RESULTS REPORT

PATIENT IDENTIFICATION

NFGI00011 (TEST1)

Sample Code:	T21-I00011	**Request date:**	03/01/2021
Analysis #	0001	**Entry date:**	03/03/2021

REQUESTING DOCTOR:

CTS Demo Doctor

Hospital/Clinic:

CTS NFG DEMO

SUMMARY TABLE

An initial interpretation of the results obtained from the patients genetic profile is displayed in a table below. For each drug examined, the result is indicated according to the following code:

- No genetic variants relevant to the treatment have been found. Use as directed.
- Need for drug dose monitoring and/or less likelihood of positive response.
- Increased likelihood of positive response and/or lower risk of adverse drug reactions.
- Increased risk of adverse drug reactions.

Antidepressants					
Agomelatine		Amitriptyline		Bupropion	
Citalopram		Clomipramine		Desipramine	
Desvenlafaxine		Doxepin		Duloxetine	
Escitalopram		Fluoxetine		Fluvoxamine	
Imipramine		Mianserin		Mirtazapine	
Nortriptyline		Paroxetine		Sertraline	
Trazodone		Trimipramine		Venlafaxine	
Vortioxetine					

Antipsychotics					
Aripiprazole		Brexpiprazole		Clozapine	
Haloperidol		Iloperidone		Lurasidone	
Olanzapine		Paliperidone		Perphenazine	
Pimozide		Quetiapine		Risperidone	
Thioridazine		Zuclopenthixol			

Stabilizers and anticonvulsants					
Carbamazepine		Clonazepam		Eslicarbazepine	
Lamotrigine		Levetiracetam		Lithium*	
Oxcarbazepine		Phenobarbital		Phenytoin	
Topiramate		Valproic Acid		Vigabatrin	
Zonisamide					

Anxiolytics / Hypnotics					
Alprazolam		Buspirone		Clobazam	
Eszopiclone		Lorazepam		Zolpidem	

Others					
Amphetamines		Atomoxetine		Lisdexamfetamine	
Methadone		Methylphenidate		Naloxone	
Naltrexone					

* According to the ATC code, Lithium is considered an antipsychotic (N05AN01). By request of the physicians, the classification of lithium in the table has been modified and it is shown in the mood stabilizers section.

RESULTS

This section contains the detailed list of drugs with the associated genetic results and interpretation. When different genetic results indicated in different colors occur at the same time for a given drug, the resulting color in the summary table will follow this safety priority rule: risk of adverse drug reactions (red) > dose monitoring (amber) > increased likelihood of positive response and/or lower risk of adverse drug reactions (green). The final evaluation of the analysis results is at the physician´s discretion.

Pharmacogenetics

DRUG	RESULTS AND INTERPRETATION
Agomelatine	***Analysis result:*** Ultrarapid metabolizer of the drug (*CYP1A2*). ***Interpretation:*** The patient carries a variant that has been associated with an increased drug metabolism (CYP1A2). Therefore, he/she may experience a lower exposure to the drug.
Alprazolam	***Analysis result:*** No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes. ***Interpretation:*** Use as directed.
Amitriptyline	***Analysis result:*** Ultrarapid metabolizer of the drug (*CYP2D6*). ***Interpretation:*** The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Consider an alternative drug not metabolized by this pathway. If this drug is warranted, consider increasing the recommended starting dose.[1] Use therapeutic drug monitoring to guide dose adjustments[3].
Amphetamines	***Analysis result:*** Ultrarapid metabolizer of the drug (*CYP2D6*). ***Interpretation:*** The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Aripiprazole

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. If needed, increase the drug dosage.

Atomoxetine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Be alert to reduced efficacy or select alternative drug.

Brexpiprazole

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore, use as directed and titrate dose in response to efficacy and adverse drug events.

Bupropion

Analysis result:

Reduced metabolism of the drug (*CYP2B6*).

Interpretation:

The patient carries a variant that has been associated with reduced metabolism of the drug (CYP2B6), therefore a dose adjustment may be necessary.

