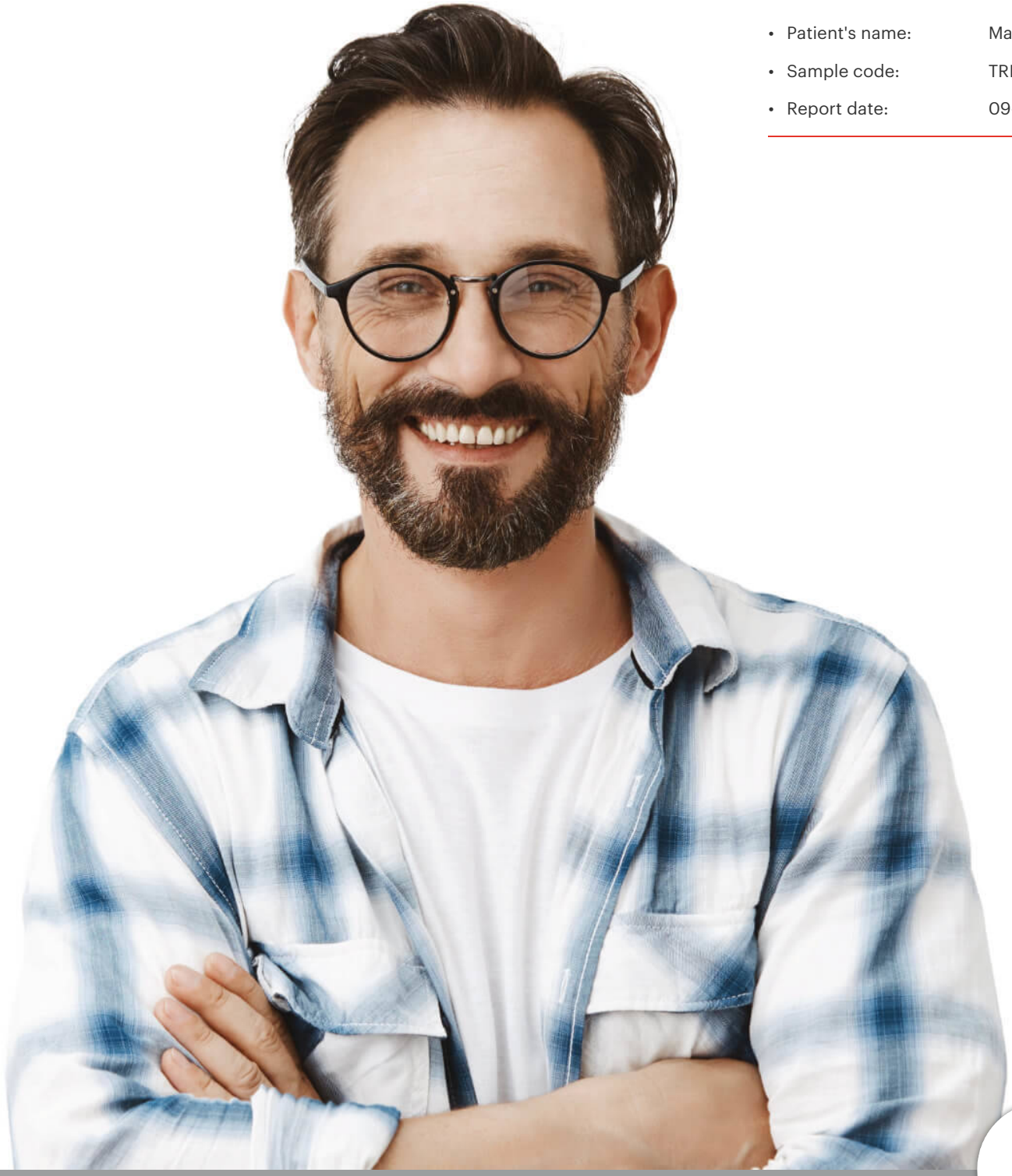


- Patient's name: Man Demo Patient
- Sample code: TRI39339AA
- Report date: 09-02-2023

Fagron TrichoTest™

Results report

TrichoTest™ Genetic report

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 innapropiate, 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.

