DIAGNOSIS OF HERPES SIMPLEX VIRUS

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Outline

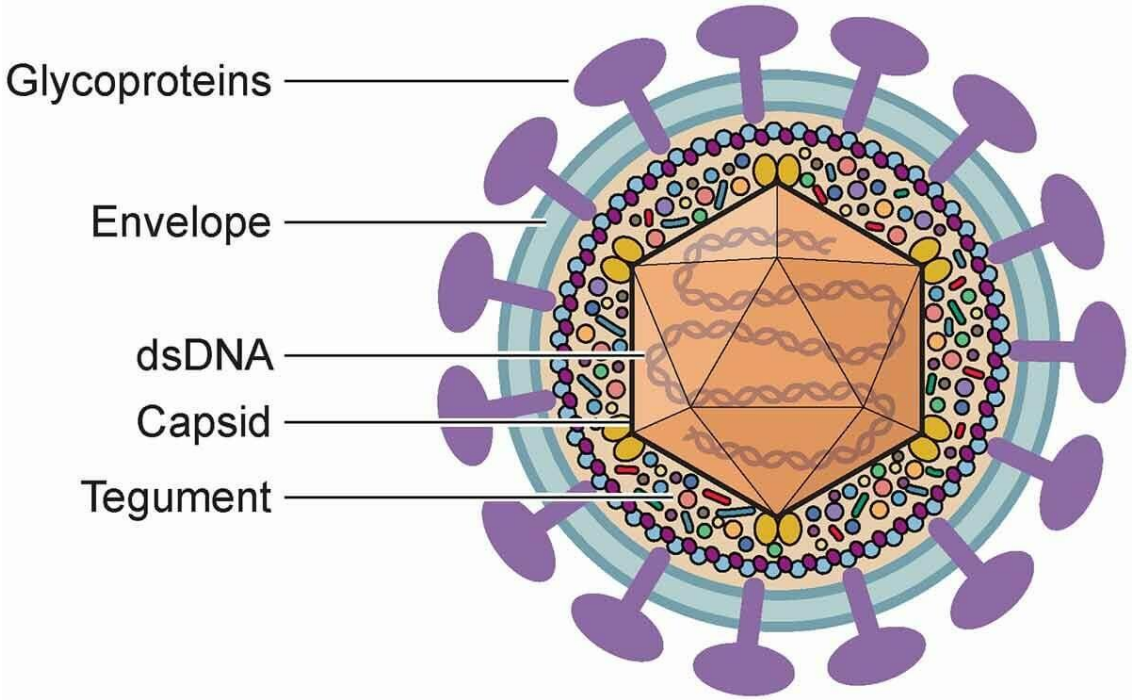
- Herpes simplex viruses

Objectives

- Get knowledge about properties of herpes simplex viruses
- Learn about Tegument of Herpes simplex viruses
- Get information about types of Herpes simplex viruses
- Teach students about Diagnosis of Herpes simplex viruses
- Learn about Principle of serological test of Herpes simplex viruses

