Difference Between Ebola and Marburg

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Key Difference – Ebola vs Marburg

Viral diseases are lethal since there aren't many specific drugs or treatments available against viral infections. Viral infections are also communicable diseases where the virus is transmitted from person to person via a carrier or through direct contact. Viral hemorrhagic fevers or infections are a collective term to characterize viral infections which cause extensive bleeding, resulting in the dysfunction of organ systems. Viral hemorrhagic fevers are caused by four viral families. Ebola and Marburg are two families among them. **Ebola virus causes the Ebola viral disease, whereas Marburg virus causes the Marburg viral disease**. This is the key difference between Ebola and Marburg.

What is Ebola?

Ebola is a retrovirus, having a negative-stranded RNA. Ebola belongs to the virus family called Filoviridae. Members of the family Filoviridae can take pleomorphic structures and can attain different shapes.

Ebola, in its basic structure, takes the shape of bacilli; hence it is filamentous or rod-shaped. These filaments are arranged in a U shaped orientation, and the viral particles can be up to 14,000 nm in length and average 80 nm in diameter. The virus consists of a nucleocapsid and an outer protein capsid. The lipoprotein composition of Ebola is relatively high. Ebola viral capsid contains 7 nm long spikes on the surface of the viral capsid.Spikes are important in the attachment to the host cell. The genome of Ebola consists of a single negative strand of RNA that is non-infectious itself, but once it reaches the host, it uses the host's mechanism to transcribe the RNA and replicates. This process is mediated by the formation of an antisense RNA, and the complete biochemical procedure is yet to be elucidated.

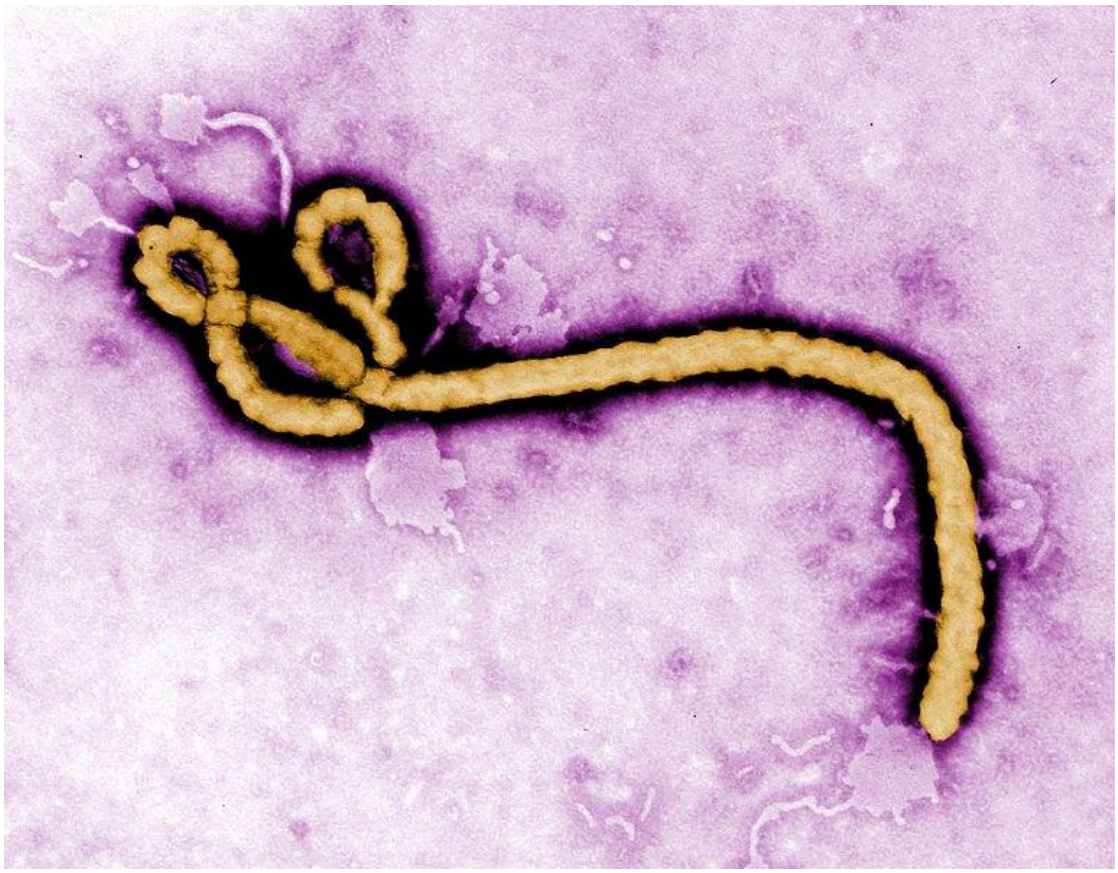

Figure 01: Ebola Virus

The Ebola virus first appeared in the continent of Africa, and the 2014–2016 outbreak in West Africa was the largest and most complex Ebola outbreak since the virus was first discovered in 1976.

Ebola virus is transmitted through fruit bats of the Pteropodidae family which are natural Ebola virus hosts. Ebola virus is then introduced into the human system through the close contact with animal hosts of Ebola such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope, and porcupines. Once the virus enters the bloodstream of humans, the spread of the virus can take place via direct contact or indirect contact with contaminated body fluids. As long as the virus resides in the blood, the individual remains infectious and has the ability to act as a vector for the virus.

What is Marburg?

Marburg virus was first identified in 1967, in Marburg and it was named so. Marburg virus also belongs to the family Filoviridae and is a rod-shaped virus. The genome of

Marburg is very similar to the Ebola virus. The Marburg virus does not contain the polyadenylation sequence in its glycoprotein gene (GP gene). Instead, it is acetylated. This acetylation process of Marburg virus GP gene is suggested to help the virus in binding to its receptor.