Index

I.
Patient identification data

1.
Patient identification data

Ordering physician	**DOCTOR DEMO**
Contact	**manelfrances@gmail.com**
Patient's name	**Man Demo Patient**
Gender	**Male**
Date of birth	**09-03-1975**
Sample type	**Bucal swab**
Sample code	**TRI39339AA**
Sample date	**21-11-2022**
Report date	**09-02-2023**

II.
Recommendation of the most suitable drugs and supplements

2.
Recommendation of the most suitable drugs and supplements

The **genetic test** uses an automated qualitative pharmacogenetic algorithm that analyzes the patient's genetic data and combines this information with relevant patient history to recommend the most suitable active ingredients. Next, we show on a color scale which compounds the algorithm recommends the most. The transition from white to dark green indicates drugs from least recommended to most recommended. Medications blocked due to intolerances or contraindications are shown in red.

Anti-alopecic drugs

Prostaglandins	
• Minoxidil	73%
• Latanoprost Fagron	67%
• Prostaquinon TM	67%

Antiandrogenic	
• Finasteride	86%
• Topical Saw Palmetto	53%
• Saw Palmetto	53%
• Ginseng	50%
• 17-α Estradiol	37%
• Melatonin	25%
• Dutasteride	

Anti-inflammatory	
• Clobetasol propionate	
• Triamcinolone acetonide	
• Hydrocortisone	
• Betamethasone dipropionate	
• Desonide	
• Fluocinolone acetonide	
• Prednicarbate	

Immunomodulator	
• Tacrolimus	

Hair care supplements

Circulation	
• Arginine	67%
• Ginkgo biloba	67%
• Caffeine	50%
• L-Carnitine L-tartrate	50%
• CafeiSome TM	40%

Collagen synthesis
• Oral SiliciuMax TM
• Cystine

Insulin-like growth factor increase	
• IGrantine-F1 TM	67%
• TrichoXidil	67%

Blocked — Recommended

Vitamin, mineral and antioxidant supplements

Vitamin deficiency	
• Vitamin D	67%
• Vitamin B9 (Folate)	67%
• Vitamin E (Tocoferol)	67%
• Vitamin B7 (Biotin)	
• Retinol palmitate	
• Vitamin C (Ascorbic Acid)	
• Vitamin B12 (Cianocobalamin)	
• Vitamin C (Ascorbic Acid)	

Antioxidant
• Selenium yeast
• Resveratrol

Minerals	
• Iron sulfate	67%
• Magnesium Gluconate	67%
• Zinc gluconate	
• Zinc acetate	

Recommendations for mesotherapy

The **genetic test** algorithm has selected the following active ingredients for use in mesotherapy. The doctor must prepare the prescription adapted to its preparation in pharmacy.

• Finasteride Liposomade 0,05%	86%
• Minoxidil Liposomade 0,25%	73%
• Latanoprost Liposomade 0,001%	67%
• Protasquinon Liposomade 0,4%	67%
• Dutasteride Liposomade 0,01%	
• Acid Retinoic 0,1%	

The amount and combination of active ingredients to be administered depends on medical criteria.

Blocked — Recommended

III.
Formulas for personalized treatment

3.
Formulas for personalized treatments

The pharmacogenetic algorithm has selected a series of formulations for topical, oral use or capillary mesotherapy for the care and hygiene of your patient's scalp. These personalized formulations have been selected taking into account the genetics, the type of alopecia, and the relevant history of the patient.

Topical treatment

Formula	
Minoxidil	6 %
Finasteride	0.93 %
Arginine	1 %
IGrantine-F1 TM	0.42 %
TrichoSol	**100ml**

Posology
Apply at night before bedtime. Leave the solution on your scalp for as long as possible. Wash your scalp the next day.

Signature of the prescribing physician	
Dr	
Physician registration No.	
Date	

Address	Signature
My Demo Clinic Fantastic street, 123 08766, Best City +34 666 777 555	

Oral treatment

Formula	
Iron sulfate	33 mg
Saw Palmetto	202 mg
Caffeine	23 mg

Posology
1 capsule per day, 90 capsules for 3 months

Signature of the prescribing physician	
Dr	
Physician registration No.	
Date	

Address	Signature
My Demo Clinic Fantastic street, 123 08766, Best City +34 666 777 555	

Scalp care and hygiene

Topical treatment

Formula	
Prostaquinon TM	2 %
Topical Saw Palmetto	2 %
Ginkgo biloba	2 %
TrichoOil	**30ml**

Posology
1-2 times / week, massage for 3-5 minutes and leave it on for 10 min before washing your hair.

