



Pharmacogenetics in Pain Management

A Personalized Approach to Pain Management

Variations in a patient's response to pain medication may be explained or predicted by pharmacokinetics and/or pharmacodynamics:

- What the body does to the drug, such as metabolic activation or inactivation.
- How the body responds to the drug.

Reasons to Consider Pharmacogenetic Testing

Pre-therapeutic:

- Aids in determining which drugs to avoid or when non-standard drug doses may be predicted; consensus guidelines are available through the Clinical Pharmacogenetics Implementation Consortium: www.pharmbkb.org/page/cpic.
- Identifies patients at increased risk of drug intolerance and drug-drug interactions.

Post-therapeutic:

- Aids in explaining an adverse event and/or therapeutic failure; best interpreted in conjunction with quantitative drugs tests.

See below for examples of pharmacogenetics tests available at ARUP Laboratories.

Test Code	Pharmacogenetics Target	Examples of Applicable Drugs*
2013098	Cytochrome P450 Genotype Panel A physician-friendly, electronic enhanced report is available for this panel.	Drugs metabolized by <i>CYP2D6</i> , <i>CYP2C9</i> , <i>CYP2C19</i> , and <i>CYP3A5</i>
2012740	Cytochrome P450 3A5 Genotyping (<i>CYP3A5</i>) 2 Variants	Immunosuppressants, antibiotics, antivirals, benzodiazepines, steroids
0051232	Cytochrome P450 2D6 (<i>CYP2D6</i>) 14 Variants and Gene Duplication	Tamoxifen, alpha-blockers, beta blockers, norepinephrine reuptake inhibitors, stimulants
2012769	Cytochrome P450 2C19 (<i>CYP2C19</i>) 9 Variants	Clopidogrel, phenytoin, diazepam, R-warfarin, tamoxifen
2012766	Cytochrome P450 2C9 (<i>CYP2C9</i>) 2 Variants	Warfarin, tolbutamide, glipizide, ibuprofen, phenobarbital
2008767	Opioid Receptor, Mu (<i>OPRM1</i>) Genotype, 1 Variant	Morphine, naltrexone
0051332	UDP Glucuronosyltransferase 1A1 (<i>UGT1A1</i>) Genotyping	Acetaminophen, buprenorphine, ibuprofen, morphine

* Other classes of medications may also be affected by variant drug metabolism.

For more information, visit:

WWW.ARUPLAB.COM/PAIN-MANAGEMENT/PHARMACOGENETICS

500 Chipeta Way | Salt Lake City, UT 84108 | Phone: (800) 522-2787 | www.aruplab.com

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