

Fagron NutriGen™ 2 FAQ

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Introduction

Fagron NutriGen™ 2 is a genetic test developed by Fagron Genomics for personalized weight loss planning.

A genetic test is used to:

- Diagnose and predict/prevent diseases;
- Analyze specific metabolic characteristics of the patient;
- Understand which treatment will be more effective in a specific patient;
- Optimize the dose of APIs to improve the effectiveness of treatments and reduce side effects.

This document contains the most frequently asked questions by healthcare professionals regarding Fagron NutriGen™. It addresses general information about the product, sampling and delivering information, as well as information regarding privacy and classification of the test, among other.

Should you have any questions or remarks, please contact your local sales representative.



General information

1. How does Fagron NutriGen™ works?

Fagron NutriGen™ 2 analyzes 3 polymorphisms within 128 DNA mutations (SNPs) resulting in 384 (3x128) genetic variations on the most relevant genes related to different metabolic pathways involved in weight loss and nutritional needs.

A Single Nucleotide Polymorphism (SNP) is a change in one of the nucleotides in a specific location of the entire genetic sequence of a patient. Three different genotypes can be detected after analyzing specific SNPs: heterozygous, homozygous dominant and homozygous recessive (figure 1). Detecting SNPs facilitates the understanding of specific characteristics of the metabolism of a patient. All SNPs used in Fagron NutriGen™ 2 have been scientifically validated from population studies, presenting a significative global incidence.

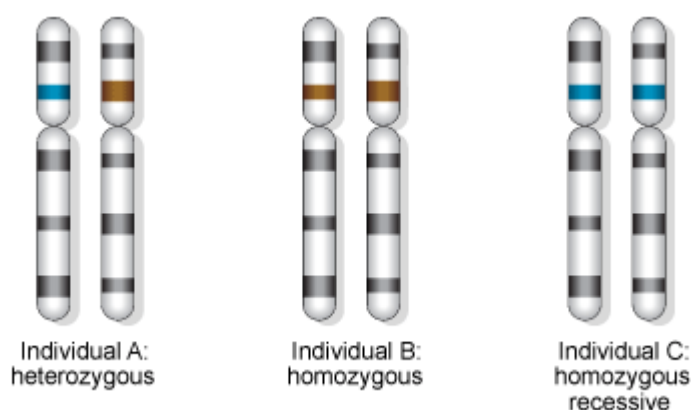


Figure 1 – Representation of the different genotype polymorphisms between 2 alleles.

2. What are the categories analyzed with Fagron NutriGen™ 2?

Fagron NutriGen™ 2 will analyze the categories stated in the list below and provide a fully detailed diet plan according to the results obtained.

List of categories analyzed with Fagron NutriGen™ 2

1. MORPHOLOGICAL GENETICS IN OVERWEIGHT PREDISPOSITION

- 1.1 Genetic risk of overweight/obesity
- 1.2 Risk of rebound weight gain
- 1.3 Risk of increased BMI
- 1.4 Basal metabolic rate (burn calories at rest)
- 1.5 Weight loss capability on diet interventions

2. BEHAVIORAL GENETICS IN FOOD INTAKE

- 2.1 Appetite and anxiety risk
- 2.2 Satiety - Feeling full

3. EFFICACY OF EXERCISE

- 3.1 Benefits from endurance exercise for improving HDL levels
- 3.2 Exercise to reduce body fat

4. FAT METABOLISM

- 4.1 Response to monounsaturated fats MUFAS
- 4.2 Response to polyunsaturated fats PUFAS
- 4.3 Response to fat intake to improve the HDL Levels

5. CARBOHYDRATE METABOLISM

- 5.1 Capability to digest starchy food



- 5.2 Refined carbohydrates sensitivity
- 5.3 Carbohydrates and HDL levels predisposition
- 5.4 Carbohydrates and LDL levels

6. LIPID METABOLISM

- 6.1 Predisposition to reduced HDL levels
- 6.2 Predisposition to increased levels of triglycerides
- 6.3 Predisposition to increased oxidation of LDL
- 6.4 Risk of increased cholesterol LDL levels
- 6.5 Risk of unbalanced triglycerides/HDL ratio

7. GLUCOSE METABOLISM

- 7.1 Risk of increased glucose levels in plasma after fasting
- 7.2 Risk of insulin resistance
- 7.3 Risk of diabetes type II

8. FLAVOR SENSITIVITIES

- 8.1 Bitter taste sensitivity
- 8.2 Salt sensitivity
- 8.3 Sweet flavour preference

9. DETOXIFICATION IMBALANCES

- 9.1 Antioxidant capability

10. SUPPLEMENTATION

- 10.1 Calcium malabsorption risk
- 10.2 Predisposition to dysregulated calcium levels
- 10.3 Risk of iron overload
- 10.4 Risk of low iron plasma levels
- 10.5 Predisposition to dysregulated magnesium levels

