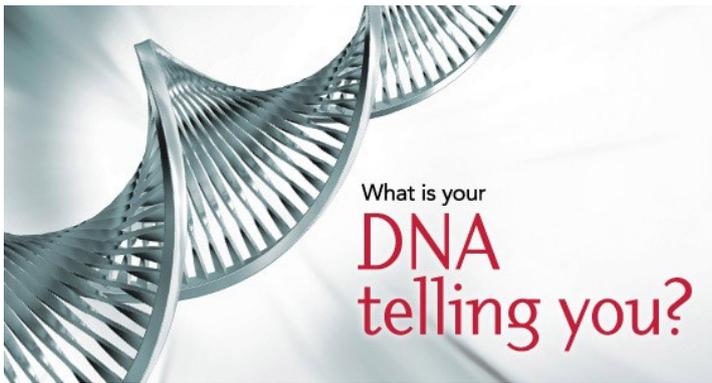


# Personalised Genetic Profile Testing



## The Human Genome

Although it was believed for years that your genome could not be changed, more recent study of the human genome has found that only 30% of our DNA or genome is pre-programmed and cannot be altered. So the good news is that 70% of the human genome can be altered by the epigenome. The epigenome ("epi" means above) is the layer

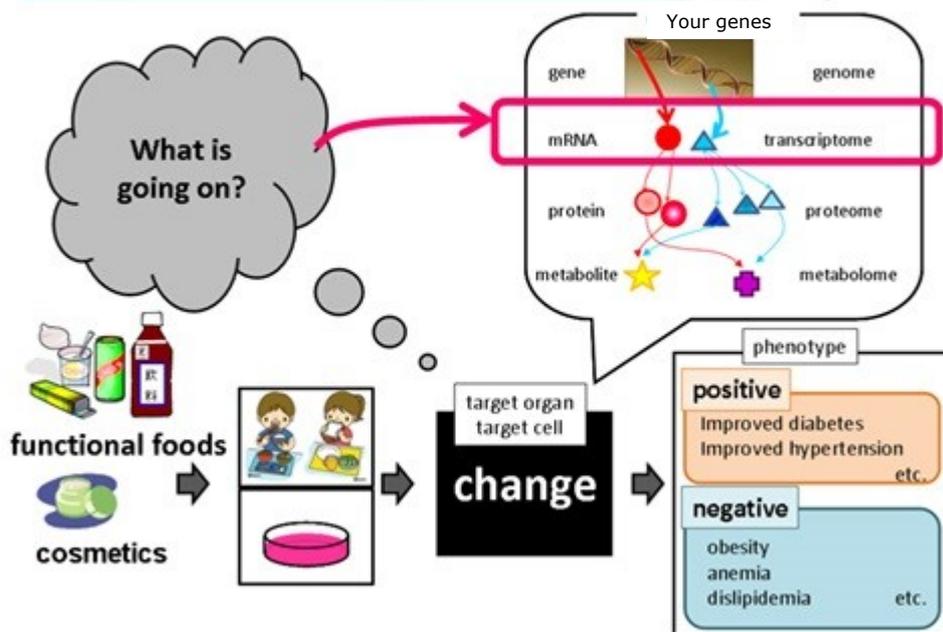
above our DNA and is controlled and influenced by factors such as the environment, nutrition, exercise, as well as spiritual and social relationships.

## Genetic Testing and Nutrigenomics

Nutrigenomics is a relatively recent term coined to describe how your nutrition influences your epigenome. It is a move towards personalised preventative medicine. Although all pathology testing will vary from test to test, genetic testing determines what you have inherited from your parents and is set for life. Nutrigenomics focuses on personalised diet and lifestyle planning. This can be

achieved as:

### Nutrigenomics is a tool for analysis of effects of diet and lifestyle



- ◇ Diet regulated genes play a role in the onset, incidence, progression, and severity of chronic disease
- ◇ Common dietary chemicals can act on the human genome, which can alter expression and structure
- ◇ Dietary intervention based on knowledge of a person's nutritional requirements and genotype can be used to prevent chronic disease

### The good news is that your DNA is not your destiny.

By having a Personalised Genetic profile done you are able to see what your inherited genetic strengths and weaknesses are. A genetic profile does not diagnose disease. It does give an insight into your individual susceptibility to disease. Individualised treatment is possible as the expression of genes is influenced by lifestyle, environmental factors, nutrition and nutritional supplementation.

I can organise a test kit for you, interpret the test results and make appropriate recommendations.

