AUSTRALIAN Clinicalabs

Pharmacogenetics (PGx)
For Psychiatrists

Recommended by Guidelines, pharmacotherapeutic genotyping is one of multiple pieces of information that psychiatrists should consider when making their therapeutic choice for each patient. Preemptive use of testing could significantly optimise drug outcomes and be particularly useful for patients undergoing multiple treatments or experiencing poor drug responses. See below a selection of pharmacogenetic (PGx) tests that may be useful for your practice. *To view our full PGx offering, scan the QR code below.*

Clinical Labs' Comprehensive PGx Gene Panel

Clinical Labs' **Comprehensive PGx Gene Panel** includes a family of enzymes that catalyse the metabolism of many drugs and xenobiotics, particularly in areas such as mental health, cardiology, pain management, and oncology - providing clinicians with comprehensive information to help determine the most appropriate treatment for each individual. With our Comprehensive PGx Gene Panel, you will receive a comprehensive report that will indicate the genotype and the predicted phenotypes, such as the metaboliser status along with potential drug-gene interaction and Guidelines' recommendations. Please specify any medications of interest if you want them to be included in the report. The genes can be ordered separately or together - for individual genes, only genotyping/phenotyping will be reported. *See reverse for a list of genes tested and examples of drugs metabolised.*

Genes included in our Comprehensive PGx Panel
CYP2D6
CYP2C19
CYP2C9
CYP3A4
CYP3A5
CYP1A2
VKORC1
SLCO1B1

Anti-Depressants Predictor & Anti-Psychotics Predictor

CYP2D6 is the primary enzyme responsible for the metabolism of many commonly-used medications especially in mental health. *CYP2D6* alleles have been extensively studied in multiple geographically, racially, and ethnically diverse groups, and significant differences in allele frequencies have been observed. When considering antidepressant therapy such as tricyclic anti-depressants (TCAs), analysis of the *CYP2C19* and *CYP2D6* genes is often considered (Attia et al., 2014 and Hicks et al., 2017).

Anti-Depressants Predictor
CYP2D6
CYP2C19

Anti-Psychotics Predictor
CYP2D6

Ordering Pharmacogenetic Testing at Clinical Labs

- **When to order:** At the time of drug prescribing and dispensing for patients with genotypes that require action, such as dose reductions.
- **What to put on the request form:** Fill out our routine Clinical Labs request form, list the gene required or group of genes and prescribed medications if available.
- **Turnaround time:** Results within 7-10 business days from the sample receipt date.
- **Specimen details:** 2x EDTA blood samples.
- **Test cost:** Genes can be ordered separately or together. Apart from the *TPMT* gene, an out-of-pocket fee applies. For more information and pricing, scan QR or visit clinicallabs.com.au/pharmacogenetictesting.

Comprehensive Pharmacogenetic (PGx) Testing Gene Panel
Examples of drugs metabolised and genes tested

Medication	Gene(s)
Cardiology	
Carvedilol	CYP2D6
Clopidogrel	CYP2C19
Flecainide	CYP2D6
Metoprolol	CYP2D6
Warfarin	VKORC1, CYP2C9
Lipid Lowering Medication	
Atorvastatin	SLCO1B1, CYP3A4
Fluvastatin	SLCO1B1, CYP2C9
Lovastatin	SLCO1B1
Pitavastatin	SLCO1B1
Pravastatin	SLCO1B1
Rosuvastatin	SLCO1B1
Simvastatin	SLCO1B1
Gastroenterology	
Anti-Emetic	
Metoclopramide	CYP2D6
Ondansetron	CYP2D6
Tropisetron	CYP2D6
Proton Pump Inhibitors	
Esomeprazole	CYP2C19
Lansoprazole	CYP2C19
Omeprazole (Losec)	CYP2C19
Pantoprazole	CYP2C19
Rabeprazole	CYP2C19
Mental Health	
Anti-ADHD	
Atomoxetine	CYP2D6
Anti-Depressants (MOAs)	
Moclobemide	CYP2C19
Anti-Depressants (SNRIs)	
Venlafaxine	CYP2D6
Anti-Depressants (SSRIs)	
Citalopram	CYP2C19
Escitalopram	CYP2C19
Fluvoxamine	CYP2D6
Paroxetine	CYP2D6
Sertraline (Zoloft)	CYP2C19

Medication	Gene(s)
Mental Health	
Anti-Depressants (TCAs)	
Amitriptyline	CYP2D6, CYP2C19
Clomipramine	CYP2D6, CYP2C19
Desipramine	CYP2D6, CYP2C19
Doxepin	CYP2D6, CYP2C19
Imipramine	CYP2D6, CYP2C19
Nortriptyline	CYP2D6
Trimipramine	CYP2D6, CYP2C19
Anti-Depressants (Other)	
Vortioxetine	CYP2D6
Anti-Psychotics	
Aripiprazole	CYP2D6
Brexpiprazole	CYP2D6
Haloperidol	CYP2D6
Quetiapine	CYP3A4
Risperidone	CYP2D6
Zuclopenthixol	CYP2D6
Benzodiazepines (Anxiolytics)	
Clobazam	CYP2C19
Diazepam (Valium)	CYP2C19

Please note that this is a guide for gene selection. The test is not intended to cover possible allergies to certain drugs. Due to a lack of evidence, some specific medications may not be reported even if they are part of the same drug class that is metabolised by the relevant gene.

Medication	Gene(s)
Neurology	
Anti-Dementia	
Donepezil	CYP2D6
Galantamine	CYP2D6
Anti-Epileptics	
Phenytoin/ Fosphenytoin	CYP2C9
Multiple Sclerosis	
Siponimod	CYP2C9
Oncology	
Gefitinib	CYP2D6
Tamoxifen	CYP2D6
Organ Transplant	
Tacrolimus	CYP3A5
Pain Management	
NSAIDs	
Celecoxib	CYP2C9
Flurbiprofen	CYP2C9
Ibuprofen	CYP2C9
Piroxicam	CYP2C9
Meloxicam	CYP2C9
Opioids	
Codeine (prodrug)	CYP2D6
Dihydrocodeine	CYP2D6
Tramadol	CYP2D6
Urology	
Darifenacin	CYP2D6
Mirabegron	CYP2D6
Tamsulosin	CYP2D6
Tolterodine	CYP2D6
Anti-Fungal	
Voriconazol	CYP2C19

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