- 10.6 Predisposition to dysregulated selenium levels
- 10.7 Sodium sensitivity

11. INTOLERANCE

- 11.1 Lactose intolerance risk
- 11.2 Alcohol metabolism
- 11.3 Risk of celiac disease
- 11.4 Caffeine metabolism
- 11.5 Fructose intolerance risk

12. VITAMIN DEFICIENCY RISK

- 12.1 Vitamin A
- 12.2 Vitamin B6
- 12.3 Vitamin B12
- 12.4 Vitamin B9 (folate)
- 12.5 Vitamin C
- 12.6 Vitamin E
- 12.7 Vitamin D

13. MATCHING DIET TYPE

- 13.1 Efficacy on low calories diets
- 13.2 Efficacy on low carbohydrate diets
- 13.3 Efficacy on low fat diets

14. INFLAMMATION

- 14.1 IL6
- 14.2 IL10
- 14.3 TNFa

15. HORMONES

- 15.1 Adiponectin
- 15.2 Ghrelin
- 15.3 Leptin
- 15.4 Visfatin

3. How the SNPs were selected for NutriGen™ 2?

An extensive study of the most recent literature was performed to select the SNPs analyzed for each category. Our bibliography contains near 400 scientific publications that associate genetic variants to different phenotypical traits. For more detailed information, your sales representative can provide you a Fagron NutriGen™ Literature Review.

4. Why should I fill the NutriGen™ 2 questionnaire for each client?

Genetics is just a part in the journey for health and weight loss. Our genetic profile only accounts for 40 to 70% of the causes of obesity. Lifestyle and blood biomarkers are epigenetic factors that modulate the way our genes



work. Therefore, we have created a questionnaire to integrate critical medical parameters together with genetic profile to attain the most personalized nutrigenomics test in the market. A powerful tool for you, to deliver the best service to your clients.

5. What is the relationship between the test results and the food recommendations?

Our food recommendation is based in the advice of our team of nutritionists and our signature algorithm. Almost 50 nutritional parameters are taken in account for each of the more 900 foods in our food database. Once the optimal type of diet has been selected based on the genetic results (Category 13), the detected genetic risks and the data introduced in the questionnaire are integrated by our algorithm into a scoring system, which will show in a simple way which foods are best for your client, which ones to avoid, and why.

6. Does Fagron NutriGen™ 2 suggest personalized formulations?

Fagron NutriGen™ suggests food supplements according to the data gathered from the patient analysis. This suggestion is presented in a list-form from the most recommended food supplements to the least needed, without presenting dosage or posology. It's an indication for the healthcare professional, in order to provide a summarized inside about what food supplements should be recommended to a specific patient.

Process

7. How are the samples obtained?

The quantity of DNA required for the analysis is obtained through an oral scraping. The procedure to obtain the sample is simple, painless and can be carried out at home or in the healthcare professional's office. The sample collection kit contains all necessary materials and instructions in a very detailed way.

8. What is included in Fagron NutriGen™ 2 test kit?

Each kit contains:

- 1x buccal swab;
- 1x pair of gloves
- 1x biosafety and 1x shipping courier bag;
- 2x informed consent forms;
- 1x instructions of use leaflet;
- ID number labels.

Every Fagron NutriGen™ test kit is identified by an unique ID number. A label with the ID number is placed on each swab tube, in the informed consent forms and also in the outer part of the box, for an easy identification.

9. What is the importance of the informed consents?

An informed consent is a legal document signed by the patient that provides Fagron Genomics the permission to analyze the sample. Moreover, it is also signed by the healthcare professional and therefore acts as a legal document for the pre and post analysis genetic counselling.

There are two copies of the informed consent inside the kit box. One signed copy must be kept by the healthcare professional and the other signed copy must be sent to Fagron Genomics. No sample will be processed by the laboratory without the respective signed informed consent.



10. How is the sampling process performed?

The sampling process is simple and is also explained in detail in the instructions of use leaflet present in the kit.

Before sampling

- Hands must be washed properly, and disposable gloves should be used.
- Patients should avoid eating, drinking (water is the exception) or brushing teeth at least 1h before scraping.
- Patients are advised to rinse the mouth with water before scraping.
- Informed consents must be filled and signed by the healthcare professional and the patient.

During sampling:

- Removal of the swab from the swab tube.
- The inside part of one of the cheeks must be scrapped energetically with the scraping end, for 1 minute, while rotating the swab. The scraping end of the swab should only be in contact with the inside of the cheek.
- The swab should be stored back on the tube and closed.
- Attach one ID-label to the swab tube.

11. What must be done by the healthcare professional after sampling?

After sampling, the healthcare professional must access www.fagrongenomics.com, fill an online questionnaire in order to register the kit and provide the required clinical data of the patient. The credentials to login in the platform are provided to the healthcare professional by the sales representatives. A step-by step explanation of the registration process and the online system management is available in the [Innovation Platform](#).

12. How should the samples be stored after sampling?

The stability of the samples obtained with the swabs is kept for:

- Up to 2 weeks between 15 - 25 °C.
- Up to 3 weeks between 2 - 8 °C.
- Up to 3 months below -15 °C.

