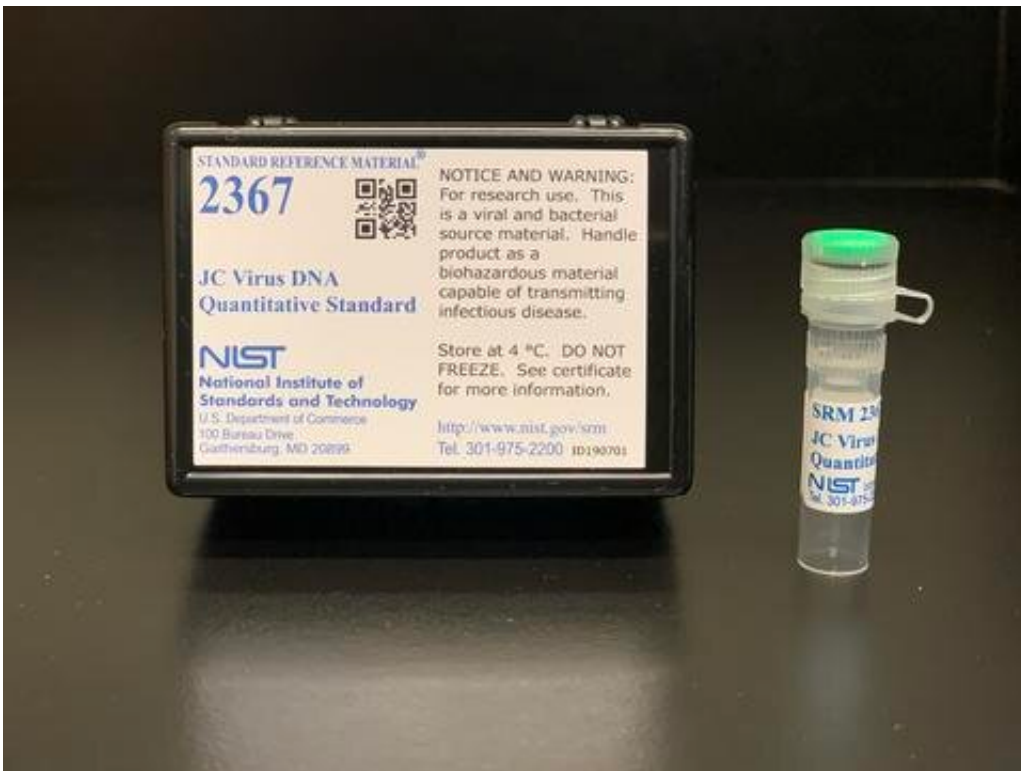


# A new NIST standard for more accurate diagnoses of JC virus

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Credit: National Institute of Standards and Technology

A new NIST Standard Reference Material supports the accurate measurement of the amount of a common but potentially dangerous virus in patients.

Most of us have been exposed to John Cunningham (JC) virus, as

revealed by tests that detect JC virus antibodies in [blood samples](#). A healthy immune system can keep the virus at low levels that do not cause illness. In people with immune systems compromised by illness or dampened by medications for the treatment of autoimmune disorders and [transplant rejection](#), JC virus can multiply and cause a dangerous brain infection called [progressive multifocal leukoencephalopathy](#) (PML). PML results in [neurological symptoms](#) such as clumsiness, changes in eyesight and personality, and difficulty speaking.

An accurate diagnostic marker for active infection with JC virus is a high viral load relative to patients who are asymptomatic carriers. The Association for Molecular Pathology, seeking a way for the diagnostic community to obtain better JC virus DNA measurements, asked NIST to develop a standard material to assure the accuracy of lab tests that measure the number of copies of the virus in a sample.

NIST's JC Virus DNA Quantitative Standard is synthetic JC virus DNA. NIST characterized the DNA with six different digital polymerase chain reaction (dPCR) assays along different parts of the material's genome. The NIST material is provided at high concentration so that users can dilute it to the similarity of an actual patient sample. In addition, users may dilute the JC virus reference material to a variety of concentrations in order to develop a standard curve of virus copy numbers that can be compared to the copy numbers detected in the patient sample, providing additional confidence in their calculation of viral load.

A unit of SRM 2367 consists of one 0.5 mL tube containing approximately 110  $\mu$ L of DNA solution. Until required for use, SRM 2367 should be stored in the dark between 2 °C and 8 °C.

**More information:** Megan H. Cleveland et al, Certification of Standard Reference Material® 2367 JC Virus DNA Quantitative Standard (2022). [DOI: 10.6028/NIST.SP.260-216](https://doi.org/10.6028/NIST.SP.260-216)

Provided by National Institute of Standards and Technology

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