

Topic Page: [Virology](#)

Definition: **virology** from *Processing Water, Wastewater, Residuals, and Excreta for Health and Environmental Protection: An Encyclopedic Dictionary*

The study of viruses and the diseases they cause.



Image from: [The human adenovirus is of the type responsible... in Philip's Encyclopedia](#)

Summary Article: **virology**

From *The Columbia Encyclopedia*

study of viruses and their role in disease. Many viruses, such as animal RNA viruses and viruses that infect bacteria, or bacteriophages, have become useful laboratory tools in genetic studies and in work on the cellular metabolic control of gene expression (see nucleic acids). Because viruses can sometimes carry extra genetic material into host cells, they have been used to experimentally transfer genetic material, specifying a particular enzyme, into nuclei of mammalian host cells that lacked the ability to synthesize that enzyme. The ability of viruses to transfer genetic material has also been extensively studied in bacteria (see recombination). Virus-mediated gene transfers are medically interesting because of the possibility that in the future enzyme-specifying genes might be transferred into humans with hereditary enzyme-deficiency diseases. Virus interference is a phenomenon in which host cells, while infected by one virus, are protected against infection by other viruses; the technique has been used experimentally as a form of temporary immunization. Interferon, a vast number of proteins produced by virus-infected cells that inhibits viral replication within the cell has been studied with a view toward preventing or controlling virus-caused diseases. Viruses continue to be investigated because they are held to be possible causative agents of some human cancers, and because under certain conditions the body's immune response to virus infection may cause tissue damage and develop into an autoimmune disease. Viruses can have high rates of mutations (point mutations) that keep them undetectable. Human immunodeficiency virus (HIV), the virus associated with AIDS, is a retrovirus that appears to have mutated into a number of strains that attack the immune system and produce viral-induced immunosuppression.

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Virology. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from <https://search.credoreference.com/content/topic/virology>



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