Buspirone

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Carbamazepine

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Citalopram

Analysis result:

Higher likelihood of positive response to treatment (*BDNF*).

Interpretation:

The analysis indicates the presence of factors associated with a higher likelihood of positive response to treatment (BDNF), and therefore, if applicable, use of this drug is recommended in preference to other similar alternatives.

Clobazam

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Clomipramine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Consider an alternative drug not metabolized by this pathway. If this drug is warranted, consider increasing the recommended starting dose.[1] Use therapeutic drug monitoring to guide dose adjustments[3].

Clonazepam

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Clozapine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Desipramine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Consider an alternative drug not metabolized by this pathway. If this drug is warranted, consider increasing the recommended starting dose.[1] Use therapeutic drug monitoring to guide dose adjustments[3].

Desvenlafaxine

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Doxepin

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Consider an alternative drug not metabolized by this pathway. If this drug is warranted, consider increasing the recommended starting dose.[1] Use therapeutic drug monitoring to guide dose adjustments[3].

Duloxetine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there are no clinical data about the effect of this genotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Escitalopram

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Eslicarbazepine

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Eszopiclone

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Fluoxetine

Analysis result:

- Higher likelihood of positive response to treatment (*BDNF*).
- Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates the presence of factors associated with a higher likelihood of positive response to treatment (BDNF). Moreover, the analysis indicates the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Fluvoxamine

Analysis result:

- Higher likelihood of positive response to treatment (*BDNF*).
- Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates the presence of factors associated with a higher likelihood of positive response to treatment (BDNF). Moreover, the analysis indicates the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there are no clinical data about the effect of this genotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Haloperidol

Analysis result:

- Ultrarapid metabolizer of the drug (*CYP2D6*).
- Low risk of developing extrapyramidal symptoms (*AKT1-DDIT4-FCHSD1-RPTOR*).

Interpretation:

The analysis indicates that the patient has a low risk of developing extrapyramidal symptoms (AKT1-DDIT4-FCHSD1-RPTOR), therefore consider treatment with either a first or second generation antipsychotic as directed on the drug label. In addition, the analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Adjust maintenance dose in response to haloperidol plasma concentration or select an alternative drug.

Iloperidone

Analysis result:

- Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Imipramine

Analysis result:

- Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Consider an alternative drug not metabolized by this pathway. If this drug is warranted, consider increasing the recommended starting dose.[1] Use therapeutic drug monitoring to guide dose adjustments[3].

Lamotrigine

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Levetiracetam

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Lisdexamfetamine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Lithium

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Lorazepam

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Lurasidone

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Methadone

Analysis result:

Reduced metabolism of the drug (*CYP2B6*).

Interpretation:

The patient carries a genotype associated with a reduction of methadone metabolism and clearance, increasing its plasma concentrations and therefore the risk of toxicity. Furthermore, carriers of this genotype in treatment with methadone for heroin addiction may require a decreased dose for effective treatment.

Methylphenidate

Analysis result:

Higher likelihood of positive response to treatment (*COMT*).

Interpretation:

The analysis indicates there is a higher likelihood of positive response to treatment (COMT), and therefore, if applicable, use of this drug is recommended in preference to other similar alternatives.

Mianserin

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Mirtazapine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. This phenotype has been associated with increased clearance of the drug. Use as directed and titrate dose in response to efficacy and adverse drug events.

Naloxone

Analysis result:

Higher likelihood of positive response to treatment (*OPRM1*).

Interpretation:

The analysis indicates there is a higher likelihood of positive response to treatment (OPRM1), and therefore, if applicable, use of this drug is recommended in preference to other similar alternatives.

Naltrexone

Analysis result:

Higher likelihood of positive response to treatment (*OPRM1*).

Interpretation:

The analysis indicates there is a higher likelihood of positive response to treatment (OPRM1), and therefore, if applicable, use of this drug is recommended in preference to other similar alternatives.

Nortriptyline

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Consider an alternative drug not metabolized by this pathway. If this drug is warranted, consider increasing the recommended starting dose.[1] Use therapeutic drug monitoring to guide dose adjustments[3].

