Yellow Fever Virus

Yellow fever is an acute hemorrhagic disease caused by yellow fever virus. This is an enveloped, linear single strand positive sense RNA virus with icosahedral capsid that is part of the Flavivirus family. The yellow fever virus is transmitted by the bite of female mosquitoes, specifically the Aedes aegypti species, commonly found in tropical and subtropical regions in South America and Africa. The only known hosts of the virus are monkeys and humans which are the reservoirs of the virus. In most cases, yellow fever presents with high fever and nausea that generally subsides after several days. However, in about 15% of the cases, individuals enter a second toxic phase characterized by recurring high fever, jaundice and hemorrhaging, including bleeding in the mouth, eyes and gastrointestinal tract. The bleeding in the GI tract causes vomiting that contains blood, leading to the name black vomit. This toxic phase can be fatal.



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Characteristics

Flavivirus
Flavi-Flav-virus
Yellow fever virus is part of the Flavivirus family. Other Flaviviruses include hepatitis C virus, West Nile virus, and the viruses that cause Dengue and St. Louis encephalitis.

RNA Virus
RNA-rhino
Yellow fever virus is an RNA virus, meaning its genetic code consists of ribonucleic acid as opposed to deoxyribonucleic acid.

Enveloped
Envelope
Yellow fever virus is an enveloped virus. Viral envelopes are outer membranes that cover their protein capsids that help to enter host cells.

Icosahedral
Ice-cathedral
The yellow fever virus has an icosahedral capsid with 20 triangular faces and the tightly coiled RNA strand in the middle.

SS Positive Linear
Plus-sign on Ice-cathedral
Yellow fever virus has RNA in a linear arrangement as opposed to a circular formation. Single stranded positive sense linear viruses have their genome directly utilized as mRNA. Host ribosomes translate the RNA genome directly into a single protein that is modified by the host and viral proteins to form the various proteins necessary for replication.

Transmitted By Aedes Mosquitos
Hades Mosquito
The yellow fever virus is transmitted by the bite of female mosquitoes, specifically the Aedes aegypti species, commonly found in tropical and subtropical regions in South America and Africa.

Monkey or Human Reservoir
Monkeys and Humans on boat
The only known hosts of the virus are monkeys and humans which are the reservoirs of the virus.

Signs and Symptoms

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High fever

High Fever-beaver

In most cases, yellow fever presents with high fever and nausea that generally subsides after several days. However, in about 15% of the cases, individuals enter a second toxic phase characterized recurring high fever, jaundice, and hemorrhaging.

Jaundice

Jaundice-janitor

The toxic phase of yellow fever can cause severe liver damage that causes jaundice, leading to the name yellow fever.

Black vomitus

Black Vomit

The toxic phase of yellow fever is characterized by hemorrhaging, including bleeding in the mouth, eyes, and gastrointestinal tract. The bleeding in the GI tract typically causes vomiting that contains blood, leading to the name black vomit.

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