

Why do some drugs trigger a deadly brain disease? The answer is in our genetic code

Medicines that reshape or tamp down immune responses may be life-changing for patients with cancer and autoimmune disorders, but in some cases they can awaken a dormant virus and unleash a deadly brain disease. A new study suggests that the root of the problem is buried in our genetic code.

Researchers uncovered four gene variants connected with the immune system that significantly increase a person's risk of developing the disease, known as progressive multifocal leukoencephalopathy or PML. These variants were far more common among those suffering from PML than in the general population. And they were conspicuously absent in multiple sclerosis patients who'd been receiving treatment for years *without* developing PML.

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The study's authors argue that these variants could be used to screen patients and ensure that those with a higher risk of PML aren't given drugs linked to the disease — similar to how doctors [already use genetic testing](#) in some patients to determine the right dose and type of medication used to treat depression, high cholesterol, and other conditions. Scientists estimate that a four-variant test could cut PML cases by about 9.4%, and they're now searching for additional variants that could extend the test's protective power to additional patients.

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