Viral Diseases

Some human diseases are apparently caused by the body's response to virus infection: immune reaction to altered virus-infected cells, release by infected cells of inflammatory substances, or circulation in the body of virus-antibody complexes are all virus-caused immunological disorders. Viruses cause many diseases of economically important animals and plants, some transmitted by carriers such as insects. A retrovirus (HIV) causes AIDS, several viruses (e.g. Epstein-Barr virus, human papillomavirus) cause particular forms of cancer in humans, and many have been shown to cause tumors in animals. Other viruses that infect humans cause measles, mumps, smallpox, yellow fever, rabies, poliomyelitis, influenza, and the
common cold. The techniques of molecular biology and genetic engineering have made possible the development of antiviral drugs effective against a variety of viral infections. Viruses, like bacterial infective agents, act as antigens in the body and elicit formation of antibodies in an infected individual (see immunity). Indeed, vaccines against viral diseases such as smallpox were developed before the causative agents were known. Some viruses stimulate cellular production of a protein, called interferon, that inhibits viral growth within the infected cell.

Classification

Viruses are not usually classified into conventional taxonomic groups but are
usually grouped according to such properties as size, the type of nucleic acid they contain, the structure of the capsid and the number of protein subunits in it, host species, and immunological characteristics.