



## DNAdose

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More informed prescribing  
to maximise treatment success  
with antidepressants

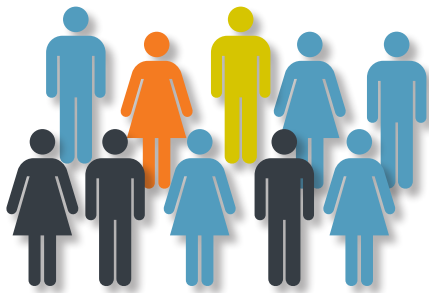


**focused** on you

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“Only 35% to 45% of depressed patients have a complete remission of their illness when initially treated with antidepressants.”<sup>1</sup>

**Before: Trial & Error**

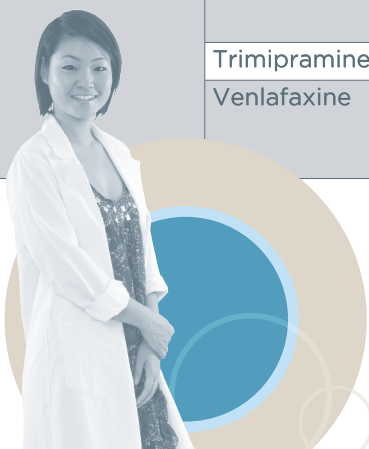


**After: Pharmacogenomic-Driven**

	Poor Metaboliser (PM)	Intermediate Metaboliser (IM)	Extensive Metaboliser (EM)	Ultrarapid Metaboliser (UM)
Segmented Population				
CYP2D6 (Caucasian)	10%	40%	48%	2%
CYP2D6 (Asian)	<2%	25%	71%	<2%
CYP2C19 (Caucasian)	4%	20%	46%	30%
CYP2C19 (Asian)	20%	43%	34%	3%
Metabolism Status	Slow	Reduced	Normal	Very Fast

Minimise ‘trial and error’ to find the ‘right drug’ and ensure that your patients are on their most suitable antidepressant from the beginning.

Enzyme	Drug Name	Trade Name	Enzyme	Drug Name	Trade Name
CYP2D6	Amitriptyline	Endep	CYP2C19	Amitriptyline	Endep
	Clomipramine	Anafranil Placil		Citalopram	Cipramil Celapram
	Dothiepin	Dothep Prothiaden		Clomipramine	Anafranil Placil
	Doxepin	Deptran		Dothiepin	Dothep Prothiaden
	Duloxetine	Cymbalta		Doxepin	Deptran
	Fluoxetine	Prozac Lovan Zactin		Escitalopram	Lexapro Esipram
	Fluvoxamine	Luvox Movox Faverin		Fluvoxamine	Luvox Movox Faverin
	Imipramine	Tofranil Tolerade		Imipramine	Tofranil Tolerade
	Mirtazapine	Avanza Mirtazon Axit		Moclobemide	Aurorix Amira
	Nortriptyline	Allegron		Sertraline	Zoloft Xydep Eleva
	Paroxetine	Aropax Paxtine Extine		Trimipramine	Surmontil
	Trimipramine	Surmontil			
Venlafaxine	Efexor	CYP2C9	Fluoxetine	Prozac Lovan Zactin	



# A more personalised approach to the treatment of depression.



**DNA Adose**  
**Multi-gene Pharmacogenomic Test Report**  
 Prepared by GenesFX Health Pty Ltd



**Patient information**

**PATIENT INFORMATION** Reference No: 11-1234567

<b>Patient:</b> Test, Tester	<b>Copy to:</b> Dr Jon Williams
<b>DOB:</b> 01/10/55	<b>Collected:</b> 02/01/2011
<b>Address:</b> 8 Somewhere, Brighton, VIC 3186	<b>Reported by GenesFX:</b> 04/01/2011
<b>Ordered by:</b> Dr Michael Barry	

**Drug information on request forms**

**INFORMATION PROVIDED FROM THE REQUEST FORM**

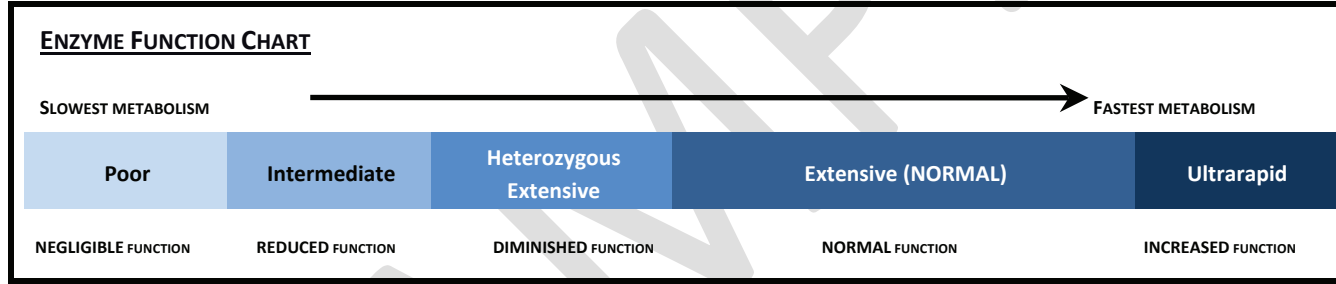
**Current Medications:** Efexor. Previously on Cymbalta  
**Clinical Notes:** Side effects to both Cymbalta and Efexor. Sweating and elevated LFTs.

