



## GUIDELINE-BASED DECISION SUPPORT

The Pharmacogenomics Laboratory uses CPIC (Clinical Pharmacogenomics Implementation Consortium) guidelines to help clinicians understand how genetic results should be used to optimize drug therapy.

## CONSULTATIVE SERVICES AVAILABLE

The Pharmacogenomics Laboratory partners with the Clinical Pharmacology service and a consultation service is available to evaluate genotype, drug-drug, and drug-environment interactions. Clinical consultations can also be provided to assess risk of adverse drug reactions with the goal of providing an individual pharmacogenomic plan.

## ADVANTAGES OF PHARMACOGENOMIC TESTING

- Improve patient care
- Customize treatment plans for patients
- Minimize adverse side effects
- Help predict how a patient will respond to a specific drug
- Determine a patient's unique drug metabolizing capacity
- Prescribe a drug regimen with a greater probability of a positive outcome
- Suggest safer doses and/or alternatives
- Save patient time and money
- Reduce treatment failures
- Prescribe with more confidence
- Save healthcare dollars

## Pharmacogenomics Laboratory

Division of Diagnostic Genomics

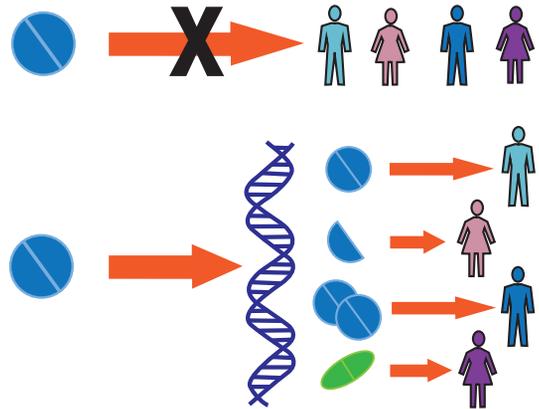
Department of Medical and Molecular Genetics

School of Medicine

## WHAT IS PHARMACOGENOMICS?

Pharmacogenomics is the study of genetic variation that gives rise to differing responses to drugs.

When it comes to medications, **one size does not fit all.**



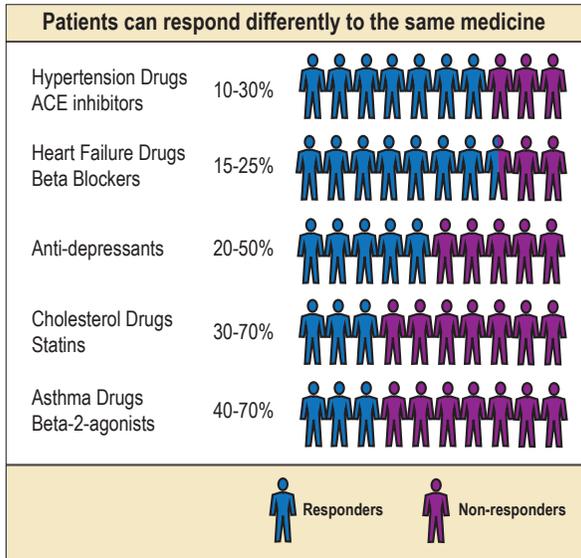
The advancement of genetic research has led to far greater understanding of the importance of genetics in drug metabolism. Personalized medicine uses genetic information, lifestyle behavior, and other risk factors to tailor medical decisions and treatments to individuals. Thus, pharmacogenomics provides additional knowledge that helps physicians better prescribe a drug regimen with a greater probability of a positive outcome.

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## VARIABLE RESPONSE TO DRUGS



## WHICH INDIVIDUALS MIGHT BENEFIT FROM PHARMACOGENOMIC TESTING?

- Those taking multiple medications
- Those whose current prescriptions are not working
- Those on complex drug treatment plans
- Those with previous adverse drug reactions (ADRs) to medications
- Those prescribed any of the FDA-approved drugs where pharmacogenomic information is included in black box warning of the drug/medication.

## WHAT ARE THE POSSIBLE TEST RESULTS?

- Extensive (normal) Metabolizer
- Intermediate Metabolizer
- Poor Metabolizer
- Ultra-rapid Metabolizer

## CLINICAL TESTING

Common Drug Targets*	Gene Test
efavirenz, methadone	CYP2B6 Genotyping
phenytoin, warfarin, glyburide	CYP2C9 Genotyping
ametryptiline, clopidogrel, voriconazole	CYP2C19 Genotyping
ametryptiline, atomoxetine, codeine, nortriptyline, doxepin	CYP2D6 Genotyping
ticagrelor, fluvoxamine	CYP3A4 Genotyping
tacrolimus	CYP3A5 Genotyping
warfarin	CYP4F2 Genotyping
5-fluorouracil	DPYD Genotyping
dapsone, rasburicase	G6PD Genotyping
abacavir	HLA-B*57:01 Genotyping
pegylated interferon azathioprine, mercaptopurine,	IL28B (INFL3) Genotyping
thioguanine, ribavirin	ITPA Genotyping
simvastatin	SLCO1B1 Genotyping
azathioprine, mercaptopurine, thioguanine	TPMT Genotyping
warfarin	VKORC1 Genotyping
*Not all inclusive list	

The Pharmacogenomics Laboratory offers test results for 15 different genes; with a total of 47 clinically significant variants. Individual test results for each gene can be ordered. A panel testing all 15 genes may be ordered as well as individual gene tests.