Olanzapine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP1A2*).

Interpretation:

The analysis suggests that the patient metabolizes the drug faster than average (CYP1A2), and therefore a higher dose than standard is recommended.

Oxcarbazepine

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Paliperidone

Analysis result:

Low risk of developing extrapyramidal symptoms (*AKT1-DDIT4-FCHSD1-RPTOR*).

Interpretation:

The analysis indicates that the patient has a low risk of developing extrapyramidal symptoms (AKT1-DDIT4-FCHSD1-RPTOR), therefore consider treatment with either a first or second generation antipsychotic as directed on the drug label.

Paroxetine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Increased risk of drug-related adverse effects (*HTR2A*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Select an alternative drug not predominantly metabolized by this pathway. In addition, the analysis also indicates an increased risk of developing drug-related adverse effects (HTR2A). Therefore, select an alternative drug or use reduced doses.

Perphenazine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Phenobarbital

Analysis result:

- The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Phenytoin

Analysis result:

- The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).
- Intermediate metabolizer of the drug (*CYP2C9*).

Interpretation:

The analysis indicates that the patient is a CYP2C9 intermediate metabolizer of this drug. Consider using a standard loading dose. Reduce maintenance dose by 25%. Evaluate response and serum concentration after 7-10 days. Be alert to adverse drug events such as ataxia, nystagmus, dysarthria or sedation. On the other hand, the patient may display pharmacoresistance (ABCB1), and thus it may be preferable to use another drug.

Pimozide

Analysis result:

- Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Quetiapine

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Risperidone

Analysis result:

- Ultrarapid metabolizer of the drug (*CYP2D6*).
- Low risk of developing extrapyramidal symptoms (*AKT1-DDIT4-FCHSD1-RPTOR*).

Interpretation:

The analysis indicates that the patient has a low risk of developing extrapyramidal symptoms (AKT1-DDIT4-FCHSD1-RPTOR), therefore consider treatment with either a first or second generation antipsychotic as directed on the drug label. In addition, the analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Select an alternative drug or be extra alert to decreased efficacy and titrate dose in response to clinical effect.

Sertraline

Analysis result:

Higher likelihood of positive response to treatment (*BDNF*).

Interpretation:

The analysis indicates the presence of factors associated with a higher likelihood of positive response to treatment (BDNF), and therefore, if applicable, use of this drug is recommended in preference to other similar alternatives.

Thioridazine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this phenotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Topiramate

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Trazodone

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Trimipramine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Consider an alternative drug not metabolized by this pathway. If this drug is warranted, consider increasing the recommended starting dose.[1] Use therapeutic drug monitoring to guide dose adjustments[3].

Valproic Acid

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Venlafaxine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Select an alternative drug or titrate dose to a maximum of 150% of the normal dose in response to efficacy and adverse drug events.

Vigabatrin

Analysis result:

The patient carries a variant that has been associated with resistance to antiepileptic drugs in adult patients under polymedication (*ABCB1*).

Interpretation:

Consider starting treatment with standard dose (ABCB1) and, in case of pharmacoresistance, evaluate the need for dose increase or change of drug always at the discretion of the physician.

Vortioxetine

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. However, there is no evidence suggesting a clinical effect of this genotype; therefore use as directed and titrate dose in response to efficacy and adverse drug events.

Zolpidem

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Zonisamide

Analysis result:

No variations related to response and/or metabolism that are different from the population standard were found in the analyzed genes.

Interpretation:

Use as directed.

Zuclopenthixol

Analysis result:

Ultrarapid metabolizer of the drug (*CYP2D6*).

Interpretation:

The analysis indicates that the patient is a CYP2D6 ultrarapid metabolizer of this drug. Be alert to low zuclopenthixol plasma levels or select alternative drug.

The following clarifications apply only to tricyclic antidepressants, provided that they are referenced in the text of the recommendation:

(1) Patients may receive a low TCA starting dose, which will be increased over a number of days until the recommended steady-state dose has been reached. The starting dose in these guidelines refers to the recommended steady-state dose.