Herpes simplex viruses

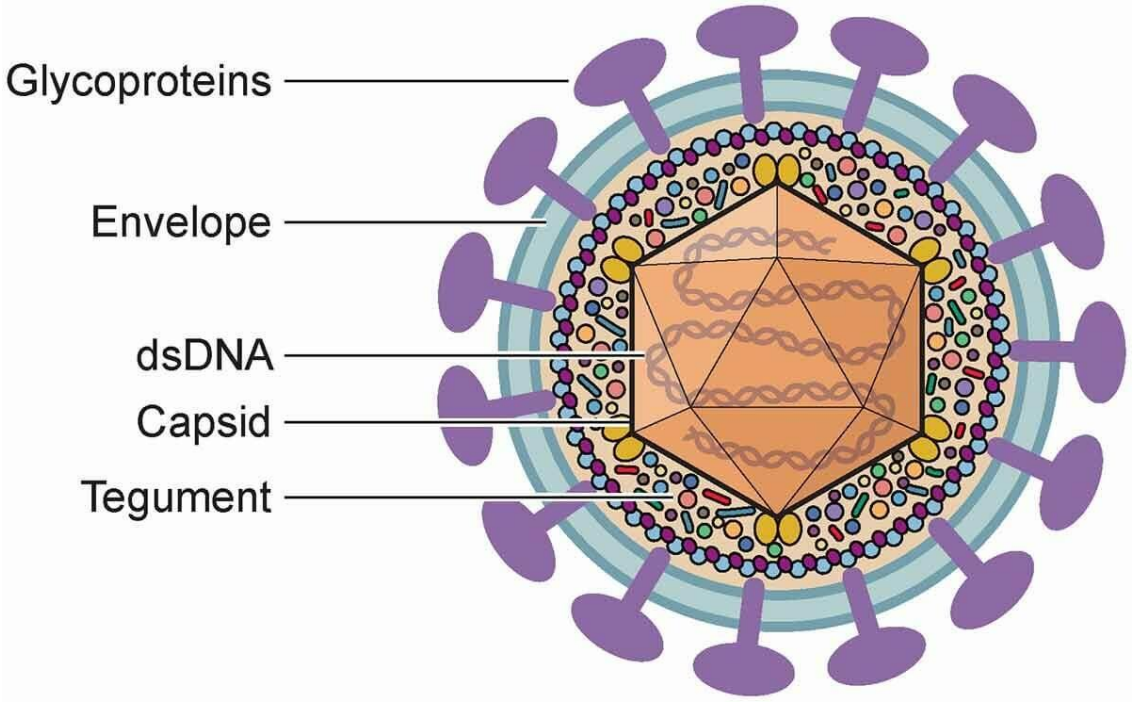
- Herpes simplex viruses are enveloped viruses.
- It has icosahedral capsid
- Its genome is linear double strand DNA.
- Genome is large enough to code for around 100 proteins



Tegument of Herpes simplex viruses

- The tegument is a crucial component of the structure of Herpes Simplex Viruses (HSV).
- The tegument is a layer located between the envelope and the capsid of the virus particle.
- **Functions of tegument are**

1. Structural support
2. Viral replication and gene expression
3. Evasion of host immune response
4. Delivery of viral components during infection



Types of Herpes simplex viruses

- Herpes simplex virus (HSV) belongs to the family **Herpesviridae** and is categorized into two main types: **HSV-1** and **HSV-2**.
- HSV-1 is commonly associated with **oral herpes** and is known to cause blisters around the mouth and on the face.
- HSV-1 can spread by contact with infected saliva.
- HSV-2 is primarily responsible for genital herpes,
- HSV-2 is sexually transmitted infection.

Diagnosis of Herpes simplex viruses

- Diagnosis is often based on clinical symptoms, but laboratory tests, including

1. PCR
2. Serological tests

can confirm the presence of the virus

Principle of serological test of HSV

The principle of HSV detection by a cassette, often referred to as a point-of-care (POC) or rapid test, is based on **immunochromatography**. This is a type of assay that uses the specific binding of antibodies to detect the presence of viral antigens or antibodies in a patient's sample. The cassette format is convenient for quick, on-site testing without the need for sophisticated laboratory equipment.

Detection of HSV

- Patient blood or serum is applied to the test strip.
- The cassette contains specific HSV antigens.
- If antibodies are present, they bind to the antigens, producing a visible line on the test strip.

References (in APA style)

- Ma, Z., et al. (2023). "Tegument protein UL21 of alpha-herpesvirus inhibits the innate immunity by triggering CGAS degradation through TOLLIP-mediated selective autophagy." Autophagy **19**(5): 1512-1532.
- A. Zuckerman, et al. - Principles and Practice of Clinical Virology-Wiley (2004)
- John Carter, Venetia Saunders - Virology Principles and Applications-Wiley (2007)