

# Prevention C+olumn

PHARMACOGENETICS – SEPTEMBER 2020

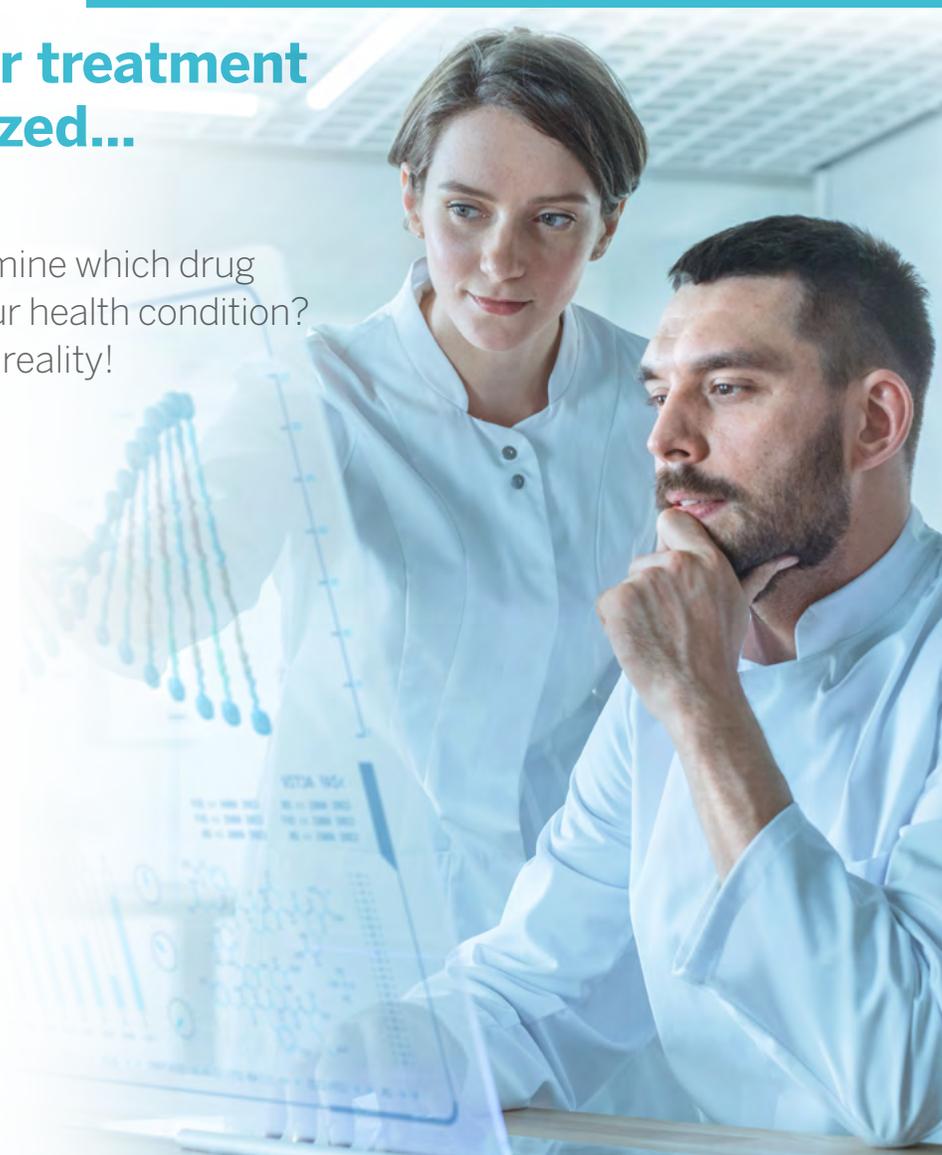
## Pharmacogenetics: for treatment that's more personalized... and efficient!

What if your genes could help determine which drug you could take to efficiently treat your health condition? No longer science fiction: it's now a reality!

