

PHARMACOGENOMIC TESTING FOR

PHENYTOIN/ FOSPHENYTOIN

What is pharmacogenomic testing?

Pharmacogenomic testing looks at changes in your genetic code, called polymorphisms, that can affect how you respond to certain medications. Some genetic changes may make it more likely to have side effects from a medication, while other genetic changes may make it less likely that the medication will help treat your symptoms. Knowing whether or not you carry these genetic changes can help your healthcare provider select the medication and/or dose that will work best for you.

Pharmacogenomic testing may not be accurate for people who have received some types of transplants. Talk to your healthcare provider if you are a transplant recipient.

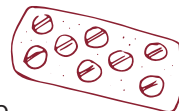


How do genetics affect my response to phenytoin and fosphenytoin?

Like many medications, phenytoin and a similar drug, fosphenytoin, are processed (metabolized) by your body to get rid of them. This happens with the help of a special protein called CYP2C9. Your body's instructions for making this special protein are located in your DNA. Variations in these instructions can affect how much working CYP2C9 protein your body makes.

People with lower amounts of working CYP2C9 will process phenytoin and fosphenytoin more slowly. Given the same dose of phenytoin and fosphenytoin as a person with "normal" amount of working CYP2C9 protein, they will have more of the drug in their body. These individuals may be at greater risk of experiencing side effects from taking phenytoin and fosphenytoin.

Changes in the genetic code may also affect the function of HLA genes, which play an important role in your immune system. These genes give specific instructions for making special HLA proteins that can recognize things that are harmful to the body and get rid of them. Variations in these instructions could cause your body to recognize phenytoin and fosphenytoin



as harmful and result in a negative reaction to the medication. Patients who have a certain type of HLA-B gene polymorphism are more likely to have severe skin reactions and hypersensitivity (undesirable reactions produced by the immune system) to phenytoin and fosphenytoin that could be life-threatening. These individuals could experience harm from taking phenytoin and fosphenytoin.



What can pharmacogenomic testing for phenytoin and fosphenytoin tell me?

Phenytoin and fosphenytoin are medications typically used to treat and prevent seizures. Knowing how much working CYP2C9 your body makes can help your healthcare providers select the most appropriate dose of phenytoin and fosphenytoin for you. Knowing about the HLA gene may help select what drug to give you with the lowest risk of a hypersensitivity reaction. Your doctor may also choose a different medication that is not affected by the CYP2C9 protein or the specific HLA gene.

It is important to know that pharmacogenomic testing can influence decisions about which medication may work better for you, but it is not the only factor. Other things that can affect how you respond to a medication include your age, sex, the symptoms of your condition, other medications or supplements you are taking, any other health conditions you have (for example, liver or kidney problems)—and possibly other changes to your genetic code that have not been discovered yet.

What can't this pharmacogenomic test tell me?

- This pharmacogenomic test cannot tell you how your family members might respond to this medication.
- This pharmacogenomic test cannot tell you about your diagnosis.
- This pharmacogenomic test cannot tell you about your risk for diseases.

What should I do after I receive my test results?

Talk to your doctor or pharmacist about your results to determine whether any changes should be made to your medications. Ask them:

- What do these results mean?
- How will these results affect how I take my medication?
- Do these results affect any other medications I am taking?

DO NOT START, STOP, OR CHANGE DOSES OF YOUR MEDICATIONS WITHOUT CONSULTING YOUR HEALTH-CARE PROVIDER.

