

# my Pharma

*Advanced pharmacogenomic test based on clinical guidelines*



It has been estimated that genetics may account for 20–95% of variability in drug disposition and effects in the organism<sup>1</sup>

**Genetic variants in certain genes may impact the persons' ability to metabolize specific drugs, increasing or decreasing the efficacy or exposing the patient to adverse events.**

### What is myPharma?

It is a pharmacogenomic test based on international clinical guidelines to adapt the patient's drug prescription based on the genetic makeup. It is clinically useful for many medical areas.

### What does the test include?

Comprehensive report including the analysis of specific variants in 25 genes related to the metabolism, efficacy or toxicity of 129 active ingredients. The report includes brief recommendations based on clinical guidelines.

### Who is it for?

myPharma is for everyone. The genetic analysis is performed once in a lifetime, and it is useful for both current and future drug prescriptions. It is particularly indicated for patients on multiple medications.

\*CPIC: Clinical Pharmacogenetics Implementation Consortium

\*\*DPWG: Dutch Pharmacogenetics Working Group

### Why prescribe myPharma?

The test provides relevant information to adapt medical prescription in order to:

- Reduce or avoid adverse effects of medication.
- Select the most effective medication and dosage for each patient.
- Reduce time and resources finding the most appropriate medication for the patient.
- Provide a lifetime personalized drug prescription.

### Based on most relevant guidelines

myPharma has been developed according to the most updated international pharmacogenomic guidelines such as CPIC\* or DPWG\*\*. Only genes and medications with high level of evidence are included in the report.

### What is the sample type?

Saliva or blood sample in a kit provided by iGenetx.

**The percentage of hospital admissions due to adverse drug reactions is around 3.5%.<sup>2</sup>**

### Genes included on myPharma

myPharma is based on whole exome sequencing (WES) and the subsequent analysis of specific variants in the following genes:

ABCG2	CYP3A	HLA-DRB1
ADRB2	5	IFNL3 MT-
CACNA1S	CYP4F2	RNR1
CYP2B6	FDY5	NAT2
CYP2C19	G6PD	NUDT15
CYP2C9	HLA-A	SLCO1B1
CYP2D6	HLA-B	TPMT
CYP3A4	HLA-DQA1	UGT1A1

Average percentage of patients for whom a certain type of drug is ineffective:

### Antidepressants (SSRIs)



### Oncology



1. Evans WE, McLeod HL. Pharmacogenomics — Drug Disposition, Drug Targets, and Side Effects. *N Engl J Med.* 2003;348(6):538-49. 2. Bouvy JC, De Bruin ML, Koopmanschap MA. Epidemiology of Adverse Drug Reactions in Europe: A Review of Recent Observational Studies. *Drug Saf.* 2015;38(5):437-53. 3. Spear BB, Heath-Chiozzi M, Huff J. Clinical application of pharmacogenetics. *Trends Mol Med.* 2001;7(5):201-4.

# myPharma through life



## Pain Medicine: Ibuprofen

Clinical manifestation: *Moderate pain / fever*

Drug prescription: *Ibuprofen*

Gene involved: *CYP2C9 \*2/\*6*

Phenotype: *Poor metabolizer*

*Poor metabolizer Risk of adverse events*  
Reduce dose

*Intermediate metabolizer*  
Reduce dose /  
Label dosage \*

*Normal metabolizer*  
Label dosage

\* The recommendations for intermediate metabolizers depend on the activity score.



## Psychiatry: Paroxetine

Clinical manifestation: *Anxiety / Depression* Drug

prescription: *Paroxetine* Gene involved: *CYP2D6*

*\*1/\*1x2* Phenotype: *Ultrarapid metabolizer*

*Poor metabolizer Risk of adverse events*  
Reduce dose

*Normal metabolizer*  
Label dosage

*Ultrarapid metabolizer*  
*Risk of therapeutic failure*  
Alternative agent  
(e.g. Citalopram)



