

## Uses of Pharmacogenetic Testing

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### EDITORIAL NOTE

Pharmacogenetics/ Pharmacogenomics, is the study of genes affecting the body's response to certain medicines. Genes are parts of DNA passed down from your mother and father. They carry information that determines your unique traits, such as height and eye color. The genes can also affect how safe and effective a particular drug could be. In general pharmacogenetics usually refers to how variation in one single gene influences the response to a single drug. Pharmacogenomics is a broader term, which studies how all of the genes (the genome) can influence responses to drugs.

Pharmacogenomic tests look for changes or variants in these genes that may determine whether a medication could be an effective treatment or whether it could have side effects to a specific medication. Pharmacogenomic testing is one tool that can help the doctor determine the best medication. Genes can be the reason the same medicine at the same dose will affect people in very different ways. Genes may also be the reasons some people have bad side effects to a medicine, while others have none. Pharmacogenetic testing looks at specific genes to help figure out the types of medicines and dosages.

Pharmacogenetic testing may be used to find out whether a certain medicine could be effective; to find out what the best dosage; to predict whether a person will have a serious side effect from a medicine. Pharmacogenetic tests are only available for a limited number of medicines.

Testing is usually done on blood or saliva. For a blood test, a health care professional will take a blood sample from a vein in your arm, using a small needle. After the needle is inserted, a small amount of blood will be collected into a test tube or vial. You may feel a little sting when the needle goes in or out. This usually takes less than five minutes. For a saliva test, ask your health care provider for instructions on how to provide your sample. People usually don't need any special preparations for a blood test. If you are getting a saliva test, you should not eat, drink, or smoke for 30 minutes before the test. There is very little risk to having a blood test. It may have slight pain or bruising at the spot where the needle was put in, but most symptoms go away quickly. There is no risk to having a saliva test.

If a particular person tested before starting a treatment, the test can show whether a medicine will likely be effective and/or if it is at risk for serious side effects. Some tests, such as the ones for certain drugs that treat epilepsy and HIV, can show whether you are at risk for life threatening side effects. If so, your provider will try to find an alternate treatment. Tests that happen before and while you're on treatment can help your health care provider figure out the right dose. Pharmacogenetic testing is only used to find out a person's response to a specific medicine. It is not the same thing as genetic testing. Most genetic tests are used to help diagnose diseases or potential risk of disease, identify a family relationship, or identify someone in a criminal investigation.

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