MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Pharmacogenetic Testing for CYP2C19

What is pharmacogenetic testing?

Pharmacogenetic testing is a type of DNA test that uses your genetic profile to predict how your body will respond to specific medications. Your provider may recommend pharmacogenetic testing to help identify what medication or medication dose might work best for you.

What is CYP2C19?

CYP2C19 (sip-two-see-nine-teen) stands for cytochrome P450 2C19, which is a substance (an enzyme) in your body that helps you to activate (turn-on) or inactivate (turn-off) certain medications that you may take. The activity of CYP2C19 or its ability to activate or inactivate medications varies between different people based on their DNA. About 1 in 4 (25%) people have fast to very fast CYP2C19 activity, meaning their body can activate or inactivate certain medications more quickly, while about 25% of people have slow to very slow CYP2C19 activity, meaning their bodies take more time to activate or inactivate certain medications.

How is the testing done?

There are several methods to obtain a DNA sample including through a blood draw, saliva (spit) collection, or cheek swab. Your provider will share the specific method for your test with you. After collecting the sample it is sent to a clinical laboratory that evaluates your DNA and identifies the CYP2C19 activity you likely have based on your DNA.

How will my provider use the test result?

Your provider will use the result to determine what medications are most likely to work well for you. Some examples of medications that can be personalized based on the CYP2C19 pharmacogenetic test include:

- Clopidogrel (Plavix®)
- Citalopram (Celexa®)
- Escitalopram (Lexapro®)
- Voriconazole (Vfend®)

Depending on your CYP2C19 pharmacogenetic test result, your other medications and conditions, and the medications your provider is considering prescribing they could determine if you would most benefit from either:

- A different medication
- A lower dose of that medication. or
- A higher dose of that medication

What should I do with the test result?

Your providers at Michigan Medicine will be able to view this test result to help determine the best medications for you. If you see providers at other institutions let them know that you have been tested for CYP2C19 and share your result with them so that they can also use this information to personalize your medications.

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