13. How should the samples be sent to Fagron Genomics?

Samples and signed informed consents should be collected from the prescriber's clinic in 24h to 48h, maximum, after sampling. Fagron is usually responsible for this collection.

14. Is it possible to track & trace the status of the sample?

Yes, through the platform available in www.fagrongenomics.com. When the sample arrives at Fagron Genomics (after being successfully registered in the Fagron Genomics platform) a notification is send to the healthcare professional by email. If the sample was not registered on the platform, it is not possible to know from which patient it is and therefore no email will follow. It is important to guarantee that the email address provided is correct and that the Fagron Genomics emails are not being send to the spam folder.

Efficacy

15. What is the efficacy of Fagron NutriGen™ 2?



Fagron NutriGen™ 2 provide healthcare professionals with complete information about their patient genetic profile. The genetic characteristics evaluated can influence the effect of certain diet used for weight loss. To support the healthcare professional, a report is created for each different patient, providing a suggested personalized diet plan.

An intensive study of genetic biomarkers related to the diet type efficacy is performed in order to determine the percentage of expected efficacy (low-fat, low-carb or low-calorie diet plans).

Results

16. What is the expected waiting time until receiving the results?

The process of analyzing DNA is complex. The results are expected to be send approximately 2 weeks after the sample analysis started. A total delivery time of 4-5 weeks for patient's results is expected.

17. How are the results shared?

The results report will be delivered to the healthcare professional directly through the online platform. The report can be generated in multiple languages.

18. Are the results reliable?

The technology used to analyze the DNA is widely validated as a platform for genetic studies, with reproducibility and specificity rates around 99%. Fagron Genomics laboratory technicians are particularly trained for this type of analyzes and analyze thousands of samples every year, having extensive experience in this type of analysis.

19. If it is such a reliable process, how can it be that sometimes the sample quality fails?

Although the methodology used is one of the best currently available, sometimes it can happen that the sample does not contain enough DNA and it is not possible to provide a reliable result. This may be due to many factors, as the fact that the sampling process was not performed correctly or that the sample was not kept in proper temperature conditions before or during shipment.

20. If the process has failed, does the patient need to buy a new test?

No, in this case a new batch of swabs will be send without the kit box, to perform a new sampling of the patient. If the online registration was already performed previously, it will not be required again. Repetitions will be offered for free, in a maximum amount of three times per patient.

Classification

21. How is Fagron NutriGen™ 2 classified?

Fagron NutriGen™ is currently offered as a presentation of a medical device class I. This means Fagron distributes a CE-labelled swab, following the European regulatory affairs legislation.

Fagron NutriGen™ is a diagnostic service, like the blood cholesterol analysis or an intolerance analysis that can be made in pharmacy. Therefore, it must be prescribed by a healthcare professional, not being able to be acquired legally online.



Fagron NutriGen™ will be under a new registration process, to be classified as an EU medical device class I and later as an in vitro diagnostic (IVD). Even if this will only be necessary by 2021, all the efforts are already being made on this process.

Privacy

22. How is Fagron Genomics protecting personal data?

Fagron Genomics complies with the European General Data Protection Regulation (GDPR). This regulation standardizes the protection and handling of “personal data”.

23. What happens with the client's DNA after testing?

We care about privacy. Unlike other genetic tests, we will not screen all the client's DNA, only the SNPs that are relevant for weight loss. We test these genetic variants only once, as this information is valid for a lifetime. The genetic data stays within the lab, as we do not share information with other organizations. The health coaches have only access to results and interpretations of your genetic code and not the raw data. Upon request, all the data generated, including the reports, will be destroyed.

More Information

24. Where can I find more information about Fagron NutriGen™ 2?

The present document contains the most requested information about Fagron NutriGen™ 2. Your local sales representative can provide you with more information documents such as a complete overview of the literature supporting Fagron NutriGen™ 2, marketing materials and much more.

LEGAL DISCLAIMER: Fagron Genomics, S.L.U carries out genetic tests upon request by healthcare professionals, in relation to biological samples from patients obtained by the healthcare professional. Our tests do not replace a medical consultation, nor do they make up a diagnostic or treatment, nor should they be interpreted this way. Only healthcare professionals can interpret the results of said tests, based on their knowledge of the clinical records of the patients and other relevant factors and, under their responsibility, give a diagnostic or prescribe treatment to the patient. We decline all responsibility derived from the use and interpretation of the results of our tests by the solicitant healthcare professional. Fagron Genomics, S.L.U expressly reserves any legal actions in case of an inappropriate, negligent or incorrect use or interpretation of the results of our tests. It is the responsibility of the healthcare professional who requests a test to guarantee to the patient the appropriate genetic advice as foreseen by Law 14/2007, of 3rd July, of biomedical research. As Fagron Genomics, S.L.U does not have access to the personal identifiable information about the patient from whom the sample comes, it is the responsibility of the requesting healthcare professional to comply with the applicable data protection Laws and regulations.