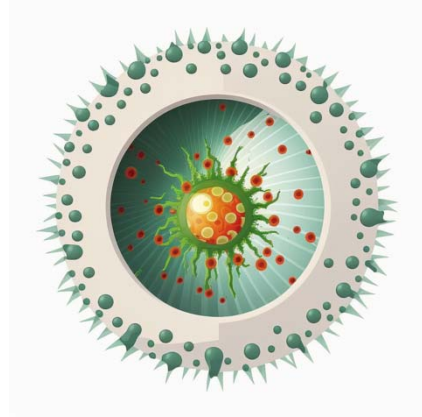


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## Decoding the Blueprint: Unveiling the Structure of Viruses

In the microscopic world of viruses, there lies a fascinating tale of structure and function. Despite their tiny size, viruses possess a unique architecture that allows them to infiltrate host cells and wreak havoc. Let's embark on a journey to unravel the secrets of the virus's structure.

At the heart of every virus lies its genetic material, either DNA or RNA, which serves as the blueprint for replication. This genetic material is encapsulated within a protective protein shell called a capsid. Picture the capsid as a sturdy coat that shields the virus's genetic code from external threats.

The capsid itself can take on various shapes and sizes, depending on the type of virus. Some viruses, like the adenovirus, have capsids shaped like geometric polyhedra, while others, such as the influenza virus, have more intricate structures resembling spheres with surface spikes.

In addition to the capsid, some viruses are enveloped by an outer layer called the viral envelope. This envelope is derived from the host cell's membrane as the virus exits the cell, cloaking itself in a disguise that helps it evade detection by the immune system. Picture it as a stealthy cloak that allows the virus to slip past the body's defenses undetected.

Embedded within the viral envelope are viral proteins, including glycoproteins, which play crucial roles in host cell recognition and attachment. These proteins act as keys, allowing the virus to unlock the door to the host cell and gain entry.

Once inside the host cell, the virus releases its genetic material, hijacking the cell's machinery to replicate and produce more virus particles. This process ultimately leads to the destruction of the host cell as newly formed viruses burst forth to infect neighboring cells, perpetuating the cycle of infection.

In summary, the structure of a virus consists of genetic material enclosed within a protein capsid, with some viruses also possessing a viral envelope derived from the host cell's membrane. This intricate architecture enables viruses to infect host cells and propagate, posing challenges for medical science in the battle against infectious diseases.