bacteria, resistant to conventional antibiotics. However, some cytotoxicity of the peptides towards host cells limits their use in medicine and points to the necessity of creation of AMPs analogs with optimized features. Our work is aimed to the analysis of the antimicrobial activity of structural analogs of proline-rich AMPs of the domestic goat Capra hircus leukocytes — bactenecins ChBac3.4, ChBac5 and ChBac7.5 against drug-resistant clinical isolates of gram-negative bacteria (*Pseudomonas aeruginosa* MDR 522/17, *E. coli* ESBL 531/17, *Acinetobacter baumannii* 7226/16, *Klebsiella pneumonia* 344/17) and examination of their hemolytic properties towards human erythrocytes. The broth microdilution assay was used to evaluate the minimal inhibitory concentrations (MIC) of chemically synthesized peptides, and it was shown that truncated variants of ChBac5 (1–23 — sequence from the 1st to 23rd amino acid residues) and ChBac3.4 (1–14) exerted a low activity in comparison with that of the full length peptides, while the peptide ChBac3.4 (1–19) had a significantly higher efficacy against all tested bacteria. We found that adding a fragment Arg-Phe-Arg to the peptides N-termini increased the antibacterial properties of the full length ChBac3.4, and to a much lesser extent of the truncated bactenecins. A significance of the His-including region (14–18) of ChBac3.4 has been explored: the peptide with modification in this region and a lack of His residue possessed a potent antimicrobial activity. The highest antibacterial effect was observed in the case of a chimeric peptide including N-terminal fragment of ChBac7.5 and a cystein-containing fragment of protegrin 1 (MICs of 0.5–4 microM). Analysis of the hemolytic activity of the studied AMPs revealed that all the peptides do not cause lysis of human erythrocytes in a range of concentrations from 1 to 100 microM, except of the chimeric peptide that induced a significant lysis of red blood cells. The structural-activity analysis of caprine bactenecins revealed most promising AMPs with potent antibacterial activity and a lack of the cytotoxic effects for human cells (in particular, analogs of ChBac3.4 with modification in 14-18 amino acids region) that point to the prospect of the further investigation of caprine batenecins aimed to the creation the novel pharmaceuticals to combat antibiotic-resistant bacteria.

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ANTI-INFLAMMATORY EFFECT OF ITRACONAZOLE IN PATIENTS WITH ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS

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The aim was to study the dynamics of immunological parameters in patients with ABPA on the background of the antifungal therapy.

The study included 11 patients with ABPA at the age from 29 to 78 years (median — 36 years). Allergological examination included skin tests with an allergens *A. fumigatus* ("Allergopharma", Germany). The levels of total IgE ("Polignost", Russia) and specific IgE (sIgE) to fungal allergens ("Alcor Bio", Russia) in serum were determined by enzyme immunoassay. Spontaneous production of interferon-γ (IFNγ) was determined in the culture supernatant of cells without the addition of inducers. To assess the mitogen-induced production of IFNγ, blood cells were incubated for 24 hours with PHA at a concentration of 50 mg/ml ("Sigma" USA). The production of IFNγ, activated by the allergen *A. fumigatus* ("Alcor Bio", Russia) at a concentration of 10 μg/ml, was determined on day 6. The resulting supernatants were used to determine spontaneous and induced IFNγ production by enzyme immunoassay using commercial test systems ("Vector-Best", Russia).

The prick test with *A. fumigatus* was positive, levels of sIgE to *A. fumigatus* (Me 1.56 (0.36÷10.56) IU/ml) and total IgE (Me 986 (873÷1695) IU/ml) were elevated in all ABPA patients. In the analyzed cases, according to the chest CT scans, focal and segmental lung infiltrations were detected in 6 (55%) patients, bronchiectasis — in 5 (45%). During the study, patients with ABPA were treated with itraconazole at a dose of 400 mg per day. In all patients after of therapy significant clinical effect was noted: decrease in dyspnea and cough, improvement in the lung function, and positive dynamics in chest CT scans. At a re-examination at 12 weeks, all patients had a statistically significant decrease in the level of sIgE to *A. fumigatus* (Me 0.66 (0.01÷5.24) IU/ml, $p = 0.003$) and total IgE (Me 540 (73÷613) IU/ml, $p = 0.003$). Was identified increased ability of blood cells to produce IFNγ in response to PHA stimulation of the blood cells (1914 (1294÷2232) vs 910 (852÷1648) pg/ml, $p = 0.004$) and to induction by the *A. fumigatus* allergen (48.0 (24.0÷61.0) vs 19.0 (2.0÷34.0) pg/ml, $p = 0.001$). The absolute number of eosinophils decreased ($p = 0.05$).

The tendency towards normalization of the immunological profile of patients in association with clinical signs improvement indicates the successful use of antifungal therapy in patients with ABPA.

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SAPONIN TAUROSID Sx1 ADMINISTRATION ENHANCES ANTIBODY PRODUCTION IN MICE, CHALLENGED WITH INFLUENZA VIRUS OR IMMUNIZED WITH INFLUENZA GRIPPOL® VACCINE

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Several saponins demonstrate antiviral and immune potentiating properties. In this work the influence of saponin Taurosid Sx1 on the anti-hemagglutinin (H) antibodies production has been studied in influenza virus (IV) challenged or GRIPPOL® vaccinated mice.

BALB/c mice were challenged intranasally with 50 μl (10 LD_{50}) of the A/WSN/1/33(H1N1) virulent strain or immunized with polymer-subunit GRIPPOL® vaccine season 2005/2006. A standard vaccine dose contained per 5 μg of H1 and H3, 11 μg of H from the IV type B. Taurosid Sx1 saponin was derived from *Hedera taurica* Carr. (Araliaceae). The blood serum levels of anti-H antibodies had been determined by Hemagglutination Inhibition (HI) test with the virulent A/WSN/1/33(H1N1) strain or standard kits of IV diagnostic strains (DS). Mice were vaccinated intramuscularly (i.m.) with 0.1 ml 10-times diluted vaccine. Control group was given isotonic sodium chloride saline solution (ISS). Within 3 days after vaccination or the virulent IV challenge animals were given 200 μg/mouse/day of saponin orally. Control mice were given ISS. Statistical analyses was based on a middle means of the reverse titers of anti-H antibodies calculations (M±m), and an unpaired two sample Student-t test. P values of $P \leq 0.05$ were considered as significant (*).