Dr.Omics Labs
The Doctor of your DNA

# PHARMAGENIE

YOUR DNA ROADMAP TO SAFER, MORE EFFECTIVE MEDICATIONS

www.dromicslabs.com

# NURTURING VITALITY WITH INDIVIDUALIZED HEALTHCARE

In the world of healthcare, **personalized medicine (PM)** shines like a superhero cape, acknowledging that each person is a one-of-a-kind masterpiece, molded by their very own genetic blueprint.....!!

Research has unequivocally demonstrated that **an individual's response to a particular drug can be influenced by their genetic makeup**. However, when it comes to prescribing medications, **doctors typically rely on broader factors such as age and weight ONLY!!!** This approach, while pragmatic, can lead to a certain degree of trial and error.

**PM, in contrast, tailors medical approaches to an individual's genetic makeup. !!!!**

**The International Consortium for Personalized Medicine (ICPerMed)** envisions a future where PM becomes an integral part of clinical practice by 2030. To achieve this, robust investment in research, innovation, and technological development is essential. By embracing PM, we can pave the way for a healthcare landscape that truly prioritizes individual needs and well-being.

# WIDESPREAD VARIABILITY IN DRUG METABOLISM AFFECTS OUR POPULATION.

Asians, due to genetic variations in CYP2C19, may metabolize certain drugs poorly. CYP2C19 is a prevalent hepatic enzyme that metabolizes at least 10% of all commonly prescribed drugs.

CYP gene mutations affect Different doses of SSRI antidepressants, cancer drugs, and others may be necessary.

CYp2C19 mutations also affects drugs like clopidogrel, increasing the risk of adverse effects (such as heart attack or stroke).

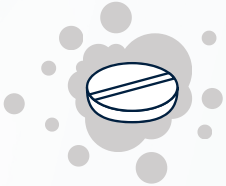
Genetic background can have adverse events after drug consumption ranging from from altered drug efficacy to severe skin reactions.

## Pharmacogenomic testing can mitigate these risks!!!

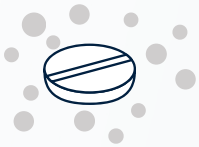
# How your DNA can guide you to Drug Therapy..?

## How medications work depends on your genes

Approximately 99% of people have genetic variations affecting how they respond to medications, potentially causing inefficacy or adverse reactions.



Medications might be **metabolized rapidly** and eliminated from the body before they have a chance to take effect.



Medications can accumulate in the body if they are **metabolized too slowly**, leading to potential side effects.

People might experience **side effects** or unintended reactions to medication.

## Administering the appropriate medication, in the correct dosage, at the optimal time

**PHARMA** + **CO** + **GENOMICS**

pharmacogenomics \fär-me-kō-jē-ho-miks

*noun*

**Pharmacogenomics (PGx)** involves utilizing an individual's genetic profile to recommend the most effective treatment at the correct dosage, ensuring personalized care for you.

## Which conditions show the greatest potential for pharmacogenomics?

**Cancer treatment:** Targeted therapies focus on precisely attacking cancer cells while minimizing damage to healthy cells.

**Pain and psychiatric treatment:** These medications must strike a balance between effectiveness and side effects.

**Transplants:** Immunosuppressants prevent the body from rejecting a transplant, but they can also leave patients susceptible to infection or rejection.

## Exploring the Future of Pharmacogenomics and Its Impact on You.

**Physicians** are creating genetic profiles for patients to anticipate responses and tailor medication choices and dosages.

**Researchers** delve into the DNA of both healthy and diseased cells, constructing genetic profiles and documenting drug efficacy in conditions such as cancer and depression.