(3) Dosage recommendations apply to high starting doses, used in the treatment of conditions such as depression. For conditions in which this drug is used in lower doses, like neuropathic pain, there is also a risk of inefficacy for ultrarapid metabolizers; alternative agents should therefore also be considered.

Folic Acid Conversion

GENE	RESULT AND INTERPRETATION
MTHFR	***Analysis result:*** Reduced MTHFR enzyme activity. ***Interpretation:*** The patient carries the T allele of the *MTHFR* C677T polymorphism in homozygosis. This genotype has been associated with reduced MTHFR enzyme activity, significantly reduced serum folate levels, and elevated serum homocysteine levels. L-methylfolate may be a preferred option of folate supplementation if clinically indicated.

PATIENT'S METABOLIZING PROFILE		
Gene	**Diplotype**	**Predicted Phenotype**
CYP1A2	*1F/*1F	Ultrarapid metabolizer
CYP2B6	*6/*6	Poor metabolizer
CYP2C9	*1/*2	Intermediate metabolizer
CYP2C19	*1/*1	Normal metabolizer
CYP2D6	(*1/*1)x3	Ultrarapid metabolizer
CYP3A4	*1/*1	Normal metabolizer

FOLIC ACID CONVERSION		
Gene	**Genotype**	**Predicted Phenotype**
***MTHFR* (C677T)**	T/T	Reduced MTHFR enzyme activity

GENETIC RESULTS		
Gene	**Variant**	**Genotype**
ABCB1	rs11983225	T/T
ABCB1	rs2235048	G/G
AL157359	rs75222709	T/T
AL157359	rs78015114	T/T
BDNF	p.Val66Met	C/T
CES1	p.Gly143Glu	C/C
COMT	p.Val158Met	G/G
DDIT4	rs1053639	T/T
EPHX1	p.Tyr113His	T/T
FCHSD1	rs456998	G/T
GRIK2	rs2518224	A/A
GRIK4	rs1954787	C/T
HLA-A	rs1061235	A/A
HTR2A	c.-1438G>A	C/C
HTR2A	rs9316233	C/G
HTR2C	rs1414334	G/G
LPHN3	rs6551665	A/A
MTHFR	C677T	T/T
OPRM1	c.118A>G	A/G
RPTOR	rs7211818	A/A
SLC6A4	5HTTLPR	L/L
UGT2B15	D85Y	A/C

