

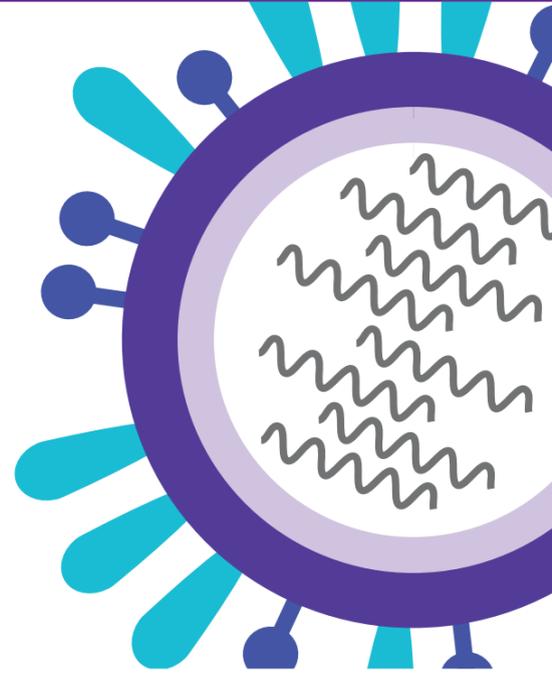
# INFLUENZA

Influenza (flu) is a contagious respiratory illness caused by influenza viruses

There are three types of influenza virus: A, B, and C; humans are most commonly infected with type A.

Influenza virus can survive for only five minutes on your skin, but it can live on hard surfaces for one to two days.

The influenza genome contains eight strands of RNA.



## HEMAGGLUTININ

### Host cell infection

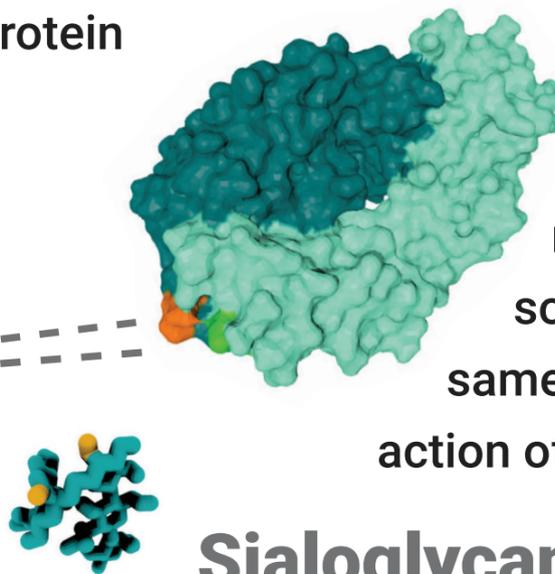
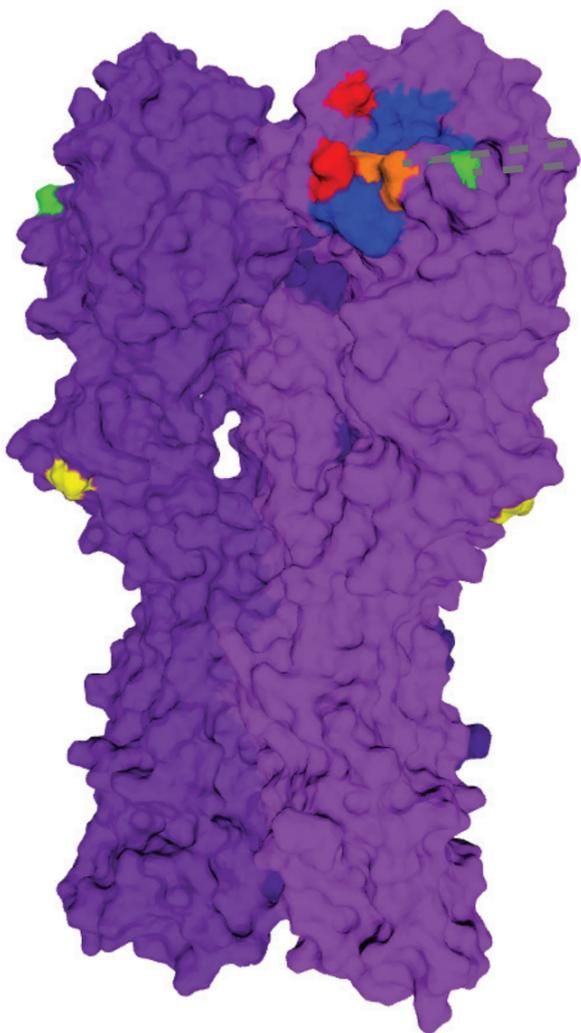
a receptor on the outside of the flu virus that allows the virus to bind to cells in the nose, throat, and upper airway

seasonal flu vaccines help the immune system generate antibodies that target the “head” region of the hemagglutinin protein

