Pharmacogenomic Testing at ARUP Laboratories

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





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Pharmacogenomic Testing

Prevents Adverse Reactions

Genotype-guided treatment using pharmacogenomic testing significantly reduces the incidence of clinically relevant adverse drug reactions.

Reduces Cost

Systematic review of studies that assessed the costeffectiveness 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

14.9%

"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, MSci, FACMG, Medical Director of Pharmacogenomics and Molecular Genetics

A recent study³ involving members of the Kentucky Teachers Retirement System found that using pharmacogenomic testing resulted in a:



6.8%

reduction in reduction in inpatient visits emergency department visits



\$218.34

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



reduction in direct medical charges per patient in a 32-month period

\$7,000



\$37 million

in cumulative savings in a 32-month period



WHY CHOOSE ARUP?

guideline recommendations.

Expert Consultation

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

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	DPYD
3001535 <i>TPMT</i> and <i>NUDT15</i>	TPMT and NUDT15
3001541 Warfarin Sensitivity (<i>CYP2C9, CYP2C</i> cluster, <i>CYP4F2, VKORC1</i>) 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 <i>OPRM1</i> , 1 Variant	OPRM1
2008426 <i>SLC01B1</i> , 1 Variant	SLC01B1
0051332 UDP Glucuronosyltransferase 1A1 (UGT1A1) Genotyping	UGT1A1

References

- multicentre, controlled, cluster-randomised crossover implementation study. Lancet. 2023;401(10374):347-356.
- Implementation Consortium (CPIC) guidelines: a systematic review. Clin Pharmacol Ther. 2022;112(6):1318-1328.
- program. J Pers Med. 2022;12(3):421.

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

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 for select tests

1. Swen JJ, van der Wouden CH, Manson LE, et al. A 12-gene pharmacogenetic panel to prevent adverse drug reactions: an open-label,

2. Morris SA, Alsaidi AT, Verbyla A, et al. Cost effectiveness of pharmacogenetic testing for drugs with Clinical Pharmacogenetics

3. Jarvis JP, Peter AP, Keogh M, et al. Real-world impact of a pharmacogenomics-enriched comprehensive medication management



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



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