



Sonic PGx

Making medicines personal

Personalise your patient's medication

Information for Doctors

Pharmacogenomic (PGx) testing allows you to personalise your patient's medication according to their genetic variation. This has been shown to improve clinical outcomes by enhancing therapeutic efficacy and improving clinical safety.^{1,2}

The Sonic PGx Panel

The Sonic PGx Panel is a 10-gene pharmacogenomic test that provides guidance on medication and dose across common therapeutic areas, including cardiology, gastroenterology, pain management, and psychiatry and addiction medicine.

While the Sonic PGx Panel is available to all Australians, it is most useful for patients:

- Experiencing unwelcome side-effects or not responding to medication; or
- About to commence medications where PGx has been shown to influence clinical outcomes.

The genes tested on the Sonic PGx Panel are CYP2D6, CYP2C19, CYP1A2, CYP3A4, CYP3A5, CYP2C9, VKORC1, ABCB1, OPRM1 and SLCO1B1.

Sonic PGx Panel reporting

Clinically relevant and ready-to-use

Sonic Genetics, in collaboration with an internationally-recognised interpretive service, Translational Software, provides an evidence-based and clinically applicable report, incorporating recommendations from expert pharmacogenomic groups and associations in an easy-to-read format.

The report includes:

- Prescribing recommendations for current or proposed medications
- Genotypes, predicted metaboliser/activity status and potential drug-gene interactions
- The evidence level supporting the PGx guidance

PGx guidance is intended as additional clinical information doctors can utilise to explain or preempt potential medication-related problems and inform prescribing decisions.

Arranging a Sonic PGx Panel

- 1 Complete a Pharmacogenomic (PGx) Panel Request Form or request the 'Sonic PGx Panel' using your Melbourne Pathology request form. Maximise the value from the PGx test by providing information regarding your patient's clinical state and current or proposed medications.
- 2 Send your patient to any Melbourne Pathology collection centre for a blood test.
- 3 Sonic PGx Panel reports are delivered via Sonic Dx or courier, usually within 10 business days following receipt of the sample in our laboratory.

Cost

Medicare does not cover the cost of the Sonic PGx Panel and your patient will receive an invoice. Please refer to the Sonic Genetics website, www.sonicgenetics.com.au/pgx, for current pricing.



PGx guidance is available in the Sonic PGx Panel report for the following medications:

Cardiology

Medication	Gene(s)
Atorvastatin	CYP3A4, SLCO1B1
Carvedilol	CYP2D6
Clopidogrel	CYP2C19
Flecainide	CYP2D6
Fluvastatin	CYP2C9, SLCO1B1
Irbesartan	CYP2C9
Losartan	CYP2C9
Metoprolol	CYP2D6
Nebivolol	CYP2D6
Pitavastatin	SLCO1B1
Pravastatin	SLCO1B1
Propranolol	CYP2D6
Rosuvastatin	SLCO1B1
Simvastatin	CYP3A4, SLCO1B1
Timolol	CYP2D6
Warfarin	CYP2C9, VKORC1

Diabetes

Medication	Gene(s)
Glimepiride	CYP2C9
Glipizide	CYP2C9

Gastroenterology

Medication	Gene(s)
Dolasetron	CYP2D6
Esomeprazole	CYP2C19
Granisetron	ABCB1
Lansoprazole	CYP2C19
Metoclopramide	CYP2D6
Omeprazole	CYP2C19
Ondansetron	CYP2D6, ABCB1
Palonosetron	CYP2D6
Pantoprazole	CYP2C19
Rabeprazole	CYP2C19

Genetic disorders

Medication	Gene(s)
Eliglustat	CYP2D6

Infectious diseases

Medication	Gene(s)
Proguanil	CYP2C19
Voriconazole	CYP2C19

Neurology

Medication	Gene(s)
Brivaracetam	CYP2C19
Dextromethorphan-quinidine	CYP2D6
Donepezil	CYP2D6
Galantamine	CYP2D6
Lacosamide	CYP2C19
Phenobarbital	CYP2C19
Phenytoin	CYP2C9
Primidone	CYP2C19
Tetrabenazine	CYP2D6
Zonisamide	CYP2C19