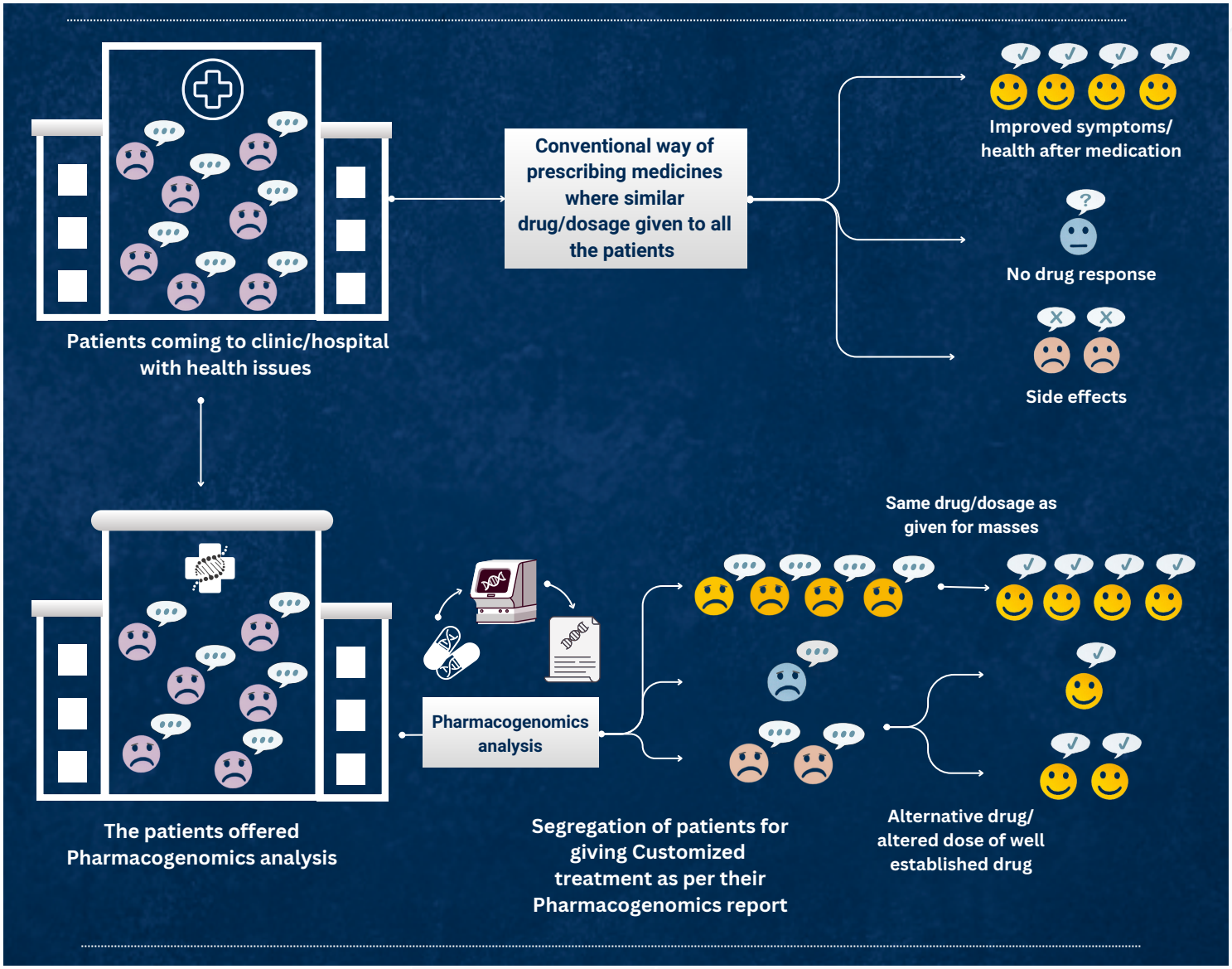
Pharmacogenomic (PGx) information, **accessible anytime and anywhere**, should be an integral part of every individual's medical record, enabling healthcare professionals to customize treatment regardless of location.

# INTRODUCING PHARMAGENIE

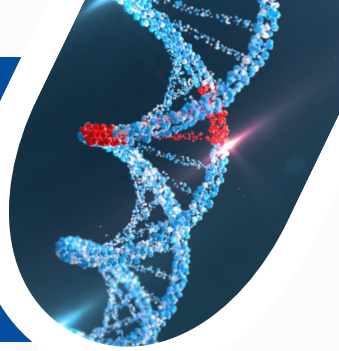
## Your DNA Roadmap to Safer, More Effective Medications

**PharmaGenie**, a precision pharmacogenomics test, examines over 45 drugs and drug classes to assess your unique drug metabolism. Its results reveal whether you respond differently to these medications and whether certain drugs may trigger adverse reactions based on your genomic profile. Remarkably, this single test remains valid throughout your entire lifetime!

