

## INFLUENCE OF ADAMANTANE DERIVATIVE ON THE FORMATION OF *PSEUDOMONAS AERUGINOSA* PERSISTER CELLS

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**Introduction.** Today, the problem of treating patients with chronic infections caused by biofilms, the structured microbial communities, remains relevant. One of the reasons for the ineffectiveness of antimicrobial chemotherapy in patients with biofilm infections is the presence of metabolically inactive persister cells in the biofilm, which are characterized by resistance to antimicrobial drugs. Most often, persister cells are formed under the action of antibiotics that affect the metabolic processes of bacteria, including fluoroquinolones, aminoglycosides, etc. Our previous studies have shown that compounds with adamantyl radical exhibit antibiofilm activity against *P. aeruginosa* [Vrynchanu, N., 2007].

**Objectives.** The objective is to evaluate the effect of a compound with an adamantyl radical on the formation of *P. aeruginosa* persister cells.

**Materials and Methods.** The 4-(1-adamantyl)-(1-aminobutyl)-benzene (code AM-166) compound and ciprofloxacin as a reference preparation was used in the study. Studies were performed on a clinical isolate of *P. aeruginosa* 449 that was resistant to cefepime and cefotaxime, moderately susceptible to ceftazidime and aztreonam, susceptible to meropenem, ciprofloxacin, gentamicin, and amikacin. The activity of the compound was investigated at concentrations of 15 µg/mL and 250 µg/mL (minimum inhibitory concentration (MIC) was 100 µg/mL). The presence of persister cells in the population of *P. aeruginosa* under the action of the adamantane-containing compound was determined according to [Marques C.N.H., 2015, Chen C.Y.A., 2003]. Statistical analysis of the data was performed using the ANOVA method.

**Results and Discussion.** In previous experiments, it was found that the compound AM-166 exhibits antibiofilm activity: at a concentration of 250 µg/mL the biomass of the biofilm is 23.4 % as compared to the control, which may be due to the formation of metabolically inactive persister cells. The obtained data on the formation of persister cells under the influence of AM-166 showed that at the concentration of 250 µg/mL, the proportion of the formed subpopulation of persister cells was 0.016 %, which is probably lower compared to ciprofloxacin (0.9 %,  $p < 0.05$ ). At the concentration of 15 µg/mL, all cells were in the persister state.

**Conclusions.** Thus, the 4-(1-adamantyl)-(1-aminobutyl)-benzene compound (250 g/mL) does not prevent the formation of *P. aeruginosa* persister cells, but their number is less than under the action of ciprofloxacin.