



Sample report

CAFFEINE
METABOLISM

WHAT THE REPORT INCLUDES

- Detailed EXPLANATION of the test performed and recommendations to be followed;
- SUMMARY TABLE showing the metabolic areas investigated and the results obtained from the DNA analysis, in order to have a quick overview of one's general situation and to check for compromised situations;
- BIBLIOGRAPHY providing scientific references for the test.

COLOURS USED



"Green" indicates that the variants identified in the analysis do not unfavourably alter the enzymatic activity of the proteins they encode and/or the risk associated with certain diseases.



"Orange" indicates that the variants identified in the analysis slightly unfavourably alter enzyme activity and/or the risk associated with certain disorders or diseases.



"Red" indicates that the variants identified in the analysis alter enzyme activity in a particularly unfavourable way, resulting in an increased risk of developing certain disorders or associated diseases.

The results shown, as well as the considerations and explanations contained in the following pages of this booklet, should not be regarded as a medical diagnosis. It is important to bear in mind that genetic information is only one part of the total information needed to gain a complete picture of a person's state of health. The data reported here is therefore a tool available to the treating physician to assist in formulating a correct assessment of the patient's physiological state and suggest an appropriate personalised treatment.

Introduction

Caffeine is a natural alkaloid substance renowned for its stimulating properties and is mainly contained in coffee, tea, chocolate, coca-cola and guarana. One of the best known effects of caffeine is its ability to act as an excitant that can temporarily 'delay' the feeling of fatigue, improve reflexes and the ability to concentrate, and have a mild analgesic action.

Caffeine is metabolised in the body by the enzyme cytochrome p450 1A2. Each person has two copies of the CYP1A2 gene (one copy received from each parent). There are two variants of the gene that affect the metabolism of caffeine in the body: one variant encodes the enzyme that metabolises caffeine rapidly, while the other encodes the enzyme that metabolises it slowly.

For a person to be a fast metabolizer they will need to possess two copies of the alleles for fast metabolism whereas to be considered a slow metabolizer, the individual would only need to have one of slow metabolizer variants. Slow metabolisers should monitor their daily dose, if they consume an higher amount of caffeine (more than 2 or 3 cups of coffee for example, which corresponds to 200 mg of caffeine per day, or approximately 3 mg per kg of individual. Source EFSA: European Food Safety Authority) they may have adverse effects on their body including an increased risk of heart attack.

What are the symptoms of caffeine intolerance?

Nausea, vomiting and diarrhoea, gastritis or insomnia and tachycardia are just some of the symptoms of caffeine intolerance. In general, the intestine is the organ that is more likely to indicate a possible allergy or intolerance to caffeine. Although the symptoms of intolerance are less severe than those of allergy, in the vast majority of cases, caffeine intolerance should not be neglected as it can eventually worsen and lead to more serious symptoms. Don't worry, getting to know your body is the first step on your new wellness path. In case our test tells you that you are intolerant to caffeine, have no fear, this does not mean that you have to say goodbye to your much-loved cup of espresso, for example.

Genetic testing for caffeine sensitivity is aimed at those with typical coffee intolerance symptoms, such as:

- **Anxiety**
- **Insomnia**
- **Stomachache**
- **Digestive disorders**
- **Tachycardia (fast heart rate)**

Recommendations

There are several caffeine-free and often natural alternatives that have nothing to do with decaffeinated coffee for example and that we recommend to those intolerant to caffeine:

- **Barley coffee:** boasts fragrant aroma and taste.
- **Natural coffees:** acorn coffee, dandelion coffee and chicory coffee.
- **Ginseng:** highly digestible, energising and with minimal caffeine.
- **Wheat Juice:** mix of sprouted wheat, barley and spelt
- **Golden Milk:** drink whose main ingredient is turmeric
- **Chai Tea:** mix of black tea and spices containing caffeine at low levels
- **Macha Tea:** drink that contains a high quantity of antioxidants

CAFFEINE METABOLISM EFFICIENCY

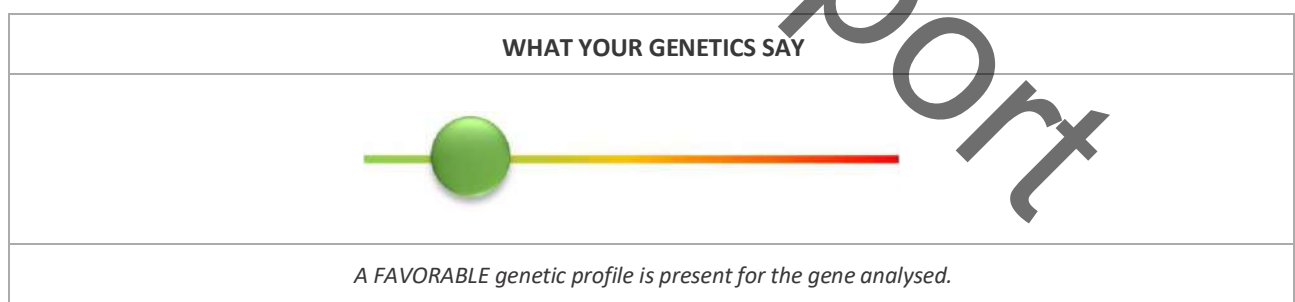
Genetic analysis involves interrogating the following gene:

- **CYP1A2 gene**

The CYP1A2 gene encodes the cytochrome P450 CYP1A2 protein, which, in the liver, is the primary enzyme involved in the metabolism of caffeine. Caffeine exerts its primary biological effects at the level of the central nervous system by acting as an antagonist to adenosine (by binding to A2A-type adenosine receptors), which causes changes in dopaminergic conduction and changes in the expression of certain genes that lead to the known effects on the brain and behaviour due to caffeine.

The unfavourable variant of the gene for the enzyme results in slow metabolism of caffeine, which consequently prolongs its effects and may increase the risk of suffering from hypertension (high blood pressure).

Gentras ID	Gene	Allelic variants	Genotype	Predisposition
GTS008	CYP1A2	A C	A A	FAST METABOLISER



The indication of susceptibility is based on scientific evidence that associates the unfavourable allelic variants detected by the test with an increased susceptibility of the subject compared to the general population.

This increase in susceptibility is a probabilistic measure, because it does not take into account the subject's lifestyle but only their genetic make-up. It is therefore not a diagnosis and it does not imply a cause-and-effect relationship.

Caffeine sources

Caffeine-rich plants are coffee, cocoa and tea, but it should not be forgotten that caffeine-containing foods include guarana, mate and cola nuts.

Nerve food	Quantity of caffeine
Coffee powder	1000-3000 mg/100 g
Espresso coffee	60-120 mg/tablet
Mocha coffee	100-150 mg/tablet
Decaffeinated coffee	2-5 mg
Tea (long infusion)	40-50 mg/100 g
Cocoa powder	100 mg/100 g
Chocolate (bars)	50 mg/100 g
Chocolate in a cup	10-40 mg/gauge
Soft Drinks	30-40 mg/litre (33 cc)
Guarana	50 mg/g
Mate	17 mg/100 ml
Energy Drinks	80 mg/200 ml

We also remind you that caffeine is present in some analgesic drugs, drugs for colds and for weight loss.