Pharmacogenetics is high-precision medicine that allows **treatments to be personalized** in certain situations. For example, less than half of patients with depression respond to their first prescribed treatment. Access to technology therefore allows participants to **more quickly obtain a possible solution** for their ailments.

By **Rebecca Deslandes-Brosseau**

Pharmacist



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## GLOSSARY

**Heredity:** The transmission of traits from one generation to the next.

**Gene:** A basic unit of inheritance; a DNA segment that carries the code needed for the synthesis of one or more proteins. ■

# Pharmacogenetics

Pharmacogenetics is the study of how a person's gene variants can affect drug effectiveness or drug tolerance. Gene variants can account, in part, for the fact that one person may respond very well to a drug (with no side effects), while another person with the same condition may respond less well or not at all, and with adverse reactions. Two persons with their individual genetic make-up may well react differently to the same drug.

Drug costs are expected to reach \$40 billion per year in Canada,<sup>1</sup> so optimizing the use of drugs could not only help patients, but also lighten the load on health systems and taxpayers! ■

## The choice of test

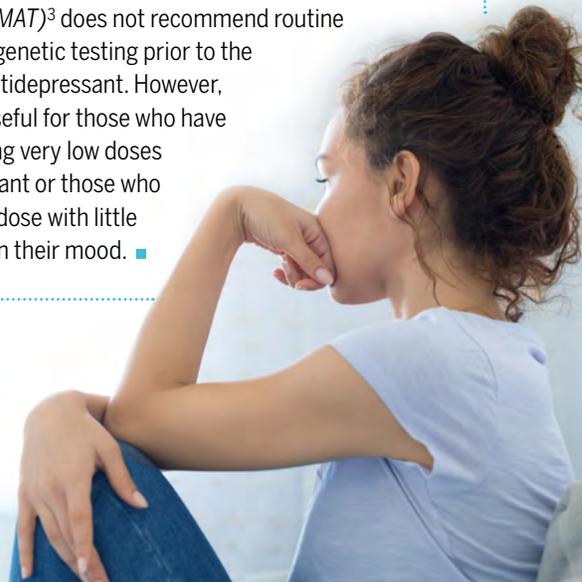
IT IS POSSIBLE TO "READ" YOUR GENES WITH THE AID OF TESTS. SINCE A NUMBER OF COMPANIES OFFER THIS SERVICE, CHOOSING ONE CAN BE A CHALLENGE. HERE ARE A FEW TIPS THAT CAN HELP YOU DECIDE WHICH ONE IS RIGHT FOR YOU:

1. **Determine whether you want a wide range of results or specific results** with regard to particular illnesses. Certain companies offer different types of testing services to meet either of these needs.
2. **Evaluate the reliability of tests.** With the range of options available on the market, your physician can help you select the test that best meets your needs and can even prescribe it for you, in certain cases.
3. **Check to see if your insurance company covers certain tests.**
4. **Read the confidentiality policy** of the company supplying the test you want to use. This is important, because your genetic make-up is a confidential source of critical information about your health.
5. **Consider other factors** when making your selection, such as the geographical location of the company offering the service. ■

## Example of DEPRESSION

Less than half of patients diagnosed with depression respond to their first prescribed treatment.<sup>2</sup> An antidepressant's journey through the human body varies from one person to another. Certain genetic predispositions might, in part, account for this phenomenon.

Do all patients need to take a test before even trying a treatment? The *Canadian Network for Mood and Anxiety Treatments (CANMAT)*<sup>3</sup> does not recommend routine use of pharmacogenetic testing prior to the selection of an antidepressant. However, testing may be useful for those who have difficulty tolerating very low doses of an antidepressant or those who have tried a high dose with little positive benefit on their mood. ■