**Assess your response to 90+ drugs/drug classes** **Covering 14 Therapeutic Areas**



# WHAT PHARMAGENIE CAN TELL?



**Predicts how an individual will respond to specific medications**

**Identifies genetic variations affecting drug metabolism**

**Determines optimal drug dosages for personalized treatment**

**Minimizes adverse drug reactions based on genetic factors**

**Guides physicians in prescribing medications tailored to genetic profiles**

**Note:** Your healthcare provider takes into account various factors, including your age, lifestyle, other medications, and overall health, when determining the most suitable treatment. Always consult your doctor before initiating, discontinuing, or adjusting medication doses

## What makes PharmaGenie different?

- **DrOmics Labs** adheres to the latest guidelines from the Clinical Pharmacogenetics Implementation Consortium (CPIC) , The Dutch Pharmacogenetics Working Group (DPWG) and PharmaGKB.
- PharmaGenie focuses exclusively on drugs with strong evidence, as per established guidelines. We do not report on drugs lacking sufficient evidence.
- Our analysis targets genes falling into the **actionable PGx (pharmacogenomics) categories A and B**, where testing is either recommended or required. CPIC recommends 18 genes, with a total of **684 unique alleles**.

# WE PROFILE FOR 90+ DRUGS / DRUG CLASSES WITH STRONG LEVEL OF EVIDENCE

| Therapeutic Area | Diseases / Phenotypes | Drug |
|---|---|---|
| Anesthesiology | Pain, Postoperative | Fentanyl |
| | Pain | Codeine, Hydrocodone |
| | Malignant Hyperthermia | Desflurane |
| | Malignant Hyperthermia | Isoflurane |
| | Malignant Hyperthermia | Sevoflurane |
| | Malignant Hyperthermia | Desflurane; Enflurane; Halothane; Isoflurane; Methoxyflurane; Sevoflurane; Succinylcholine |
| | Malignant Hyperthermia | Desflurane; Enflurane; Halothane; Isoflurane; Methoxyflurane; Sevoflurane; Succinylcholine |
| | Malignant Hyperthermia | Succinylcholine (1) |
| | pain, cardiotoxicity; Respiratory Insufficiency | Tramadol |
| Cardiology | Cardiovascular Diseases | Clopidogrel |
| | Heart Failure; Hypertension | Metoprolol |
| | statin-related myopathy | Pravastatin |
| | Essential Hypertension; Hypertension | Hydrochlorothiazide |
| | Statin-Related Myopathy | HMG COA reductase inhibitors |
| | Over-Anticoagulation | Acenocoumarol, Phenprocoumon |
| | Atrial Fibrillation | acenocoumarol |
| | Arrhythmias, Cardiac;Tachycardia | Propafenone |

| Therapeutic Area | Diseases / Phenotypes | Drug |
|---|---|---|
| Dermatology | Drug Hypersensitivity;drug reaction with eosinophilia and systemic symptoms;Leprosy;Maculopapular Exanthema;severe cutaneous adverse reactions;Stevens-Johnson Syndrome | Dapsone (1) |
| | Angioedema | Ace Inhibitors, Plain |
| | Epidermal Necrolysis, Toxic;Epilepsy;severe cutaneous adverse reactions;Stevens-Johnson Syndrome | Lamotrigine |
| | Epidermal Necrolysis, Toxic;Stevens-Johnson Syndrome | Nevirapine |
| | Epidermal Necrolysis, Toxic;Stevens-Johnson Syndrome | Methazolamide |
| | Neoplasms | Fluorouracil (1) |
| Endocrinology | statin-related myopathy | Rosuvastatin |
| Gastroenterology | Gastroesophageal Reflux | Lansoprazole |
| | Gastroesophageal Reflux | Omeprazole |
| | Vomiting | Ondansetron |
| | drug-induced liver injury;Hepatitis, Toxic;Toxic liver disease;Tuberculosis | Drugs For Treatment Of Tuberculosis; Isoniazid |
| | Diarrhea | FOLFIRI;irinotecan |
| | Helicobacter Infections;Ulcer | Pantoprazole |
| Hematology | Hemorrhage, Atrial Fibrillation;heart valve replacement, over-anticoagulation, Cardiovascular Diseases | Warfarin (1) |
| | Hemorrhage, Atrial Fibrillation;heart valve replacement, over-anticoagulation, Cardiovascular Diseases | Warfarin (2) |
| | Hemorrhage, Atrial Fibrillation;heart valve replacement, over-anticoagulation, Cardiovascular Diseases | Warfarin (3) |
| | Hemorrhage | Acenocoumarol |
| | Hemorrhage, Atrial Fibrillation;heart valve replacement, over-anticoagulation, Cardiovascular Diseases | Warfarin (4) |