Signature of the prescribing physician	
Dr	
Physician registration No.	
Date	

Address	Signature
My Demo Clinic Fantastic street, 123 08766, Best City +34 666 777 555	

Scalp care and hygiene

Topical treatment

Formula	
Ginseng	2 %
Arginine	1 %
Vitamin E (Tocoferol)	3 %
TrichoWash	**250ml**

Posology
Massage for 2 minutes and rinse

Signature of the prescribing physician	
Dr	
Physician registration No.	
Date	

Address	Signature
My Demo Clinic Fantastic street, 123 08766, Best City +34 666 777 555	

Scalp care and hygiene

Topical treatment

Formula	
Ginseng	2 %
Arginine	1 %
Vitamin E (Tocoferol)	3 %
TrichoCond	**250ml**

Posology
After washing your hair, apply the conditioner and leave it on for 2-3 minutes before rinse.

Signature of the prescribing physician	
Dr	
Physician registration No.	
Date	

Address	Signature
My Demo Clinic Fantastic street, 123 08766, Best City +34 666 777 555	

Scalp care and hygiene

Topical treatment

Formula	
Arginine	1 %
Vitamin E (Tocoferol)	3 %
Ginkgo biloba	2 %
TrichoSerum	**50ml**

Posology
After washing your hair, apply on wet hair.

Signature of the prescribing physician	
Dr	
Physician registration No.	
Date	

Address	Signature
My Demo Clinic Fantastic street, 123 08766, Best City +34 666 777 555	

IV.
Complete data

4.
Complete data
Data from the medical questionnaire

Patient demographics

Gender	**Male**
Age (years)	**47**
Height (cm)	**168**
Weight (kg)	**68**
BMI	**24.09**
Family history of alopecia	**Parents**

Hair loss data

Type of alopecia	**Androgenic alopecia**
Grade of alopecia	**Grade II**
Time elapsed since start of hair loss	**-1**
Prescription of testosterone derivatives	**No**

Norwood-Hamilton Scale

Clinical examination

Amount of hair loss	**Nothing**
Complaints associated with alopecia	**No**
Patchy alopecia	**No**
Current anti-alopecia treatment	**No**
Previous anti-alopecia treatment	**No**

4.
Complete data
Pharmacogenetic results

1. Anti-alopecic drugs

Treatment efficacy with prostaglandin inhibitors

Prostaglandin D2				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
GPR44-1	rs545659 (A>G)	G	GA	Genetic result: Predisposition to slightly higher GPR44 mRNA stability. Interpretation: Prostaglandin D2 receptor 2 (GPR44 or CRTH2) variants are associated with an increased GPR44 mRNA stability leading to an increased responsiveness to prostaglandin D2 and hair follicle regression. Treatment/dosage: Treatment with prostaglandin D2 inhibitors (Cetirizine and/or Prostaquinon) at normal doses would be highly recommended.
GPR44-2	rs533116 (G>A)	A	GA	Genetic result: Predisposition to slightly higher GPR44 mRNA stability. Interpretation: Prostaglandin D2 receptor 2 (GPR44 or CRTH2) variants are associated with an increased GPR44 mRNA stability leading to higher responsiveness to prostaglandin D2 and hair follicle regression. Treatment/dosage: Treatment with prostaglandin D2 inhibitors (Cetirizine and/or Prostaquinon) at normal doses would be highly recommended.

Latanoprost				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
PTGFR-1	rs6686438 (T>G)	G	GG	Genetic result: Increased likelihood of not having a positive response to Latanoprost. Interpretation: Prostaglandin F receptor (PTGFR) variants are related with Latanoprost treatment efficacy (prostaglandin analog) . Treatment/dosage: Treatment with Latanoprost at normal doses is not recommended.
PTGFR-2	rs1328441 (G>A)	A	GG	Genetic result: High likelihood of having a positive response to Latanoprost. Interpretation: Prostaglandin F receptor (PTGFR) variants are related with Latanoprost treatment efficacy (prostaglandin analog) . Treatment/dosage: Treatment with latanoprost at normal doses is highly recommended.
PTGFR-3	rs10782665 (T>G)	G	TT	Genetic result: High likelihood of having a positive response to Latanoprost. Interpretation: Prostaglandin F receptor (PTGFR) variants are related with Latanoprost treatment efficacy (prostaglandin analog) . Treatment/dosage: Treatment with latanoprost at normal doses is highly recommended.