## Hemagglutinin

## Antibody 5J8

Antibody 5J8 mimics sialoglycan, so it can bind at the same spot, and block the action of hemagglutinin



## Sialoglycan

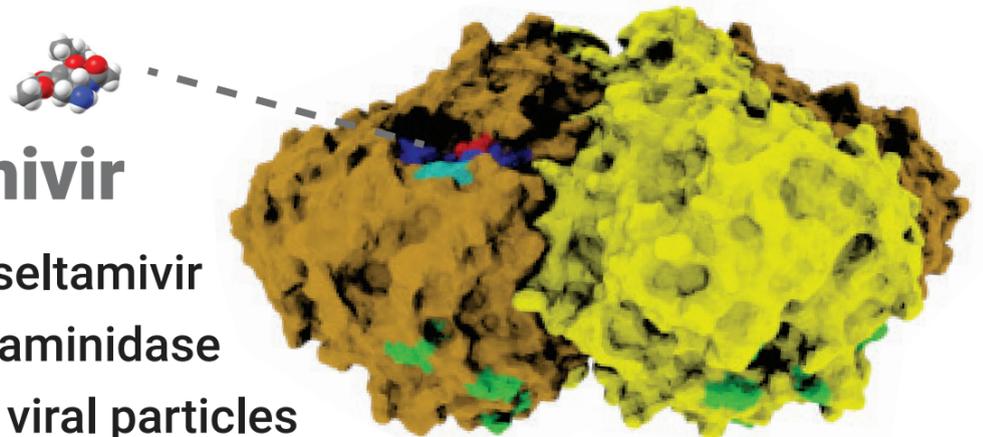
## NEURAMINIDASE

### Virus replication

a receptor on the flu virus that enables the virus to be released from host cells

## Oseltamivir

Also known as “Tamiflu”, oseltamivir binds to the active site of neuraminidase and inhibits the release of new viral particles from the cell.



## Neuraminidase

# SEASONAL VS. PANDEMIC FLU

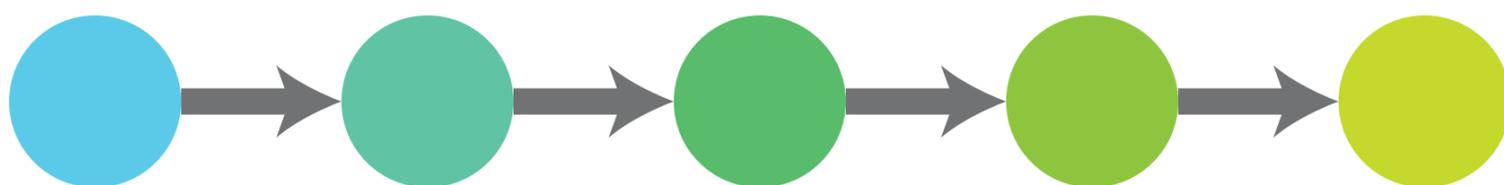
Effect of antigenic changes on flu

## SEASONAL FLU

### Antigenic Drift

Small changes (mutations) occur in the influenza virus over time as it replicates.

The virus becomes different enough that it cannot be recognized by the body's immune system.



An abrupt change in the influenza virus can cause it to "jump" species.

When this happens, most people will have little to no protection against the new virus.

## PANDEMIC FLU

### Antigenic Shift

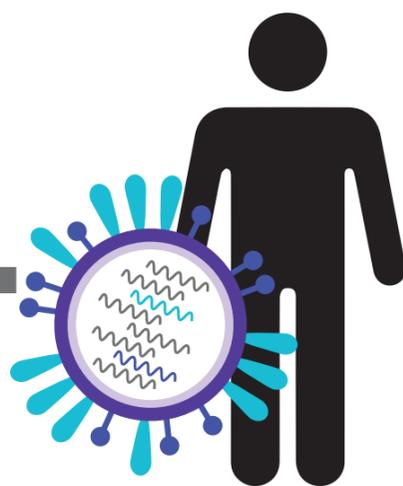
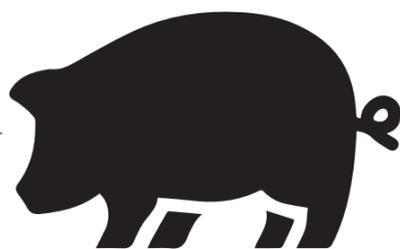


the flu virus transmits from one species to another without genetic changes



a bird strain jumps to an intermediate animal host, and then to humans, without genetic change

B



a new subtype of flu emerges from mixing of genetic material

C