| Therapeutic Area | Diseases / Phenotypes | Drug |
|---|---|---|
| Infectious Diseases | Drug Hypersensitivity;HIV Infections | Abacavir |
| | HIV Infections;Hyperbilirubinemia | Dasabuvir, Ombitasvir, Paritaprevir, and Ritonavir |
| | HIVINFECTION | Efavirenz |
| | HIV Infections;Hyperbilirubinemia | Ombitasvir, Paritaprevir, and Ritonavir |
| | Hepatitis C;HIV Infections, Anemia;Hepatitis C, Chronic | Peginterferon Alfa-2b |
| | Epidermal Necrolysis, Toxic;Stevens-Johnson Syndrome | Sulfamethoxazole and Trimethoprim (1) |
| | Epidermal Necrolysis, Toxic;Stevens-Johnson Syndrome | Sulfamethoxazole and Trimethoprim (2) |
| | Ototoxicity | Amikacin |
| | Ototoxicity | Gentamicin |
| | Ototoxicity | Aminoglycoside antibacterials |
| | Ototoxicity | Streptomycin |
| | Hepatitis C, Chronic | Boceprevir |
| | Hepatitis C, Chronic | Interferons, Ribavirin |
| | HIV infections | Nevirapine |
| | Nutropenia | FOLFIRI; Irinotecan |
| | Ototoxicity | Kanamycin |
| | Hepatitis | Peginterferon alfa-2a; Peginterferon alfa-2b; Ribavirin |
| | Ototoxicity | Tobramycin |
| Neurology | Drug reaction with eosinophilia and systemic symptoms;Epidermal Necrolysis, Toxic;Maculopapular Exanthema;severe cutaneous adverse reactions;Stevens-Johnson Syndrome | Carbamazepine (1) |
| | Epilepsy | Fosphenytoin (1) |
| | Epilepsy | Fosphenytoin (2) |
| | Stevens-Johnson Syndrome | Oxcarbazepine |
| | Epilepsy | Phenytoin (1) |
| | drug reaction with eosinophilia and systemic symptoms;Epidermal Necrolysis, Toxic;severe cutaneous adverse reactions;Stevens-Johnson Syndrome | Phenytoin (2) |
| | Epilepsy | Phenytoin (3), Carbamazepine |

| Therapeutic Area | Diseases / Phenotypes | Drug |
|---|---|---|
| Oncology | Drug Hypersensitivity;drug reaction with eosinophilia and systemic symptoms;Epidermal Necrolysis, Toxic;severe cutaneous adverse reactions;Stevens-Johnson Syndrome | Allopurinol |
| | Neoplasms | Capecitabine (1) |
| | Neoplasms | Capecitabine (2) |
| | Neoplasms | Capivasertib (1) |
| | Neoplasms | Capivasertib (2) |
| | Neoplasms | Capivasertib (3) |
| | Neoplasms | Capivasertib (4) |
| | Neoplasms | Capivasertib (5) |
| | Adenocarcinoma;Carcinoma, Non-Small-Cell Lung;Drug Resistance;Lung Neoplasms | Erlotinib |
| | Neoplasms | Fluorouracil (2) |
| | Carcinoma, Non-Small-Cell Lung, | Gefitinib (1) |
| | Leukopenia;Neutropenia, Precursor Cell Lymphoblastic Leukemia-Lymphoma | Mercaptopurine (1) |
| | Leukopenia;Neutropenia, Precursor Cell Lymphoblastic Leukemia-Lymphoma | Mercaptopurine (2) |
| | Hemolysis;Methemoglobinemia | Rasburicase (1) |
| | Arthritis, Rheumatoid;Neuromyelitis Optica | Rituximab |
| | Breast Neoplasms | Tamoxifen (1) |

