

**THEORETICAL JUSTIFICATION OF FORMULATION
AND EXPERIMENTAL EVALUATION OF ANTIVIRAL ACTIVITY
OF SOME COMPONENTS OF A COMPLEX NASAL DRUG
BY *IN VITRO* AND *IN VIVO* METHODS**

Nefedova L. V., Boyko N. N., Rybalko S. L., Starosila D. B.

Scientific supervisors: Sagaydak-Nikitjuk R.V., Zhukovina O.V.

National university of Pharmacy, Kharkiv, Ukraine;

Institute of Epidemiology and Infectious Diseases at the Academy of Medical
Science of Ukraine, Kiev named after L.V.Gromashevskiy.

Belgorod State National Research University, Belgorod, The Russian Federation

Nefjodovalv@gmail.com

Introduction. Currently, limited number of active substances for etiotropic and symptomatic treatment of ARVI are available, especially those for local administration.

The **aim** is conducted a preliminary *in vitro* and *in vivo* study of interferon induction and antiviral activity of para-aminobenzoic acid (PABA), ϵ -aminocaproic acid (ACA) and their mixtures against influenza virus.

Materials and methods. For *in vitro* study of anti-influenza activity of PABA, ACA and their mixture we used 24-hour passed culture of MDCK cells, test-strain influenza virus A/FM/1/47 (H₁N₁), with infected titer in MDCK cell culture – 3.0 – 9.0 lgID₅₀.

For *in vivo* study of interferon induction, we used outbred white mice which were administered intraperitoneally PABA solutions at various doses.

Interferon activity in mouse serum was determined by a standard technique suppressing cytopathic effect of vesicular stomatitis virus on mouse passed lymphoma cells culture (OH-1), virus test-strain Indiana.

Results and discussion. In our *in vitro* studies we found lower value concentrations of test substances with antiviral activity. For example, for PABA, it is $C=0.00781$ mcg/ml (lgID₅₀/lgID₀=4.0/9.0), for PABA+ACA, it is $C=0.62$ mcg/ml (with the ratio of components 1:100 and lgID₅₀/lgID₀=5.0/9.0), and for ACA, it is $C=0.78$ mcg/ml (lgID₅₀/lgID₀=3.0/6.0). In addition, mixture of PABA+ACA demonstrates synergetic effect of antiviral activity.

Conclusions. In our *in vivo* studies we found a dependence of interferon activity in blood serum of mice on time and dose of PABA.

At the same time, maximum level interferon activity in mouse serum was seen in 24 hours after administration of PABA.

Accordingly to our initial *in vitro* and *in vivo* studies we have shown to be promising for further research and development of complex nasal compositions with antiviral activity.