

Novel Intracellular Neutralization Strategy against the Influenza Virus and a Broad Spectrum of Pathogens

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Technology description

Background

The immune system is designed to generate a response and neutralize pathogens like bacteria and their toxins, viruses and other microorganisms that invade the body's tissues. It can be thought of as a system that is distributed throughout the body in the form of immune cells and protein molecules like antibodies to defend the body against a variety of pathogens. The antibodies identify and neutralize foreign objects such as bacteria and viruses by recognizing a unique specific part of the foreign target, termed an antigen, and bind to it in a lock-and-key type of mechanism. Antibodies and immune cells typically recognize antigens and act outside cells. However, many pathogens grow and replicate inside the host or human cells. Once the pathogens invade the cell, it is difficult for the immune system to target and eliminate them. Innovative Technology Researchers at the University of Maryland have developed a novel antibody-mediated neutralization mechanism that can neutralize the influenza virus and potentially other pathogens by targeting them inside the infected cells. The researchers believe that the molecular mechanism is similar to the antibody-antigen method utilized by the body's natural defense system to target pathogens that have already invaded and overcome the body's first line of defense. This revolutionary technique will potentially broaden antibody treatment in a wide-range of diseases and provide more prophylactic and therapeutic functions like vaccine development against infectious diseases.

Application area

Potential post-infection or immunotherapeutic treatment against influenza virus and a broad spectrum of pathogens

Potential vaccine development against respiratory, immunodeficiency (AIDS) and sexually transmitted disorders (Hepatitis and Chlamydia)

Advantages

Uses naturally occurring non-toxic substances that would be easily accepted by the body

Improvement over existing technologies that do not neutralize the virus or pathogens that are present inside a cell

Adaptable to different methods of medication or treatment administration 无针 i.e. needle free, inhaled medication

Institution

[University of Maryland](#)

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