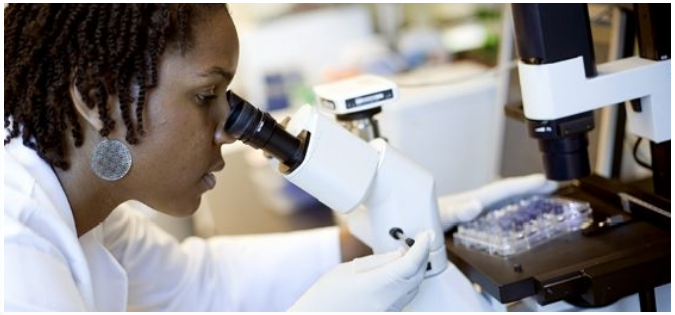

Your *NUDT15* Genetic Test Results and What They Mean

NUDT15: Uncertain #408

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changing the outcome together

Common differences in the *NUDT15* gene can affect how you respond to some medicines

We recently tested you for the *NUDT15* gene. This info sheet explains the test, your results, and what your doctor may do with that information.

Genes are pieces of DNA that provide instructions to make our bodies look and work as they do. Some genes affect the way medicines work in the body. When comparing a group of people, there can be slight differences in each gene's structure. These differences can affect how people respond to medicine.

Some gene differences might make it harder for the body to get rid of some medicines. This means that usual doses of the medicine could give some people unexpected side effects. Some gene differences can cause the body to use up a medicine too fast. This means that normal doses won't work as well and the person may need higher doses. Some gene differences won't let certain medicines work in the body at all. This means a different medicine may work better.

What we tested: We tested a gene called Nudix Hydrolase 15 (abbreviated *NUDT15*). This gene makes an enzyme that breaks down, or metabolizes, some medicines in the body. Breaking down a medicine can either make it work as intended or make it stop working. It's common to have slight variations in the *NUDT15* gene that affect how the enzyme works to break down medications called thiopurines. Depending on these variations, people are considered Poor, Intermediate, or Normal Metabolizers.

1. **Poor metabolizers** – The NUDT15 enzyme has very little activity. Poor metabolizers break down thiopurines very slowly so they stay in the body longer. Poor metabolizers are likely to need much lower doses of thiopurines than normal metabolizers or need different medicines. About 2% of people of Asian descent and less than 1% of people of other descents are poor metabolizers for *NUDT15*.

2. **Intermediate metabolizers** – The NUDT15 enzyme has medium activity. Intermediate metabolizers need lower doses of thiopurines than normal metabolizers or need different medicines. About 20% of people of Asian descent, 10% of individuals of Hispanic descent and 0-1% of people of European or African descent are *NUDT15* intermediate metabolizers.
3. **Normal metabolizers** – The NUDT15 enzyme activity is normal. No thiopurine dose adjustments need to be made based on this result. About 78% of people of Asian descent, 90% of people of Hispanic descent and at least 99% of people of European or African descent are *NUDT15* normal metabolizers.

Your result was not able to be determined (uncertain).

This means that we are unable to predict the enzyme activity based on your result.

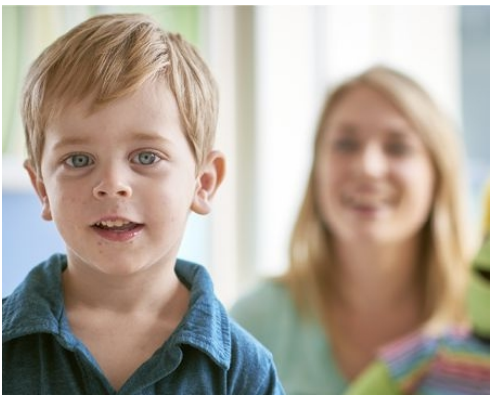
Your doctor can use standard medication selection and dosing strategies that do not use genetic information. The following medicines are broken down by the NUDT15 enzyme:

Thiopurines: azathioprine, mercaptopurine, and thioguanine.

Research continues to be done on what medicines are affected by genetic test results. For more details about which medicines are broken down by *NUDT15*, please go to www.cincinnatichildrens.org/gps or www.pharmgkb.org. If you have questions about your pharmacogenetic test results from CCHMC, call 513-636-4474 or email gpsconsult@cchmc.org.

Questions about individual health concerns or specific treatment options should be discussed with your physician.

Revised March 2024



Phone: 513-636-4474
www.cincinnatichildrens.org

Cincinnati Children's Hospital Medical Center