

<http://www.smh.com.au/>

A dose of the good stuff

By Claire Buckis April 13, 2006

Adverse drug reactions may soon be a thing of the past.

There's nothing more frustrating than being sick and taking a prescribed drug, only to find it doesn't work. Or worse, it leaves you with a side effect almost as bad as the disease it's meant to treat.

Medicines are made to a one-size-fits-all formula, but the reality is we process medicines differently. A drug that helps one person may be useless, or even toxic, to another.

A branch of research called pharmacogenetics may soon lead to a far more personalised approach to prescribing drugs and hugely reduce the likelihood of side effects. It could mean that instead of prescribing a drug based simply on your symptoms, your doctor will take a blood test or cheek swab and prescribe you a drug based on your unique genetic make-up.

"Hopefully we'll be able to tailor drugs better and have cleaner drugs and a reduction in side effects," says Ross McKinnon, professor of pharmaceutical biotechnology at the University of South Australia.

"Drugs will be chosen better and we won't have that situation where patients are going back to the doctor three, four times in order to find what works."

How you react to a drug depends on the presence of different receptors, enzymes and other chemicals in your body, which is determined by your unique set of genes.

"It's a bit like a lock and a key," McKinnon says. "If you can imagine a situation in which the lock is the problem in the body and the key is the drug, if that lock is different between two people, there's a chance the key won't fit equally as well."

One of the main differences in the way we process drugs is the rate at which we metabolise them.

"When doctors prescribe drugs they tend to assume you are a normal metaboliser," says Professor Les Sheffield, a clinical geneticist at the Royal Children's Hospital in Melbourne. "But it turns out there are some people who metabolise drugs very fast - about 2 or 3 per cent of people.

"About 10 per cent of people are very slow metabolisers."

Being a slow metaboliser means that you're much more likely to overdose on a drug or suffer other ill effects.

"If you're a slow metaboliser, your risk of getting side effects is much higher," Sheffield says. On the flip side, people who are fast metabolisers may break down a drug before it has had a chance to work properly.

Pharmacogenetic research may soon allow doctors to give you a simple test to work out how you are likely to metabolise a drug, then prescribe your dose based on the outcome. You will also react differently to a particular drug depending on the presence or absence of receptors and other chemicals in your body.