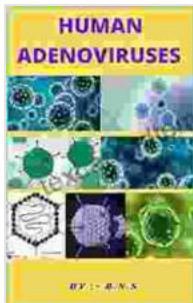


Human Adenoviruses: A Comprehensive Guide



Human Adenoviruses : Virus by mb-bookline VERLAG

★★★★☆ 4.6 out of 5

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File size : 4510 KB
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Adenoviruses are a large family of viruses that can infect a wide variety of animals, including humans. Human adenoviruses (HAdVs) are responsible for a variety of respiratory, gastrointestinal, and eye infections. HAdVs are also known to cause cancer in animals, and there is some evidence that they may also be involved in the development of cancer in humans.

Viral Structure and Genetics

HAdVs are non-enveloped, double-stranded DNA viruses. The genome of HAdVs is approximately 36 kilobases in length and encodes for about 200 proteins. The HAdV genome is divided into two regions: the early region (E) and the late region (L). The E region contains the genes that are required for virus replication, while the L region contains the genes that are required for virus assembly.

HAdVs are classified into six species (A-F) based on their hemagglutination properties. Species A, B, and C HAdVs are responsible for most human infections. Species D, E, and F HAdVs are primarily found in animals, but they can occasionally infect humans.

Pathogenesis

HAdVs enter cells by binding to the coxsackievirus and adenovirus receptor (CAR). CAR is expressed on a variety of cells throughout the body, including respiratory epithelial cells, gastrointestinal epithelial cells, and conjunctival cells. After binding to CAR, HAdVs are endocytosed into the cell.

Once inside the cell, HAdVs traffic to the nucleus, where they uncoat and begin to replicate. The HAdV genome is transcribed into early and late mRNAs. The early mRNAs encode for proteins that are required for virus replication, while the late mRNAs encode for proteins that are required for virus assembly.

HAdVs replicate in the nucleus of the cell. After assembly, the HAdV particles are released from the cell by budding from the nuclear membrane.

Clinical Manifestations

HAdVs can cause a variety of respiratory, gastrointestinal, and eye infections. The most common HAdV infections are:

* Acute respiratory infections (ARIs) * Gastroenteritis * Conjunctivitis

ARIs caused by HAdVs are typically mild, but they can be more severe in young children and people with weakened immune systems. Symptoms of

ARIs caused by HAdVs include fever, cough, sore throat, and runny nose.

Gastroenteritis caused by HAdVs can range from mild to severe.

Symptoms of gastroenteritis caused by HAdVs include nausea, vomiting, diarrhea, and abdominal pain.

Conjunctivitis caused by HAdVs is characterized by inflammation of the conjunctiva, the clear membrane that covers the white part of the eye and lines the eyelid. Symptoms of conjunctivitis caused by HAdVs include redness, swelling, and itching of the eyes.

Diagnosis

HAdVs can be diagnosed by a variety of methods, including:

* Virus culture * PCR * Antigen detection

Virus culture is the gold standard for diagnosing HAdV infections. However, virus culture can be time-consuming and expensive. PCR and antigen detection are more rapid and less expensive than virus culture, but they are not as sensitive.

Treatment

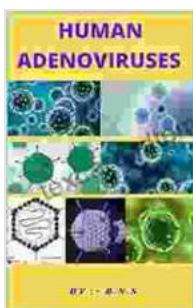
There is no specific treatment for HAdV infections. Treatment is supportive and includes rest, fluids, and pain relievers. In severe cases, hospitalization may be necessary.

Prevention

There is no vaccine available to prevent HAdV infections. However, there are some things that can be done to reduce the risk of infection, including:

* Washing hands frequently with soap and water * Avoiding contact with people who are sick * Staying home from work or school if you are sick

HAdVs are a common cause of respiratory, gastrointestinal, and eye infections. HAdV infections are typically mild, but they can be more severe in young children and people with weakened immune systems. There is no specific treatment for HAdV infections, but there are some things that can be done to reduce the risk of infection.



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