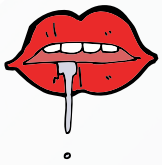
| Therapeutic Area | Diseases / Phenotypes | Drug |
|---|---|---|
| Psychiatry | Depressive Disorder | Amitriptyline |
| | Psychotic Disorders;schizoaffective disorder;Schizophrenia | Aripiprazole |
| | Attention Deficit Disorder with Hyperactivity | Atomoxetine |
| | Depressive Disorder;Depressive Disorder, Major | Citalopram (1) |
| | Depressive Disorder | Citalopram (2) |
| | Mental Disorders | Clomipramine |
| | Depressive Disorder, Major;Mental Disorders | Desipramine |
| | Depressive Disorder, Major;Mental Disorders | Escitalopram (1) |
| | Depressive Disorder | Fluvoxamine |
| | Depressive Disorder | Imipramine |
| | Mental Disorders,major | Nortriptyline |
| | Psychotic Disorders;Schizophrenia | Risperidone |
| | Mental Disorders | Trimipramine |
| | Agitation;Alcohol-Related Disorders;cardiotoxicity;Depression;Depressive Disorder;Depressive Disorder, Major;Drug Toxicity;dysphoria;Edema;Nausea;Obsessive-Compulsive Disorder;Tachycardia;Vomiting | Venlafaxine |
| Pulmonary | Cystic Fibrosis | Ivacaftor |
| | Cystic Fibrosis | Ivacaftor and Lumacaftor |
| | Asthma | Salmeterol, Aspirin |
| | Cystic Fibrosis | Ivacaftor and Tezacaftor |
| Rheumatology | Inflammatory Bowel Diseases;Myelosuppression, | Azathioprine (1) |
| | Arthritis, Juvenile Rheumatoid;Arthritis, Psoriatic;Arthritis, Rheumatoid;Drug Toxicity | Methotrexate |

| Therapeutic Area | Diseases / Phenotypes | Drug |
|---|---|---|
| **Transplantation** | Heart transplantation; Hematopoietic stem cell transplantation; Kidney Transplantation; Lung transplantation | Tacrolimus |
| | Liver transplantation | Tacrolimus |
| | Heart transplantation; Hemopoietic stem cell transplant; Kidney transplantation; Liver transplantation; Lung transplantation | Tacrolimus |
| | Hypercholesterolemia | Rosuvastatin |
| | Liver transplantation | Tacrolimus |
| | Liver transplantation | Tacrolimus |
| | Drug-induced liver injury | Flucloxacillin |
| | Drug Toxicity | Sorafenib |
| **Addiction** | Heroin Dependence;Opioid-Related Disorders | Methadone |
| | Alcoholism | Ethanol |
| | Tobacco use disorder | Nicotine |

# WHO SHOULD GET THIS TEST DONE?

- **Individuals Starting or Taking Medications:** If you are beginning or currently using any of the drugs we cover (please refer to the complete list on our website), this service is relevant for you.
- **Known Adverse Drug Reactions:** Individuals who have experienced adverse reactions to medications in the past, or those with a family history of such reactions, should consider our services.
- **Lack of Treatment Efficacy:** If you feel that your treatment involving any of our covered drugs is not yielding the desired results, our personalized medicine approach can provide valuable insights.
- **Patients on Multiple Medications:** For patients managing multiple medications concurrently, our testing can help optimize drug choices and dosages.
- **Elderly Patients:** Elderly individuals who are starting or already taking specific medications (such as blood thinners, opioids, phenytoin, etc.) are at higher risk of hospitalization due to these drugs. Our testing can enhance safety and effectiveness.
- **Health-Conscious Individuals:** Anyone interested in proactive testing and maintaining a useful report for the future can benefit from our services.

# HOW PHARMAGENIE WORKS?



## 1

**Sample Collection:** You need to give your saliva sample.

## 2

**State-of-the-Art Lab:** Your sample is processed in our advanced laboratory.

## 3

**Analysis and Report:** We analyze the sample to generate your personalized drug response report.

## 4

**Timely Delivery:** Expect your report within 12 working days.

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