Lymphocryptovirus human gammaherpesvirus 4: Epstein-Barr Virus

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January 2023

1 At A Glance

1.1 Morphology and size

DNA inside of a round protein nucleocapsid, surrounded loosely by tegument and membrane envelope with glycoproteins. This virus is 122-180 nm diameter.

1.2 Taxonomic data

Herpesviridae is a the family containing all herpes viruses. There are three subfamilies:

- Alphaherpesvirinae (α)
- Betaherpesvirinae (β)
- Gammaherpesvirinae (γ)

EBV is in the Gammaherpesvirinae subfamily.

There are nine herpes viruses that infect humans, accross all three subfamilies:

1. HSV-1, oral herpes (α)
2. HSV-2, genital herpes (α)
3. Varicella zoster (α)
4. Epstein-Barr (γ)
5. Cytomegalovirus (β)
6. Roseolovirus (two types) (β)
7. Kaposki's sarcoma-associated herpesvirus (γ)

1.3 Reservoir

EBV is common in humans, with 90% of adults showing evidence of past or current infection. It uses a latency strategy to persist in the body despite immune resistance, expressing a limited subset of its genes. Bone marrow may be one site of persistence.

1.4 Mode of transmission

Saliva, sexual contact

1.5 Natural history of disease

Infection is often asymptomatic in childhood. In adolescence and adulthood, it can cause infectious mononucleosis and other diseases.

1.6 Means of diagnosis

EBV can be diagnosed by detecting antibodies to it or the small RNAs that it produces.

2 History and Burden

2.1 History of discovery

EBV was discovered through research on Burkitt's Lymphoma in Uganda in 1961-1968. Michael Epstein was a researcher who took the samples from Uganda to be studied in London and published the results along with his PhD student, Yvonne Barr. Denis Burkitt was a surgeon practicing in Uganda who presented information about the lymphoma.

2.2 History of burden

2.3 Current global burden and distribution

EBV is one of the most common viruses in humans. It increases the incidence of cancers, chronic fatigue, and multiple sclerosis.

3 Countermeasures

4 Modeling