Pharmacogenomic Testing at ARUP Laboratories

Leverage genetic testing to predict a patient's response to a drug and achieve therapeutic efficacy.

ARUP LABORATORIES

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Pharmacogenomic Testing

Prevents Adverse Reactions

Genotype-guided treatment using pharmacogenomics significantly reduces the incidence of clinically relevant adverse drug reactions.[1]

Reduces Cost

Systematic review of studies that assessed the cost-effectiveness of pharmacogenomic testing for drugs with existing recommendations based on genetic markers concluded that pharmacogenomic testing was either cost-effective or cost saving.[2]

Expedites Therapeutic Success

- Accelerates time to therapeutic success with biomarker-guided therapy
- Improves patient compliance with drug therapy

"At ARUP, we provide affordable, high-throughput pharmacogenomic testing based on genes with the highest level of evidence. Our priority is to provide results that will effectively help clinicians manage their patients' treatment plans."

—Sherin Shaaban, MD, PhD, FACMG, Medical Director of Pharmacogenomics and Molecular Genetics

A recent study[3] involving members of the Kentucky Teachers Retirement System found that using pharmacogenomic testing resulted in a:

6.8%
reduction in emergency department visits

14.9%
reduction in inpatient visits

$218.34
reduction in direct medical charges (per member, per month)

$7,000
reduction in direct medical charges per patient in a 32-month period

$37 million
in cumulative savings in a 32-month period

WHY CHOOSE ARUP?

ARUP provides pharmacogenomic testing for most high-level evidence gene-drug pairs with actionable clinical guideline recommendations.

Expert Consultation

Consult with our medical directors on test selection and results interpretation.

Clinical Relevance

Access testing that is curated for maximum clinical relevance and includes genes with the highest levels of evidence.

Enhanced Reporting*

Opt for additional reporting that provides drug-dosing guidelines based on your patient's genetic profile.

*Available on select tests

PHARMACOGENOMIC TESTING AVAILABLE AT ARUP

ARUP TEST CODE AND NAME	GENES OR ALLELES ASSESSED
3004255 Cytochrome P450 Genotyping Panel, with GeneDose Access	*CYP2B6, CYP2C19, CYP2C8, CYP2C9, CYP2D6, CYP3A4,* and *CYP3A5*
3006366 Pharmacogenetics Panel: Psychotropics, with GeneDose Access	*ANKK1, COMT, CYP2B6, CYP2C19, CYP2C9, CYP2D6, CYP3A4, CYP3A5, DRD2, GRIK4, HTR2A, HTR2C, MTHFR, OPRM1,* and *UGT2B15*
3001524 Cytochrome P450 Genotyping Panel	*CYP2B6, CYP2C19, CYP2C8, CYP2C9, CYP2D6, CYP3A4,* and *CYP3A5*
3004471 Pharmacogenetics Panel: Psychotropics	*ANKK1, COMT, CYP2B6, CYP2C19, CYP2C9, CYP2D6, CYP3A4, CYP3A5, DRD2, GRIK4, HTR2A, HTR2C, MTHFR, OPRM1,* and *UGT2B15*
3001513 *CYP2D6*	*CYP2D6*
3001501 *CYP2C8*, *CYP2C9*, and *CYP2C* cluster	*CYP2C8, CYP2C9,* and *CYP2C*
3001508 *CYP2C19*	*CYP2C19*
3001518 *CYP3A4* and *CYP3A5*	*CYP3A4* and *CYP3A5*
2012166 Dihydropyrimidine Dehydrogenase (*DPYD*), 3 Variants	*DYPD*
3001535 *TPMT* and *NUDT15*	*TPMT* and *NUDT15*
3001541 Warfarin Sensitivity (*CYP2C9*, *CYP2C* cluster, *CYP4F2*, *VKORC1*) Genotyping	*CYP2C9, CYP2C* cluster, *CYP4F2, VKORC1*
0051684 Glucose-6-Phosphate Dehydrogenase (*G6PD*) 2 Mutations	*G6PD*
3004457 Glucose-6-Phosphate Dehydrogenase Deficiency (*G6PD*) Sequencing	*G6PD*
2002429 HLA-B*57:01 for Abacavir Sensitivity	HLA-B*57:01
2012049 HLA-B*15:02 Genotyping, Carbamazepine Hypersensitivity	HLA-B*15:02
2008767 Opioid Receptor, mu *OPRM1*, 1 Variant	*OPRM1*
2008426 *SLCO1B1*, 1 Variant	*SLCO1B1*
0051332 UDP Glucuronosyltransferase 1A1 (*UGT1A1*) Genotyping	*UGT1A1*

References

1. Jarvis JP, et al. Real-world impact of a pharmacogenomics-enriched comprehensive medication management program. *J Pers Med*. 2022;12(3):421.
2. Swen JJ, et al. A 12-gene pharmacogenetic panel to prevent adverse drug reactions: an open-label, multicentre, controlled, cluster-randomised crossover implementation study. *Lancet*. 2023;401(10374):347–56.
3. Morris SA, et al. Cost effectiveness of pharmacogenetic testing for drugs with Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines: a systematic review. *Clin Pharmacol Ther*. 2022;112(6):1318–28.

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ARUP is a nonprofit enterprise of the University of Utah and its Department of Pathology.