

## NEW DRUG TARGETS FLU'S ACHILLES HEEL

Kiparenko V.Yu, Semyonova L.V., Moroz G.N., Budanova L.G.,  
Kuklenko Yu.O., Kovryga Yu.V.

National University of Pharmacy, Kharkiv, Ukraine

juliakuklenko@rambler.ru

The aim of this article is to present a new class of influenza drug that tricks the virus by using its own mechanism of infection. So far, the drug has been used to successfully treat mice infected with lethal strains of influenza - including resistant strains of the virus. Quantitative and qualitative methods have been used in the research of the article.

The results of the investigation have shown that the flu virus has two “spikes” or proteins that it uses in the infection process. McKimm-Breschkin explains that hemagglutinin, binds the virus to a healthy cell through sugars on the cell surface. The virus is then “swallowed” by the cell where it multiplies. The virus then uses a second “spike”, neuraminidase, to sever its connection to the sugar - and therefore the cell - “allowing the virus progeny to spread to uninfected cells”, the research shows. The new drug stops this latter process by blocking the “mouth” of the neuraminidase so the virus remains attached to the cell and cannot spread.

As the investigation has proved, many scientists as well as the World Health Organization estimate influenza affects three to five million people globally each year, causing 250,000 to 500,000 deaths. It is important to “stay a step ahead” of the virus by developing new drugs to combat its spread.

For example, McKimm-Breschkin says it is important to “stay a step ahead” of the virus by developing new drugs to combat its spread. “With millions of poultry currently infected with ‘bird flu’ globally, there are still concerns about its adaptation and potential to spread among humans, causing the next pandemic,” she says. She says a seasonal flu developed a random mutation in Norway making it resistant to Tamiflu. Understanding exactly how flu viruses become resistant to drugs has helped the researchers to design a better flu drug, says McKimm-Breschkin.

As the site where the drug binds is found in all flu strains, the new drug is expected to be effective even against future flu strain, she says

So, the results of the investigation have proved that the virus may not be able to develop resistance to this new type of drug because it stops a process that is common to all strains of flu.