Clinician's Guide:
Navigating the myDNA Pharmacogenomic Report

About this Report

Pharmacogenomics (PGx) is the study of how genetic variations influence an individual's response to medications. It enables clinicians to test for specific genetic changes that affect how a person metabolises and responds to certain medications.

This guide is designed to help you efficiently integrate the **myDNA Pharmacogenomic Report** into your clinical workflow. We recommend that you use it to identify medications that may:

- Be less effective
- Require dose adjustments or an alternative medication
- Have a higher risk of side effects

No prior genetics knowledge required. Recommendations are made for your information and consideration based on currently available evidence.

Recommended Steps

Step 1: Review "Medications of Interest"

If current medications were provided, they will appear in this section.

- **Priority Review:** Medications at the top, categorised red, require attention before the next prescription.
- **Phenotype & Recommendations:** Displays predicted medication response and provides guideline-based advice on dose adjustment, monitoring, or potential alternative medication where appropriate.

Medications of Interest

MEDICATION	INTERPRETATION	RECOMMENDATION
SERTRALINE HYDROCHLORIDE	**CYP2B6 - Poor metaboliser** **CYP2C19 - Normal metaboliser:** Sertraline is metabolised by both CYP2C19 and CYP2B6 into less active compounds. Normal metabolism by CYP2C19 and greatly reduced metabolism by CYP2B6 is predicted.[1]	CPIC[1] guidelines provide an optional recommendation to consider a lower starting dose, slower titration schedule and a 25% reduction of the standard maintenance dose. Otherwise, switch to an appropriate alternative not predominantly metabolised by CYP2B6.
CLOPIDOGREL	**CYP2C19 - Normal metaboliser:** Normal formation of clopidogrel's active metabolite by CYP2C19 is predicted.	CPIC guidelines[2] provide a strong recommendation to use the label-recommended dosage if clopidogrel is being prescribed for cardiovascular or neurovascular indications.
ESOMEPRAZOLE	**CYP2C19 - Normal metaboliser:** Typical metabolism of esomeprazole by CYP2C19 is predicted. Note that this genotype has a lesser effect with esomeprazole and rabeprazole compared to other PPIs.	Standard dosing and prescribing measures apply. If response is inadequate, consider a trial of rabeprazole as an alternative.

Step 2: Check the Personalised Medication Guide

Consult this quick-reference section when prescribing new medications. It functions as a colour coded guide with medications grouped by class and categorised according to clinical significance:

- **MAJOR Prescribing Considerations:** High priority. Genetic variants are linked to possible adverse outcomes; guidelines may recommend dose or medication changes.
- **MINOR Prescribing Considerations:** Altered drug response is possible, but clinical significance may be minor or evidence is currently limited.
- **USUAL Prescribing Considerations:** Genetic results are not predicted to affect drug response; standard prescribing measures apply.
- An alert symbol flags medications that may need to be changed and an alternative should be considered.

Personalised Medication Guide

CLASS	MAJOR	MINOR	USUAL
Anticoagulants	Warfarin		
Antidepressants - other	Vortioxetine ⚠	Agomelatine Bupropion Mianserin Mirtazapine	Moclobemide
Antidepressants - SNRIs	Venlafaxine ⚠	Duloxetine	

Step 3: Optional - Review the remainder of the report for additional detailed information, if needed.

Genetic Results Summary:

Summary of the patient's genotype and predicted phenotype (e.g., "Ultrarapid metaboliser" or "Poor transporter function") for each tested gene.

Pharmacogenomic Test Results Summary

GENE	GENOTYPE	PREDICTED PHENOTYPE
ABCG2 (rs2231142)	AA	Poor transporter function
CYP1A2	*30/*30	Ultrarapid metaboliser (with inducer present)
CYP2B6	*6/*6	Poor metaboliser
CYP2C19	*1/*1	Normal metaboliser

Potential Drug Interactions (if relevant):

If any of the patient's current medications (listed under "medications of interest") act as enzyme inhibitors or inducers, potential interactions are noted here.

The report provides the patient's baseline genotype-predicted phenotype and flags any possible inhibitors or inducers based on their current medications, which may alter this baseline; for example, a CYP2D6 inhibitor could reduce the CYP2D6 activity in a patient who is predicted by genotype to be a normal metaboliser.