Treatment efficacy with minoxidil

Minoxidil				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
PTGES2	rs13283456 (C>T)	T	**CC**	Genetic result: Predisposition to normal PGE2 levels. Interpretation: Prostaglandin E synthase 2 (PTGES2) variants are associated with lower prostaglandin E2 production (hair growth promoter). Treatment/dosage: SNP analysis does not indicate a necessity to treat with Minoxidil.
SULT1A1	rs9282861 (C>T)	T	**CC**	Genetic result: Predisposition to normal SULT1A activity. Interpretation: Minoxidil Sulfotransferase Enzyme (SULT1A1) variants predict response to minoxidil treatment. Treatment/dosage: Minoxidil at normal doses would be highly recommended.

Treatment efficacy with glucocorticoid anti-inflammatories

Glucocorticoides				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
GR-alpha	rs6198 (A>G)	G	**GA**	Genetic result: Predisposition to moderate resistance to glucocorticoid anti-inflammatory treatments. Interpretation: Glucocorticoid Receptor (GR or NR3C1) variants are associated with resistance or sensitivity to corticosteroids. Treatment/dosage: If glucocorticoid anti-inflammatory treatment is used, doses should be slightly increased or an alternative treatment with non-glucocorticoid anti-inflammatory drugs should be chosen.

Treatment efficacy with antiandrogenics

17-α estradiol				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
CYP19A1	rs2470152 (C>T)	T	**TC**	Genetic result: Predisposition to reduced CYP19A1 activity. Interpretation: Aromatase (CYP19A1) variants are associated to low conversion of testosterone in estrogens and to high conversion into DHT (hair growth inhibitor). Treatment/dosage: Treatment with topical 17-α Estradiol (aromatase inducer) at normal doses is recommended.

Dutasteride				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
SRD5A1	rs39848 (T>C)	C	**TT**	Genetic result: Predisposition to normal SRD5A1 activity. Interpretation: Steroid 5α-Reductase 1 (SRD5A1) variants are associated with reduced SRD5A1 activity leading to increased DHT levels and hair growth inhibition. Treatment/dosage: SNP analysis does not indicate a necessity to treat with dutasteride.

Finasteride				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
SRD5A2	rs523349 (C>G)	G	**CG**	Genetic result: Predisposition to increased SRD5A2 activity leading to increased levels of DHT Interpretation: Steroid 5α-Reductase 2 (SRD5A2) variants are associated with increased SRD5A2 activity leading to increased DHT levels and hair growth inhibition. Treatment/dosage: Treatment with Finasteride at normal doses is recommended.

2. Hair care supplements

Vasodilatation and blood circulation

Circulation stimulators				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
ACE	rs4343 (A>G)	G	**AG**	Genetic result: Predisposition to an increased Angiotensin conversion activity. Interpretation: Angiotensin-converting enzyme (ACE) variants are associated with increased plasma levels of angiotensin 2, an extremely potent vasoconstrictor. Treatment/dosage: Normal doses of circulation stimulators are recommended, such as Minoxidil, caffeine, Ginkgo biloba, Ginseng or Arginine.

Collagen synthesis

Hair strengthening supplements				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
COL1A1	rs1800012 (G>T)	T	**GG**	Genetic result: Predisposition to normal collagen stability. Interpretation: Collagen, type I, alpha 1 (COL1A1) variants are associated with collagen instability. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with hair strengthening composites.

Reduction of IGF-1 levels

Hair strengthening supplements				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
IGF1R	rs2229765 (G>A)	A	**AG**	Genetic result: Predisposition to moderately reduced IGF-1 levels. Interpretation: Insulin-like growth factor-I (IGF-I) variants are associated with lower plasma IGF-1 levels leading to hair loss. Treatment/dosage: A treatment with Igrantine-F1 and TrichoXidil (IGF-1 inducers) at normal doses would be recommended.

3. Vitamin, mineral and antioxidant supplements

Vitamins

Vitamin A

Gene	SNP (transition)	Activating allele	Patient genotype	Pharmacogenetic result
CRABP2	rs12724719 (G>A)	A	GG	Genetic result: Predisposition to normal retinoic acid intracellular transport. Interpretation: Cellular retinoic acid-binding protein 2 (CRABP2) variants are associated with lower retinoic acid (vitamin A) intracellular transport. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with vitamin A.

Vitamin B7

Gene	SNP (transition)	Activating allele	Patient genotype	Pharmacogenetic result
BTD	rs13078881 (G>C)	C	GG	Genetic result: Predisposition to normal biotinidase activity. Interpretation: Biotinidase (BTD) variants are associated with low biotin (vitamin B7) uptake from the diet. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with vitamin B.