Test information

Genotyping of single nucleotide polymorphisms (SNPs) included in the Neuropharmagen® genetic analysis was performed by OpenArray® Technology (Thermo Fisher Scientific). Analysis of *SLC6A4* was performed by polymerase chain reaction (PCR) followed by capillary electrophoresis of PCR products. *CYP2D6* copy number analysis was performed using real-time PCR. The following genetic variants may be detected in this assay: *ABCB1* NG_011513.1:g.186045A>G, NG_011513.1:g.209054C>T, *AL157359* NC_000021.9:g.18955109T>G, NC_000021.8:g.20312612T>C, *BDNF* p.Val66Met (NM_170735.5:c.196G>A), *CES1* p.Gly143Glu (NM_001025194.1:c.428G>A), *COMT* p.Val158Met (NM_000754.3:c.472G>A), *CYP1A2* -163C>A (NG_008431.2:g.32035C>A), *CYP2B6* *1, *6 (NG_007929.1:g.20638G>T), *CYP2C19* *1, *2 (NM_000769.3:c.681G>A), *3 (NM_000769.3:c.636G>A), *4 (NM_000769.3:c.1A>G), *5 (NM_000769.3:c.1297C>T), *6 (NM_000769.3:c.395G>A), *7 (NM_000769.1:c.819+2T>A), *8 (NM_000769.3:c.358T>C), *9 (NM_000769.3:c.431G>A), *10 (NM_000769.3:c.680C>T), *17 (NM_000769.2:c.-806C>A), *27 (NM_000769.2:c.-1041A>G); *CYP2C9* *1, *2 (NM_000771.3:c.430C>T), *3 (NM_000771.3:c.1075A>C), *5 (NM_000771.3:c.1080C>G), *6 (NM_000771.3:c.818delA), *8 (NM_000771.3:c.449G>A), *11 (NM_000771.3:c.1003C>T), *27 (NM_000771.3:c.449G>T), *CYP2D6* *1, *2 (NM_000106.5:c.886C>T; c.1457G>C), *3 (NM_000106.5:c.775delA), *4 (NM_000106.5:c.506-1G>A; c.100C>T; c.1457G>C), *5 (gene deletion), *6 (NM_000106.5:c.454delT), *7 (NM_000106.5:c.971A>C), *8 (NM_000106.5:c.505G>T), *9 (NM_000106.5:c.841_843delAAG), *10 (NM_000106.5: c.100C>T; c.1457G>C), *11 (NM_000106.5:c.181-1G>C), *12 (NM_000106.5:c.124G>A), *14 (NM_000106.5:c.505G>A), *15 (NM_000106.5:c.137dup), *17 (NM_000106.5:c.320C>T), *19 (NM_000106.5:c.765_768delAACT), *29 (NM_000106.5:c.1012G>A), *34, *35 (NM_000106.5:c.31G>A; c.886C>T; c.1457G>C; NG_008376.3:g.2617C>G), *36, *36-*10, *39, *40, *41 (NM_000106.5:c.985+39G>A; c.886C>T; c.1457G>C), *69 (NM_000106.5: c.100C>T; c.985+39G>A; c.886C>T; c.1457G>C), gene duplication and multiplication, *CYP3A4* *1, *22 (NM_017460.5:c.522-191C>T), *DDIT4* (NM_019058.3:c.*95T>A), EPHX1 p.Tyr113His (NM_000120.3:c.337T>C), *FCHSD1* (NM_033449.2:c.1311+176C>A), *GRIK2* (NG_009224.2:g.64748A>C), *GRIK4* (NG_042194.1:g.285909T>C), *HLA-A* (NG_029217.2:g.8057A>T), *HTR2A* c.-1438G>A (NM_000621.4:c.-998G>A), NG_013011.1:g.42815G>C, *HTR2C* NG_012082.2:g.324497C>G), *LPHN3/ADGRL3* (NG_033950.2:g.677568G>A), *OPRM1* p.Asn40Asp (NM_001008504.3:c.118A>G), *RPTOR* (NG_013034.1:g.175279A>G), *SLC6A4* 5HTTLPR, *UGT2B15* *1, *2 (NM_001076.3:c.253T>G).

Report generation date: 03/08/2021

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Pharmacogenetic report generated at **AB-BIOTICS S.A.**
Genetic analysis carried out at **ATRYS HEALTH** • c/Provença, 392 PB • 08025 Barcelona
Healthcare authorization registration code E08838522.
Our laboratory has a Quality Management System certified by ENAC, accreditation 1029/LE2012.

For any further information about the analysis, please do not hesitate to contact us:
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Legal notice

This report is intended for physicians only. The Neurofarmagen genetic analysis cannot be considered in any case by the prescribing physician as a substitute for his or her prescriptive activity or for the required medical surveillance in any treatment to their patients. It is the sole responsibility of the prescribing physician to make treatment decisions based on the individual characteristics of the patient, of the drug prescribed and a comprehensive interpretation of the report.

The results are derived from genetic information and research-based association studies published to date, highlighting therefore the probability that there are additional genetic factors not included in the analysis or even other factors currently undescribed not covered by this report. Also, it is possible that the information related to the medications currently listed can be modified or extended by reason of developments arising from scientific research in this field.

For information purposes, it is noteworthy that the response to drugs can be affected by non-genetic factors such as age, sex, weight, height, treatments and concomitant diseases, among others. Also, the information contained in this report should be considered by the prescribing physician as part of a whole evaluation, integrating and contextualizing the pharmacogenetic information provided by the analysis with potential drug interactions and the medical history and drug history of the patient.