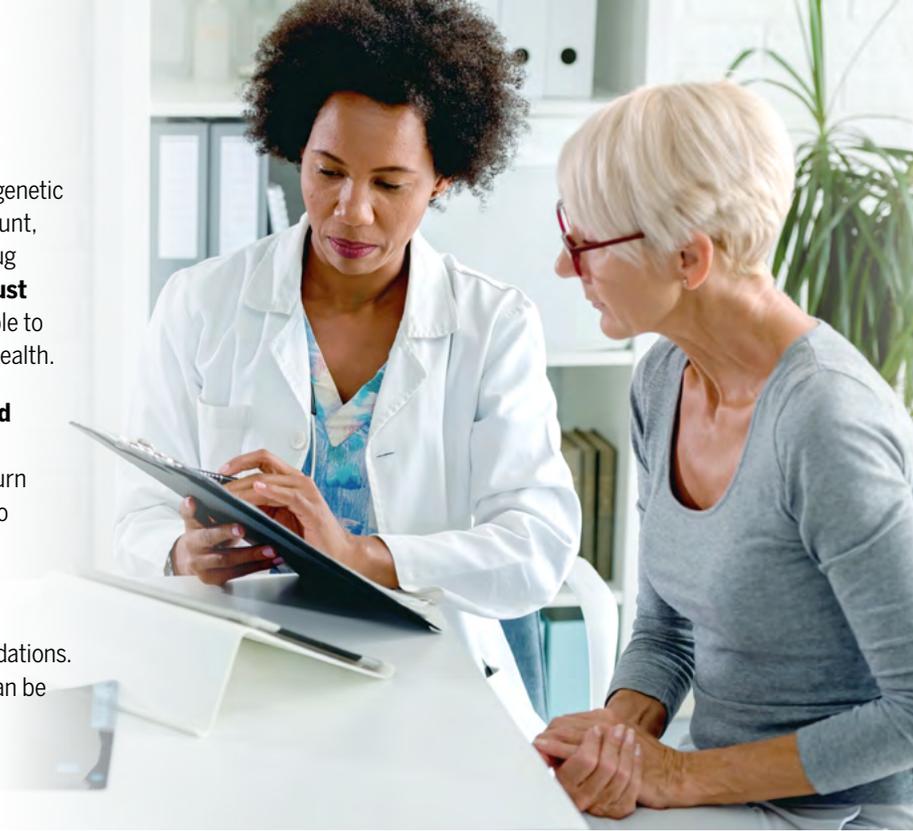
# The test sequence

First of all, it is important to bear in mind the fact that pharmacogenetic tests do not necessarily take your current medication into account, even if your genes are able to help predict drug efficiency or drug tolerance. For this reason, **your physician and pharmacist must be involved** even before a test is performed. You will then be able to determine the relevance of testing, based on the state of your health.

Once you make your decision, **the process is fairly simple and straightforward**. In most cases, you order the test online. You receive a saliva test kit in the mail, provide your sample and return it by mail, as instructed. It generally takes two to three weeks<sup>4</sup> to receive the results by email, based on the test chosen.

## What do you do with the results?

Most test results are accompanied by suggestions or recommendations. Share them with your physician and pharmacist, so that they can be taken into consideration with your treatment. ■



## How much does it cost?

A pharmacogenetic test currently costs **between \$250 and \$500**.<sup>5</sup> A number of insurance companies have become involved in pilot projects that allow plan members to undergo pharmacogenetic testing. Access to this technology, which is mainly used for people suffering from pain or depression, allows participants to obtain a possible solution more quickly. ■

## What about PHARMACOGENOMICS?

The difference between pharmacogenetics and pharmacogenomics generally comes down to the number of genes analyzed in tests. **Pharmacogenetics** focuses on a **more limited number of genes**, while **pharmacogenomics** considers a **larger number of genes**, i.e. all of them (the genome).<sup>1</sup> ■

## In conclusion

Pharmacogenetic testing is becoming increasingly easy to access. This developing technology makes it possible to obtain precise information, which can influence the body's response to drugs and how certain illnesses may evolve. Are you interested in taking a test? Don't forget: The involvement of your physician and pharmacist will be essential to ensure that the results are integrated into your medical follow-up. ■



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