**TEST RESULTS & SUMMARY INTERPRETATION**

**Pathology Provider:** Healthscope Advanced Pathology  
**Genotyping Results:**

**Patient's laboratory results**

	<u>Genotype</u>	<u>Phenotype Interpretation</u>
CYP2D6	*4/*9	<b>REDUCED</b> Function (Intermediate Metaboliser)
CYP2C19	*1/*2	<b>REDUCED</b> Function (Intermediate Metaboliser)
CYP2C9	*1/*2	<b>REDUCED</b> Function (Intermediate Metaboliser)
VKORC1	GG	<b>NORMAL</b> Sensitivity to Warfarin



**RECOMMENDATIONS BASED ON METABOLISM**

**Interpretation of laboratory results**

Most antidepressants are metabolised by the CYP2D6 and CYP2C19 enzymes. Tricyclic antidepressants (TCAs) are metabolised by both. This individual has significantly reduced CYP2D6, CYP2C19 and reduced CYP2C9 enzyme function. This is a significant finding that may explain the reported side effects on Cymbalta and Efexor experienced by the patient.

The CYP2D6 enzyme is responsible for the metabolism of Cymbalta and Efexor for which this individual has significantly reduced enzyme function. This results in higher blood levels of both medications and an increased risk of side effects. Cymbalta is known to cause elevated LFTs as a side effect. This side effect is more pronounced with significantly increased blood levels. Efexor at higher blood levels can result in the side effect of increased sweating. Furthermore, sweating is also a common symptom of serotonin toxicity, for which this individual is at an increased risk of developing, with this reduced CYP2D6 enzyme status. The higher venlafaxine (Efexor) blood levels increase the synaptic serotonin concentration, hyperstimulating the serotonin receptors and resulting in serotonin toxicity.

**What to do next?**

Considering this individual has significantly reduced CYP2D6 and CYP2C19 enzyme function, alternative treatments of antidepressants not dependent on either CYP2D6 or CYP2C19 enzymes for their metabolism. These may include: desvenlafaxine (Pristiq) or reboxetine (Edronax), if clinically applicable, as alternative antidepressant treatments.

It is best to avoid CYP2D6, CYP2C19 and CYP2C9-dependent medications as the risk of side effects from these treatments is increased. For a complete list of CYP2D6, CYP2C19 and CYP2C9-dependent medications, please visit our website [www.genesfx.com](http://www.genesfx.com)



## DNAdose

### More informed prescribing to maximise treatment success with antidepressants

#### THE DNAdose TEST

- Analyses three enzymes in the Cytochrome P450 family – 2D6, 2C19 and 2C9.
- Provides an easy to understand report with information on which antidepressants best match your patient and which should be avoided.
- Pharmacists are available to discuss individual cases by calling **1300 GENESFX** (1300 436 37 39)
- Access and free membership to online support tool [www.genesfx.com](http://www.genesfx.com)

#### HOW DO I ORDER A DNAdose TEST?

- Write DNAdose on a Healthscope Pathology request form.
- Write which current medications your patient is on and, if appropriate, mention any medications the patient has recently stopped taking. Also include any possible medications you may be thinking of prescribing to your patient.
- If using another pathology provider, please also write on the request:

**Please send to: Molecular Pathology, Healthscope Pathology,  
1868 Dandenong Road, Clayton VIC 3168**

(A blood collection fee may apply when using another pathology provider.)

#### HEALTHSCOPE PATHOLOGY AND GENESFX HEALTH

Healthscope Pathology was the first NATA accredited diagnostic pharmacogenomics laboratory in Australia. Our partnership with GenesFX Health allows us to provide an excellent service of high quality DNA testing with easy to interpret reports.

#### REFERENCES

1. Hall-Flavin DK, et al. Translational Psychiatry: Bringing Pharmacogenomic Testing into Clinical Practice. Primary Psychiatry 2010; 17 (5): 39-44

If you have any questions or require further information, please contact our Customer Service Centre.

**1300 134 111**

or

**1300 GENESFX** (1300 436 37 39)



*Providing services since 1936, Healthscope Pathology operates throughout Australia, New Zealand, Singapore and Malaysia.*

*Healthscope Pathology has purpose built, state-of-the-art service and molecular research laboratories which ensure the highest standard of testing.*

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[healthscopepathology.com.au](http://healthscopepathology.com.au)

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