Vitamin C

Gene	SNP (transition)	Activating allele	Patient genotype	Pharmacogenetic result
SLC23A1	rs33972313 (C>T)	T	CC	Genetic result: Predisposition to higher vitamin C serum level. Interpretation: Solute carrier family 23 member 1 (SLC23A1) variants are associated with lower serum concentration of vitamin C. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with vitamin C.

Vitamin B9

Gene	SNP (transition)	Activating allele	Patient genotype	Pharmacogenetic result
MTHFR	rs1801133 (G>A)	A	GA	Genetic result: Increased predisposition to folate deficiency. Interpretation: Methylene tetrahydrofolate reductase (MTHFR) variants are associated with risk of folate deficiency. Treatment/dosage: Folate supplementation should be considered.

Vitamin D				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
GC	rs2282679 (T>G)	G	**GT**	Genetic result: Predisposition to slightly lower vitamin D serum level. Interpretation: Vitamin D-binding protein (GC or DBP) variants are associated with lower vitamin D serum level. Treatment/dosage: Supplementation should be considered.

Vitamin B12				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
FUT2	rs602662 (A>G)	G	**AA**	Genetic result: Predisposition to higher vitamin B12 serum level. Interpretation: Galactoside 2-alpha-L-fucosyltransferase 2 (FUT2) variants are associated lower vitamin B12 serum level. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with vitamin B12.

Vitamin E				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
ZPR1	rs964184 (G>C)	C	**CG**	Genetic result: Predisposition to slightly lower serum tocopherol levels. Interpretation: Zinc Finger Protein ZPR1 variants are associated with low serum alpha-tocopherol (vitamin E) levels. Treatment/dosage: Vitamin E supplementation should be considered.

Antioxidants

Antioxidants				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
NQO1	rs1800566 (G>A)	A	**GG**	Genetic result: Predisposition to normal NQO1 enzyme activity. Interpretation: NAD(P)H dehydrogenase [quinone] 1 (NQQ1) variants are associated with lower NQO1 enzyme activity and may have less effective protection against oxidative stress. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with antioxidants.

Minerals

Magnesium				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
MUC1	rs4072037 (T>C)	C	**CT**	Genetic result: Predisposition to intermediate magnesium serum level. Interpretation: Mucin 1, cell surface associated (MUC1) variants are associated with lower magnesium serum level. Treatment/dosage: Magnesium supplementation should be considered.

Zinc sulfate				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
SLC30A3	rs11126936 (T>G)	G	**GT**	Genetic result: Predisposition to higher serum zinc level. Interpretation: Solute carrier family 30 member 3 (SLC30A3) variants are associated with lower zinc blood level. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with Zinc Sulphate.

Iron				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
TMPRSS6	rs855791 (G>A)	A	**TC**	Genetic result: Predisposition to slightly reduced serum levels of tranferrin and iron. Interpretation: Transmembrane protease, serine 6 (TMPRSS6 or matriptase-2) variants are associated with decreased serum levels of transferrin and iron. Treatment/dosage: Supplementation should be considered.

Selenium				
Gene	**SNP (transition)**	**Activating allele**	**Patient genotype**	**Pharmacogenetic result**
DMGDH	rs921943 (T>C)	C	**CT**	Genetic result: Predisposition to higher selenium serum level. Interpretation: Dimethylglycine dehydrogenase (DMGDH) variants are associated with low selenium serum level. Treatment/dosage: SNP analysis does not indicate the necessity to supplement with selenium.

V.
Methodology

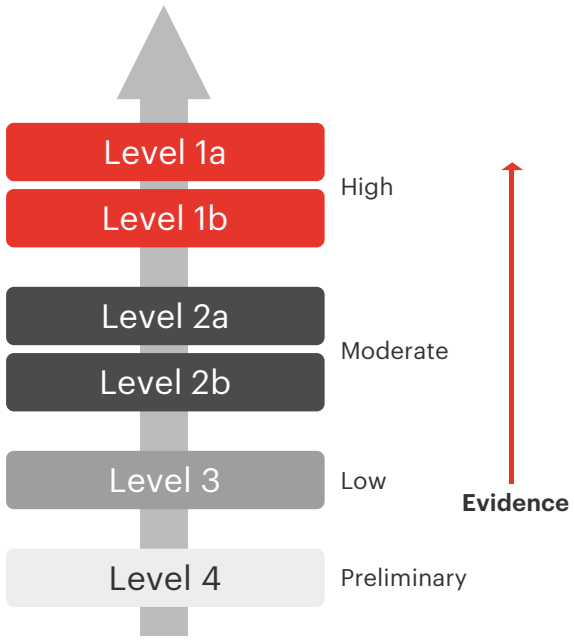
5. Methodology

How were the genetic variants studied selected and evaluated?