## Obstetrics / Gynecology: Estrogen Hormonal Contraceptives

Clinical manifestation: *Birth control*

Drug prescription: *Estrogen hormonal contraceptives*

Gene involved: *F5 (rs6025)*

Phenotype: *Increased risk of thrombosis*

*Standard risk of thrombosis*  
Standard prescription

*Moderate risk of thrombosis*  
Alternative agent

*High risk of thrombosis*  
Alternative agent



### Oncology: Tamoxifen

Clinical manifestation: *Breast cancer*

Drug prescription: *Tamoxifen*

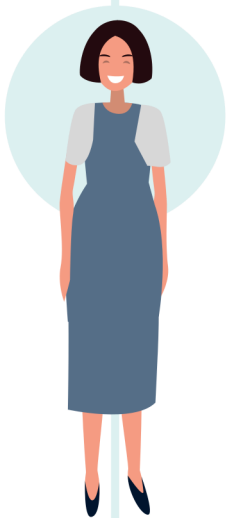
Gene involved: *CYP2D6 \*1/\*1x2*

Phenotype: *Ultrarapid metabolizer*

*Poor metabolizer* Risk of  
the therapeutic failure  
Alternative agent

*Normal  
metabolizer*  
Label dosage

***Ultrarapid metabolizer***  
Label dosage



### Endocrinology: Allopurinol

Clinical manifestation: *Acute episode of gout*

Drug prescription: *Allopurinol*

Gene involved: *HLA-B \*58:01*

Phenotype: *Drug hypersensitivity (Stevens-Johnson syndrome)*

*Absence of risk  
variant*  
Standard  
prescription

***Presence of risk  
variant***  
**Alternative agent**

*Ultrarapid metabolizer*  
Risk of therapeutic failure  
Alternative agent (e.g.  
Citalopram)



### Cardiology: Simvastatin

Clinical manifestation: *High LDL-cholesterol*

Drug prescription: *Simvastatin*

Gene involved: *SLCO1B1 \*1/\*15*

Phenotype: *Reduced activity (Statin-Associated Myopathy)*

***Reduced activity***  
***Higher risk of myopathy***  
**Alternative  
agent**

***Normal  
activity***  
**Label dosage**

***Increased  
activity***  
**Label dosage**

## Medical areas / Drugs



### Cardiovascular

Atorvastatin, Clopidogrel, Flecainide, Fluvastatin, Hydralazine, Lovastatin, Metoprolol, Pitavastatin, Pravastatin, Propafenone, Rosuvastatin, Simvastatin



### Endocrinology

Allopurinol, Eliglustat, Pegloticase, Toluidine blue



### Gastroenterology

Dexlansoprazole, Lansoprazole, Metoclopramide, Omeprazole, Ondansetron, Pantoprazole, Tolterodine, Tropisetron



### Hematology

Acenocoumarol, Clopidogrel, Methylene blue, Phenprocoumon, Warfarin



### Infectious Diseases & Immune Disorders

Abacavir, Amikacin, Atazanavir, Azathioprine, Dapsone, Dibekacin, Efavirenz, Flucloxacillin, Gentamicin, Isoniazid, Kanamycin, Neomycin, Netilmicin, Nevirapine, Paromomycin, Peginterferon alfa-2a, Peginterferon alfa-2b, Plazomicin, Primaquine, Ribostamycin, Streptomycin, Sulfamethoxazole / Trimethoprim, Tafenoquine, Tobramycin, Voriconazole



### Neurology

Amifampridine, Carbamazepine, Clobazam, Deutetrabenazine, Dextromethorphan / Quinidine, Fosphenytoin, Lamotrigine, Oxcarbazepine, Phenytoin, Pitolisant, Siponimod, Tetrabenazine, Valbenazine



### Obstetrics / Gynecology

Estrogen hormonal contraceptives



### Oncology

Capecitabine, Dabrafenib, Fluorouracil, Irinotecan, Lapatinib, Mercaptopurine, Rasburicase, Sacituzumab govitecan-hziy, Tamoxifen, Tegafur, Thioguanine



### Ophthalmology

Methazolamide



### Pain Medicine

Articaine, Celecoxib, Codeine, Desflurane, Dihydrocodeine, Enflurane, Flurbiprofen, Halothane, Hydrocodone, Ibuprofen, Isoflurane, Lornoxicam, Meloxicam, Methoxyflurane, Oliceridine, Oxycodone, Piroxicam, Sevoflurane, Succinylcholine, Tenoxicam, Tramadol



### Psychiatry

Amitriptyline, Aripiprazole, Atomoxetine, Brexpiprazole, Citalopram, Clomipramine, Clozapine, Desipramine, Dextromethorphan hydrobromide / Bupropion hydrochloride, Doxepin, Escitalopram, Fluvoxamine, Haloperidol, Iloperidone, Imipramine, Methadone, Nortriptyline, Paroxetine, Pimozide, Quetiapine, Risperidone, Sertraline, Thioridazine, Trimipramine, Venlafaxine, Vortioxetine, Zuclopenthixol



### Pulmonology

Salmeterol



### Transplantation Medicine

Azathioprine, Tacrolimus

## About iGenetx

*At iGenetx, we are pioneers in genetic testing and personalized health solutions. Founded with the vision of bringing genetic science closer to everyday health, we are Egypt's pioneers in DNA-driven wellness.*

*Using state-of-the-art technologies and the highest safety standards, iGenetx helps individuals, healthcare professionals and institutions worldwide to understand and anticipate genetic risks, enabling more informed and proactive health decisions. With a focus on innovation and accessibility, iGenetx transforms the way we understand and care for health at every stage of life*

**iGenetx technology allows the re-analysis of the genetic data to perform additional WES based tests or future pharmacogenomics updates under better conditions.**

# iGenetx

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