Pain management

Medication	Gene(s)
Celecoxib	CYP2C9
Codeine	CYP2D6
Diclofenac	CYP2C9
Dihydrocodeine	CYP2D6
Fentanyl	OPRM1
Flurbiprofen	CYP2C9
Ibuprofen	CYP2C9
Indomethacin	CYP2C9
Meloxicam	CYP2C9
Morphine	OPRM1
Oxycodone	CYP2D6
Piroxicam	CYP2C9
Tramadol	CYP2D6

Psychiatry and addiction medicine

Medication	Gene(s)
Antidepressants	
Amitriptyline	CYP2D6, CYP2C19
Citalopram	CYP2C19
Clomipramine	CYP2D6, CYP2C19
Desvenlafaxine	CYP2D6
Doxepin	CYP2D6, CYP2C19
Duloxetine	CYP2D6
Escitalopram	CYP2C19
Fluoxetine	CYP2D6
Fluvoxamine	CYP2D6
Imipramine	CYP2D6, CYP2C19
Mirtazapine	CYP2D6

Psychiatry and addiction medicine

Medication	Gene(s)
Nortriptyline	CYP2D6
Paroxetine	CYP2D6
Sertraline	CYP2C19
Venlafaxine	CYP2D6
Vortioxetine	CYP2D6

Anti-psychotics

Aripiprazole	CYP2D6
Brexpiprazole	CYP2D6
Chlorpromazine	CYP2D6
Clozapine	CYP2D6, CYP1A2
Haloperidol	CYP2D6
Olanzapine	CYP2D6, CYP1A2
Paliperidone	CYP2D6
Risperidone	CYP2D6

Anti-addictives

Naltrexone	OPRM1
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Anti-ADHD

Atomoxetine	CYP2D6
Clonidine	CYP2D6
Dextroamphetamine	CYP2D6
Lisdexamfetamine	CYP2D6

Benzodiazepines

Clobazam	CYP2C19
Diazepam	CYP2C19

Rheumatology

Medication	Gene(s)
Leflunomide	CYP2C19
Lesinurad	CYP2C9
Tofacitinib	CYP2C19

Transplantation

Medication	Gene(s)
Tacrolimus	CYP3A5

Urology

Medication	Gene(s)
Darifenacin	CYP2D6
Mirabegron	CYP2D6
Tamsulosin	CYP2D6
Tolterodine	CYP2D6

If you would like to order Pharmacogenomic (PGx) Panel Request Forms, install the Sonic Dx portal or find out more about the Sonic PGx Panel, please contact Sonic Genetics on 1800 010 447 or email info@sonicgenetics.com.au.

Single gene tests available

Specific single gene tests are independent of the Sonic PGx Panel. These can be requested using your Melbourne Pathology request form.

Oncology

Test name	Utility	Gene
TPMT	Are azathioprine and 6-mercaptopurine safe?	TPMT [^]
UGT1A1	Will irinotecan be safe?	UGT1A1
DPYD	Are 5-FU, capecitabine or tegafur safe?	DPYD

[^]Medicare rebatable

Antiretroviral

Test name	Utility	Gene
UGT1A1	Are indinavir and atazanavir safe?	UGT1A1

HLA typing

Test name	Utility	Gene
HLA typing	Are carbamazepine, abacavir or allopurinol safe?	HLA-B*15:02 HLA-B*57:01 [^] HLA-B*58:01

References

- Caudle K, et al. Incorporation of pharmacogenomics into routine clinical practice: the Clinical Pharmacogenetics Implementation Consortium (CPIC) guideline development process. *Curr Drug Metab.* 2014; 15(2):209-217
- Swen J, et al. Pharmacogenetics: From bench to byte an update of guidelines. *Clin Pharmacol Ther.* 2011; 89(5):662-673