The **genetic test** was developed by a multidisciplinary team of medical doctors, pharmacists, geneticists, and programmers, following the highest quality standards. In particular, an expert team specialized in the curation of genetic variants reviewed each variant to ensure that selection, interpretation and impact of variants in the algorithms are based on the highest scientific evidence. Relevant patient's anamnesis (intolerances, diseases, medication, blood pressure, among others) that can affect recommendations was taken into account through medical questionnaires elaborated by health professionals.

- **Level 1A:** Annotation for a variant in medical society-endorsed or implemented in a major health system.
- **Level 1B:** Annotation for a variant where the pre-ponderance of evidence shows an association. The association must be replicated in more than one cohort with significant p-values, and prefera- bly will have a strong effect size.
- **Level 2A:** Annotation for a variant that qualifies for level 2B where the variant is within a Very Import- ant known gene, so functional significance is more likely.
- **Level 2B:** Annotation for a variant with moderate evidence of an association. The association must be replicated but there may be some studies that do not show statistical significance, and/or the ef- fect size may be small.
- **Level 3:** Annotation for a variant based on a single significant (not yet replicated) study or annotation for a variant evaluated in multiple studies but lack- ing clear evidence of an association.
- **Level 4:** Annotation based on a case report, non-significant study or in vitro, molecular or func- tional assay evidence only.

Only variants from level 1a to 2b were selected.



How was this test performed?

DNA was extracted from the buccal swab sample provided and was analyzed by our clinical analysis laboratory. DNA was extracted using the KingFisher Flex® robotic extraction system (Thermo Fisher Scientific). The study of the genetic variants was carried out using a custom-designed microfluidic card to measure for the chemilumines- cent detection of each of them using TaqMan® technology. TaqMan® technology for genotyping testing is proven and widely used in clinical and research settings. The sensitivity (detection limit) of this study is 99%.

genetic test algoritm

The **genetic test** qualitative pharmacogenetic algorithm analyzes single nucleotide polymorphisms(SNPs) associated with metabolic pathways involved in alopecia predisposition and treatment and combines thisdata with relevant patient history to predict treatmen tresponses and recommends the most appropriate activeingredients.

The **genetic test** is an in vitro diagnostic medical device developed by **Fagron Genomics** and marketed underthe CE-IVD mark in conformity with European Directive 98/79/EC and the transitional provisions (article 130) of European Regulation 2017/746.

Fagron Genomics S.L.U.,
SRN: ES-MF-000001092
C/ de les Cosidores, 150
08226 Terrassa, Barcelona (Spain)

What are the limits of this report?

Each genetic marker tested is just one factor that predicts the likelihood of a particular outcome. However, the lifestyle, diet, and environment to which the patient is exposed may impact the expected outcomes. These external factors cannot be taken into account in this report.

The information in this report is not used to diagnose genetic diseases or abnormalities, as it does not predict the risk and likelihood of certain genetic outcomes. It is also not intended to diagnose or cure any disease. The **genetic test** is intended to assist health professionals in making patient-specific care decisions regarding the treatment or prevention of androgenetic alopecia, areata alopecia, and telogen effluvium.

Our clinical laboratory has standard and effective procedures to protect against technical and operational problems. However, problems may occur in the shipment to the laboratory or in the handling of the sample, including, but not limited to, damage to the sample, mislabeling, and loss or delay in receiving the sample. In such cases, the medical laboratory may need to request a new sample.

As with all medical laboratory tests, there is a small chance that the laboratory may provide inaccurate information.

It is the responsibility of the professional who requests a test from us to guarantee the interested party appropriate genetic counseling in accordance with Law 14/2007, of July 3, on Biomedical Research.

Fagron Genomics S.L.U. declines all responsibility derived from the use and interpretation of the results of our tests by the requesting health professional.

Fagron Genomics S.L.U. does not access data identifying the patient from whom the sample comes, so it is also the responsibility of the requesting professional to comply with the applicable data protection regulations.

VI.
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