  
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Taking the  
guesswork out  
of diagnosis

There are a few companies that offer genetic profile testing. What is tested for are gene polymorphisms (mutations) that are risk factors to your health. The laboratories test for single nucleotide polymorphisms or SNPs to understand your individual needs. Each company may offer different genetic profiles, however, generally the genes tested for include:

- ◇ Lipid metabolism - cholesterol, fat absorption, fat transport
- ◇ Omega-3 and omega-6 blood levels
- ◇ Blood pressure - sodium sensitivity
- ◇ Detoxification ability - phase I and Phase II
- ◇ Oxidative stress
- ◇ Methylation
- ◇ Inflammation
- ◇ Bone health
- ◇ Vitamin B2 metabolism
- ◇ Vitamin B12 metabolism
- ◇ Vitamin D metabolism
- ◇ Vitamin C metabolism
- ◇ Coenzyme Q10 requirement
- ◇ Choline deficiency
- ◇ Caffeine metabolism
- ◇ Coeliac disease
- ◇ Lactose tolerance
- ◇ Diabetes
- ◇ Weight management profiles
- ◇ Sport and exercise profiles - excellent for athletes to maximise their fitness

The range of genes tested for is quite impressive, and you only need to do it once.

### What will my Personalised Genetic Profile look like?

The report is quite comprehensive, with not only the results being reported, there is also a comprehensive explanation given with suggested dietary and lifestyle changes. Having said that, this report does need a trained practitioner to evaluate the results properly and prepare an individualised treatment and lifestyle modification programme.

The results are given in an easy to read "traffic light" type of report.



**STAY BALANCED** No risk allele has been inherited.



**MODERATE RISK** One risk allele has been inherited which has affected the enzyme activity.



**HIGH RISK** One or both risk alleles have been inherited with known effects on enzyme activity.

A sample of some of the test results that you may expect when you receive your report.

## AGT and ACE haplotype result

Gene and SNP ID	Haplotype	Sodium Sensitivity Result and Interpretation
AGT rs699	CC	<b>INCREASED RISK of sodium sensitivity</b> in response to a high salt intake. There is increased risk of hypertension which is particularly important for individuals who already have hypertension, type 2 diabetes, are overweight or have renal disease. Please review the action steps and comments in relation to this result.
ACE rs4343	GG	

## Sample reports for Vitamin D and Oxidative Stress SNPs

### DHCR7, CYP2R1 and GC haplotype result

Gene and SNP ID	Haplotype	Result and Interpretation
DHCR7 rs12785878	TT	<b>INCREASED RISK</b> of vitamin D insufficiency based on the genetic variants tested. Please review the action steps and comments in relation to this result.
CYP2R1 rs10741657	GG 	
GC rs2282679	CA	

**Normal** = no increased likelihood of vitamin D insufficiency in association with the gene variant tested. **Moderate** = >20% likelihood of vitamin D insufficiency in association with the gene variant tested compared to individuals with the normal genotype result. **High** = >40% likelihood of vitamin D insufficiency in association with the gene variant tested compared to individuals with the normal genotype result.

### What does this DHCR7, CYP2R1 and GC haplotype result mean?

This individual has inherited a haplotype that is associated with lower levels of vitamin D (plasma 25-hydroxy-vitamin D) based on the genes analysed.

#### ACTION STEPS and Comments:

- This result does not mean that the individual's vitamin D levels are out of balance.
- Based on this genotype this individual has an increased risk of vitamin D insufficiency when compared to individuals that do not have the same genetic polymorphism.
- Maintain a healthy diet with dietary sources of vitamin D such as cod liver oil, fish especially raw fish, eggs, mushrooms and fortified dairy products.
- Discuss the importance of sunshine exposure with the client and review their daily exposure to sunshine.

### SOD2 genetic test result

Gene and SNP ID	Genotype	Enzyme activity and oxidative stress Result and Interpretation
SOD2 rs4880	CC 	<b>Sensitive to inadequate antioxidant intake.</b> Please review the action steps and comments in relation to this result.

### What does this SOD2 genetic test result mean?

This individual has inherited the genotype that is sensitive to inadequate antioxidant intake including environmental exposures that relate to ROS production such as smoking. This actual enzyme activity associated with this SOD2 genotype has not been established. However there are specific gene-nutrient interactions reported for this variant. There is little overall association between MnSOD and cancer risk, therefore this polymorphism should not be used as general marker for cancer.

#### ACTION STEP and comment:

- Consider the results in relation to the individual's vitamin and mineral intake and/or dietary intake of antioxidant rich foods.