The abrupt symptoms of Marburg virus disease are severe headaches and severe malaise. After a few days, infected individuals may develop severe hemorrhagic manifestations with some form of bleeding, often from multiple sites.

The Marburg virus is transmitted by direct contact. Agents include blood, body fluids, and tissues of infected persons. Transmission of the Marburg virus also occurs by handling ill or dead infected wild animals mainly monkeys and fruit bats.

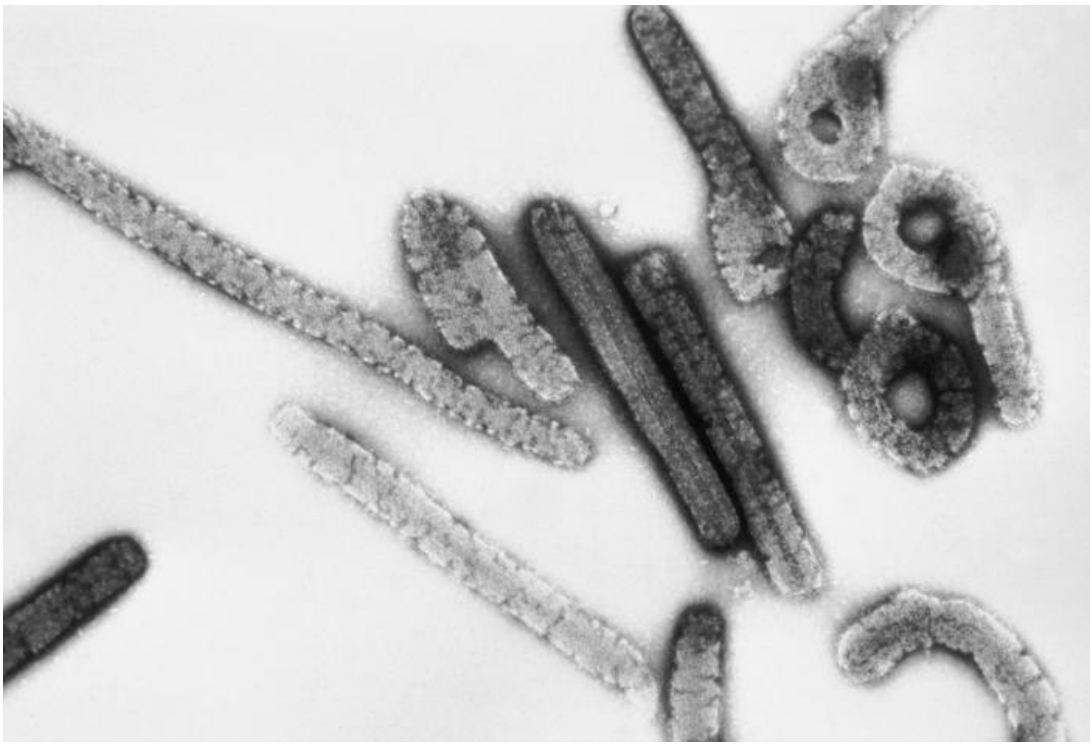

Figure 02: Marburg Virus

What are the Similarities Between Ebola and Marburg?

- Ebola and Marburg are two viruses that belong to the family Filoviridae.
- The basic structure takes the shape of bacilli; hence both are filamentous or rod-shaped.
- Both contain large genomes with 3′ and 5′ non-coding regions.

- Both genomes contain overlaps that consist of the transcriptional start and stop signals.
- Both viruses produce mRNA that can form stem-loop structures.
- Both originated in the African continent.
- Both viruses are transmitted via direct contact with body fluids or infected animals.
- Both viruses reside in animal hosts.
- Significant characteristics of both diseases are severe bleeding (hemorrhage) and organ failure resulting in death.
- Symptoms of the diseases are similar in both types of infection.
- No specific drug is still available for treatment of both diseases.

What is the Difference Between Ebola and Marburg?

Ebola vs Marburg	
Ebola is the virus which causes the Ebola viral disease.	Marburg is the virus which causes the Marburg viral disease.
Polyadenylation of the Gene	
Polyadenylation is prominent in Ebola virus.	Polyadenylation is not prominent and Marburg undergoes acetylation.
Overlap in the Genome	
There are three overlaps are in Ebola virus.	There is one overlap in Marburg.
Transcripts produced by GP Gene	
Two transcripts are produced in two in Ebola virus.	One transcript is produced in Marburg.

Summary – Ebola vs Marburg

Both Ebola and Marburg viruses are similar in structure, pathogenesis and their clinical manifestations. The difference between Ebola and Marburg is related to its genome and slight genetic variations seen between the two organisms. Both viral diseases are considered to be epidemic, and much attention is given to research based on these by the World Health Organization.

Image Courtesy:

1. “Ebola virus (2)” By CDC Global – Ebola virus (CC BY 2.0) via Commons Wikimedia
2. “Marburg virus” By Photo Credit:Content Providers(s): CDC/ Dr. Erskine Palmer, Russell Regnery, Ph.D. – This media comes from the Centers for Disease Control and Prevention’s Public Health Image Library (PHIL) (Public Domain) via Commons Wikimedia

References:

1. “Ebola and Marburg Virus.” Resonance-Pub.Com, Available here. Accessed 18 Sept. 2017.
2. “Ebola virus disease.” World Health Organization, World Health Organization, Available here. Accessed 18 Sept. 2017.
3. “Marburg virus disease.” WHO, World Health Organization, Available here. Accessed 18 Sept. 2017.

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