



A brief note on antigenic drift

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EDITORIAL NOTE

Antigen drift is a genetic variation of a virus, caused by the accumulation of mutations in viral genes, which encode proteins on the surface of the virus that are recognized by host antibodies. This resulted in a new strain of virus particles that could not be effectively inhibited by antibodies that prevented early virus strains from being infected. This makes the modified virus easier to spread in some immune populations. Both influenza A virus and influenza B virus have antigenic drift, and antigen transfer is a closely related process; it refers to more drastic changes in the surface proteins of the virus. Genetic drift is very different and has a wider range of applications; it refers to the gradual accumulation of random mutations in any DNA sequence without interfering with DNA function, so it will not be detected by natural selection. This is a natural process. During the replication process, the genes encoding the antigen will undergo mutations (errors), which will change their performance in the immune system.

When antigens on the surface of virus particles bind to immune receptors specific to these antigens, the immune system recognizes the virus. These receptors can be antibodies in the blood or similar proteins on the surface of immune system cells. This recognition is very accurate, just like a key recognizes a lock. After infection or vaccination, the body will produce more of these virus-specific immune receptors; thereby preventing this specific virus strain from reinfection this is called acquired immunity. However, the viral genome continues to mutate, producing new forms of these antigens. If one of these new forms of antigen is different enough from the old antigen, it will no longer bind to antibodies or receptors on immune cells, allowing the mutant virus to infect or vaccinate people who were immune to original strain of virus due to previous infections.

Influenza viruses change through drift and change. Antigenic drift refers to the gradual accumulation of point mutations during the annual influenza transmission due to the high error rate associated with RNA-dependent RNA polymerase during virus replication. Antigenic drift involves the accumulation of a series of tiny genetic mutations. Antigenic switching involves the mixing of genes from influenza viruses of different species. Antigen drift is a genetic variation of a virus, caused by the accumulation of mutations in viral genes, which encode proteins on the surface of the virus that are recognized by host antibodies.

When antigenic drift occurs, the body's immune system may not be able to recognize or prevent diseases caused by the new influenza virus. The emergence of new influenza A virus strains due to antigenic drift can lead to influenza epidemics or pandemics. Antigen drift is also known to occur in HIV (Human Immunodeficiency Virus) that causes AIDS and certain rhinoviruses that cause the common cold in humans.