

### WHAT IS DNAdose?

A group of liver enzymes belonging to the cytochrome P450 (CYP450) enzyme family determines how quickly and effectively more than 50% of commonly prescribed medications are processed by your body. Because of your genetic makeup, your body may not process the medications fast enough, instead allowing them to accumulate to levels that can result in severe side effects. Alternatively, you may have a genetic variation that makes your body process the medications too quickly and you will not receive any benefit from the medication. DNAdose identifies specific variations in four major enzymes (CYP2D6, CYP2C19, CYP2C9 and VKORC1) that can be used by your doctor to determine the right medicine and dose for you.

### HOW SIGNIFICANT ARE THESE VARIATIONS?

Approximately half of the population has an abnormal enzyme function for CYP2D6 and CYP2C19, which affects response to certain medications.

Up to one in 10 people process medications too slowly. This means if they are given certain medications, such as codeine or tramadol for pain, they will receive no pain relief.

Up to one in 3 people process medications too quickly. This means if they are given certain medications such as Diazepam (Valium®) for anxiety, they will process the drug at a very fast rate and will receive little or no benefit from it.

### HEALTHSCOPE PATHOLOGY AND GENESFX HEALTH

Healthscope Pathology has one of the largest molecular pathology laboratories in Australia. Our partnership with GenesFX Health allows us to provide an excellent service of high quality DNA testing with easy to interpret reports.

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

**1300 453 688** or  
**1300 GENESFX (1300 436 373)**



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

## Is Your Medication Working for You?

### DNAdose

**A genetic test to find the right drug for you**

Information for Patients



**focused** on you

In medicine, one size does not fit all. Two people who take the same medication may have very different responses.

Environment, diet, age, lifestyle and state of health can all influence a person's response to medicines. Strong evidence now suggests that your genes may also play an important role. Just as genes contribute to whether you will be tall or short, brunette or blonde, your genes can also determine how you will respond to medicines.

While standard doses of most medicines work well for most people, some medicines do not work at all in certain people or cause annoying and sometimes dangerous side effects. A unique test called DNAdose identifies variations in your genes that may affect the way you respond to medications.



## THE RIGHT DRUG - PAIN MANAGEMENT

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At any given time, approximately one third of Australians are in pain. A significant number of painkillers require CYP2D6 to convert them to their active form and approximately half the population will have trouble achieving adequate pain relief if prescribed a standard dose of these painkillers. DNAdose can identify those patients who will have trouble achieving pain relief.

**A 45 year old man was treated with several painkillers with no significant effect in alleviating his back pain following a car accident. He was started on Paracetamol and Codeine (Panadeine Forte®) and took the maximum daily dose of *eight* tablets per day with no success. The doctor then trialled Tramadol (Tramal®) and increased to a maximum dose, however this brought about terrible side effects and no significant pain relief. A DNAdose test showed that this man had no CYP2D6 enzyme function and therefore could not convert these painkillers to their active form and consequently received no pain relief. The doctor then prescribed an alternative painkiller Buprenorphine (Norspan®) which does not require CYP2D6 to work. The man's back pain was controlled and he was able to gain better mobility and quality of life.**

## THE RIGHT DRUG - DEPRESSION

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Over one million people in Australia are prescribed antidepressants for the treatment of depression. However, treatment can take 3 - 4 weeks to take effect and only 30 - 50% of patients respond sufficiently to their initial treatment with antidepressants, making the treatment of depression often difficult and time-consuming. DNAdose may take some of the guesswork out of choosing a drug regimen.

**A 38 year old man on sickness benefits was diagnosed with depression and prescribed 100mg Sertraline (Zoloft®) per day. Four weeks later there was no improvement so the doctor decided to switch to an alternative antidepressant called Citalopram (Cipramil®). Another four weeks passed and the patient was no better. The doctor ordered a DNAdose test to see if this could explain the lack of response to medications. The test results showed that the patient was processing the two antidepressants too quickly, which explained why he was not getting any benefit from the treatments. The DNAdose results were used to guide the doctor in using an antidepressant which this man could process normally called Venlafaxine (Efexor®). This resulted in effective treatment of depression and a quicker return to work.**

## THE RIGHT DRUG - MULTIPLE MEDICATIONS

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There may be times when multiple medications are needed to manage symptoms or provide relief in some form. Drug-drug interactions occur when medications do not work in tandem with one another and instead one of the drugs, or both of them together, adversely affect your health. DNAdose can identify if a patient is on medications that will not work well together and recommend alternatives to ensure that the patient will receive therapeutic benefit from every medication that they are prescribed.

**A 41 year old woman was prescribed Paracetamol and Codeine (Panadeine Forte®) for postoperative pain. Following her surgery, she was diagnosed with depression and her doctor prescribed Paroxetine (Aropax®). The patient's pain relief began to diminish a week after the initiation of her antidepressant. A DNAdose test explained that Paroxetine prevents Codeine from working and therefore the patient was not receiving any pain relief. The test report recommended starting the patient on Citalopram (Cipramil®) which would not interact with Codeine. As a result, the patient's pain relief was restored.**

## THE BENEFITS OF HAVING A DNAdose TEST

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A DNAdose test report provides you and your doctor with information needed to ensure that you are taking the most appropriate dose of the best medication for you. This will help speed up your recovery and increase safety as the likelihood of adverse reactions is reduced.

The test only needs to be done once and will be relevant not just for your current medications, but for any medications that you may require in the future.

## IS THIS TEST COVERED BY MEDICARE OR BY PRIVATE HEALTH INSURANCE?

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Currently, there is no reimbursement for the cost of this test.

## HOW QUICKLY DO I LEARN ABOUT MY RESULT?

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Once we receive the sample in our laboratory, your doctor will receive the result within 5 - 7 working days, at which point they will be able to discuss your results with you.

## WHAT SHOULD I DO NOW?

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Discuss DNAdose with your doctor to see whether this test is right for you.

More information can be found at [www.genesfx.com](http://www.genesfx.com)