

## **RNA ENVELOPED VIRUSES**

### **Respiratory Viruses**

- (1) Influenza A and B viruses. Influenza A virus is the major cause of recurrent epidemics of influenza.
- (2) Parainfluenza viruses. These viruses are the leading cause of croup in young children and an important cause of common colds in adults.
- (3) Respiratory syncytial virus. This virus is the leading cause of bronchiolitis and pneumonia in infants.

### **Measles, Mumps, and Rubella Viruses**

These viruses cause well-known childhood diseases and are the viral components of the MMR vaccine. Widespread use of the vaccine has markedly reduced the incidence of these diseases in the United States. These viruses are well known for the complications associated with the diseases they cause (e.g., rubella virus infection in a pregnant woman can cause congenital malformations).

### **Rabies Virus**

This virus causes almost invariably fatal encephalitis following the bite of a rabid animal. In the United States, wild animals such as skunks, foxes, raccoons, and bats are the major sources, but human infection is rare.

### **Hepatitis C Virus**

This virus causes hepatitis C, the most prevalent form of viral hepatitis in the United States. It causes a very high rate of chronic carriers and predisposes to chronic hepatitis and hepatic carcinoma.

### **Human T-Cell Lymphotropic Virus**

This virus causes T-cell leukemia in humans. It also causes an autoimmune disease called tropical spastic paraparesis.

## **Human Immunodeficiency Virus**

Human immunodeficiency virus (HIV) causes acquired immunodeficiency syndrome (AIDS).

## **RNA NONENVELOPED VIRUSES**

### **Enteroviruses**

These viruses infect the enteric tract and are transmitted by the fecal–oral route. Poliovirus rarely causes disease in the United States because of the vaccine but remains an important cause of aseptic meningitis and paralysis in developing countries. Of more importance in the United States are Coxsackie viruses, which cause aseptic meningitis, myocarditis, and pleurodynia; and echoviruses, which cause aseptic meningitis.

### **Rhinoviruses**

These viruses are the most common cause of the common cold. They have a large number of antigenic types, which may account for their ability to cause disease so frequently.

### **Rotaviruses**

These viruses possess an unusual genome composed of double-stranded RNA in 11 segments. Rotaviruses are an important cause of viral gastroenteritis in young children.

### **Hepatitis A Virus**

This virus is an important cause of hepatitis. It is structurally different from hepatitis B virus, which is a DNA enveloped virus. Furthermore, it is epidemiologically distinct (i.e., it primarily affects children, is transmitted by the fecal–oral route, and rarely causes a prolonged carrier state).

### **Noroviruses**

Noroviruses are a common cause of gastroenteritis, especially in adults. They are a well-known cause of outbreaks of vomiting and diarrhea in hospitals, nursing homes, and on cruise ships.

### **Hepeviruses**

The main human pathogen in the hepevirus family is hepatitis E virus (HEV). It causes hepatitis acquired by fecal–oral transmission similar to hepatitis A virus. HEV is a nonenveloped virus with a positive-polarity single-stranded RNA genome.

### **OTHER CATEGORIES**

Arboviruses, which have the common feature of being transmitted by an arthropod. Tumor viruses, and the “slow” viruses, which cause degenerative central nervous system diseases primarily.