Potential Drug Interactions

MEDICATION	INHIBITOR - MODERATE	INHIBITOR - STRONG	INDUCER
ESOMEPRAZOLE	CYP2C19		

Detailed Future Personalised Prescribing Considerations:

This section complements the personalised medication guide by providing detailed information on the interpretation and guideline based clinical recommendation for each medication covered by this test.

Personalised prescribing considerations

Major Prescribing Considerations

MEDICATION DRUG CATEGORY	INTERPRETATION
ATOMOXETINE ADHD - miscellaneous agents	CYP2D6 - Poor metaboliser: Greatly reduced metabolism by CYP2D6 and greatly increased drug exposure is predicted. An increased risk of some side effects has been shown for this genotype (e.g. increased blood pressure and heart rate, QT interval prolongation, dry mouth, erectile dysfunction and insomnia) but also greater improvement of ADHD symptoms as compared to non-poor metabolisers in those who tolerate treatment. This genotype is associated with lower final dose requirements.

Minor Prescribing Considerations

MEDICATION DRUG CATEGORY	INTERPRETATION
IRBESARTAN Angiotensin receptor blockers	CYP2C9 - Intermediate metaboliser: Reduced irbesartan metabolism and incr drug exposure are predicted. This may be associated with a greater blood pressure lowering effect as well as concentration-dependent adverse effect.
LOSARTAN Angiotensin receptor blockers	CYP2C9 - Intermediate metaboliser: A reduction in the formation of losartan's active metabolite is predicted. This may exacerbated by the co-administration of CYP2C9 inhibiting medications. This may to reduced clinical effects.

Usual Prescribing Considerations

MEDICATION DRUG CATEGORY	INTERPRETATION	RECOMMENDATION
MOCLOBEMIDE Antidepressants - other	CYP2C19 - Normal metaboliser: Normal metabolism of moclobemide by CYP2C19 is predicted.	Standard dosing and prescribing measures apply.
CITALOPRAM Antidepressants - SSRIs	CYP2C19 - Normal metaboliser: Normal metabolism of citalopram by CYP2C19 is predicted.	CPIC guidelines[1] provide a strong recommendation to initiate therapy with the recommended starting dose.
ESCITALOPRAM Antidepressants - SSRIs	CYP2C19 - Normal metaboliser: Normal metabolism of escitalopram by CYP2C19 is predicted.	CPIC guidelines[1] provide a strong recommendation to initiate therapy with the recommended starting dose.
TOLBUTAMIDE Antidiabetics	CYP2C9 - Intermediate metaboliser: Reduced metabolism of tolbutamide by CYP2C9 is predicted. This has been associated with a reduction in glucose concentration in some studies[80].	DPWG[81] states that there is no action needed for this gene drug interaction.

Further Information, Methodology, References:

The Further Information section details the categorisation of reports and the guidelines used for clinical recommendations; the Methodology section describes the platform and methods used for genotype testing; and the References section identifies the evidence based guidelines, regulatory labels and primary literature that justifies the clinical interpretations and recommendations in the report.

Further Information

This report provides clinically relevant information on what the patient's genetic results predict about their response to a number of medications covered by this report.

The information concerns drug metabolism and plasma concentrations (drug exposure), as well as the potential for altered clinical effects.

Based on the available information found in the published literature, each medication has been assigned a category according to the likely clinical significance of each gene-drug interaction.

Pharmacogenomic Guidelines

For many medications covered in this report, evidence-based guidelines and drug label information are available and where relevant are referenced in this report.
Key practice guidelines include:

1. Clinical Pharmacogenetics Implementation Consortium (CPIC)
2. The Royal Dutch Pharmacists Association – Pharmacogenetics Working Group (DPWG).
3. The FDA Table of Pharmacogenetic Associations and drug label information

Step 4: File this report in patient records

Add a note in the patient's history for future reference

What this report is not:

- Not a diagnostic test
- Does not mandate medication changes if the patient is stable and tolerating current therapy well
- Does not replace clinical judgement - recommendations should be applied in context
- Does not cover all medications - only those where current evidence shows response may be affected by the genes tested.

Contact Details:

The myDNA clinical team can be reached at clinical@mydna.life for any questions about a patient's report or pharmacogenomics in general.

myDNA Resource Centre
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