

# SANFORD PHARMACOGENETICS PANEL

# LIST OF MEDICATIONS

Pharmacogenomics (PGx) is the study of how genes affect the way a body breaks down or processes some medications. Medication processing can be controlled by more than one gene. Sanford includes testing for PGx genes based on clinically supported data. The level of scientific support can vary depending on the medication and genes. The Clinical Pharmacogenetic Implementation Consortium (CPIC) and the Food and Drug Administration (FDA) continuously evaluate clinical data to update its list of gene and medication interactions.

Your PGx results may guide your doctor in selection of medication or dose of medication dose when starting certain commonly prescribed medications. PGx analysis is not available for all medications. PGx results alone will not tell you exactly how you will respond to a medication as other factors also influence how you respond to medications. For individuals with established care at Sanford Health, a pharmacist will review your PGx results and contact your doctor with any recommendations. Your test results are also stored in your medical record for future use.

**You should not stop taking your medications or make any changes to your medications without consulting your doctor first as this can seriously affect your health.**

Medication Use	Examples	Gene(s) Tested
Mental Health and Nerve Pain	atomoxetine, amitriptyline, citalopram, clomipramine, desipramine, doxepin, escitalopram, fluvoxamine, imipramine, nortriptyline, paroxetine, trimipramine, vortioxetine, venlafaxine, aripiprazole, brexpiprazole, iloperidone, pimozone	<i>CYP2D6</i> <i>CYP2C19</i>
Pain - opioids	codeine and tramadol	<i>CYP2D6</i>
Pain - NSAIDs	celecoxib, flurbiprofen, ibuprofen, meloxicam, piroxicam	<i>CYP2C9</i>
Heartburn Stomach upset	dexlansoprazole, lansoprazole, omeprazole, pantoprazole, metoclopramide	<i>CYP2C19</i>
High cholesterol	atorvastatin, rosuvastatin, simvastatin	<i>SLCO1B1</i> <i>ABCG2</i>
Cancer Lupus Crohn's disease	azathioprine, mercaptopurine, thioguanine	<i>TPMT</i> <i>NUDT15</i>
Cancer	capecitabine and fluorouracil	<i>DPYD</i>
Platelet inhibitor	clopidogrel	<i>CYP2C19</i>
Blood thinner	warfarin	<i>CYP4F2</i> <i>CYP2C9</i> <i>VKORC1</i>
Immunosuppressant	tacrolimus	<i>CYP3A5</i>
Anti-Infective	abacavir, efavirenz, voriconazole	<i>CYP2C19</i> <i>CYP2B6</i> <i>HLA-B 57:01</i>
Anti-seizure	fosphenytoin, phenytoin, clobazam	<i>CYP2C9</i>
Other	deutetrabenazine, eliglustat, sponimod, tetrabenazine, pitolisant, valbenazine	<i>CYP2D6</i> <i>CYP2C9</i> <i>CYP2C19</i>

**References:**

Clinical Pharmacogenetics Implementation Consortium (CPIC)  
 FDA Table of Pharmacogenetic Associations Sections 1-3