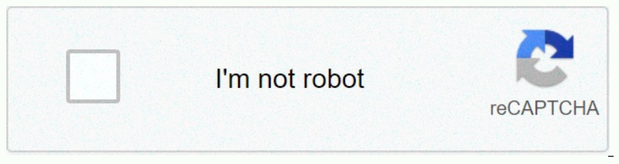

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Biointeractive virus explorer answers

Select a category above to classify viruses according to shared properties. Select a virus below to explore the structure and biology. Show relative sizes The white line represents 100 nanometers (nm). In comparison, the width of a human hair is about 75,000 nm, so it would be 750 times as long! Select a category above to classify viruses according to shared properties. Select a virus below to explore the 3D structure and biology. Show relative sizes Virus consists of genetic material (DNA or RNA) enclosed in a layer of viral proteins. Some viruses exit the host cell by sprouting from the surface. In the process, part of the host cell membrane envelops the virus particle that forms an outer layer, called the envelope. The envelope contains host and virus proteins built into it. Some of these proteins (colored red in the illustrations) serve to bind to the host cells. Viruses whose replication does not involve sprouting from the host cell surface do not have an envelope and are called naked or non-shrouded. The sequence of steps leading to the formation of the virus envelope as a newly mounted virus buds from a host cell. The structure of a virus is usually described based on the overall form of the protein layer surrounding the virus's genetic material. This layer is called capsid, or the nucleus of shrouded viruses. The shape of the capsid or nucleus is determined by the arrangement of many individual proteins and is usually symmetrical. The core structure is not visible in the 3D models for shrouded viruses. Some of the many forms of viruses. A host is the organism in which a virus infects and replicates in. Viruses can only replicate inside a host cell. Viral hosts include animals, plants, bacteria, fungi and archaea. Many viruses have evolved to infect several types of hosts, while others have a more limited host area. Some of the different types of host organisms viruses can infect. All viruses contain genetic material (the viral genome) that encodes one or more proteins. Viral genomes vary by type of nucleic acid (RNA or DNA), number of strands of nucleic acid (ss, single stranded or ds, double stranded), the sense or polarity of the strands (+, positive or -, negative), and the structure (circular or linear). Most viral genomes consist of a single continuous sequence either with the two ends together (circular genome) or with the two ends that are not joined (linear). However, some viruses have segmented genomes, praying consisting of several independent nucleic acid segments. A selection of some types of viral genomes. A: linear ssRNA; B: segmented ssRNA; C: circular ssDNA; D: linear dsDNA; E: circular dsDNA. The mechanism by which a virus goes from one host to another depends on several factors, including which organisms the virus is able to infect, what types of cells the virus infects, and how released from an organism (for example, through sneeze drops or bodily fluids). Some viruses can be easily transmitted from person to person, while others rely on an intermediate organism, such as an arthropod (mosquito or tick), to transmit it. An organism that serves to transmit a virus from one host to another is called a vector. A virus transmitted from a vertebrate (such as a rodent or bat) to humans is considered a zoonotic virus. Some possible transmission routes, including between humans, humans and animals, and arthropod vectors. A vaccine is a drug that, when ingested into the body, should induce a protective immune response to a virus. When a person who has been vaccinated against a virus comes into contact with that virus, the body should already be prepared to fight the infection. Scientists have developed vaccines that protect humans and some animals from diseases caused by multiple viral infections. Human infectious diseases with which we have effective vaccines include smallpox, polio and seasonal flu. Most vaccines are given by injection and are available for many human viruses. The white line represents 100 nanometers (nm). In comparison, the width of a human hair is about 75,000 nm, so it would be 750 times as long! Long!