



Antileukemic Activity of 1-Oxyphenazine Produced by *Pseudomonas Aureofaciens* Phz 127/11

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It's known that some phenazines antibiotics possess an antitumor activity. For example bis(phenazine-1-carboxamide) inhibits a panel of tumor cell lines including P388 leukemia, Lewis lung carcinoma and human Jurkat leukemia; XR5944 – phenazine compound – may be useful in breast cancer therapeutics.

Acute myeloid leukemia (AML) is an oncologic pathology of myeloid hemopoiesis, characterized by the rapid growth of abnormal white blood cells that accumulate in the bone marrow and interfere with the production of normal blood cells. AML is the most common acute leukemia affecting adults, its incidence increases with age.

In this paper we described the synthesis of 1-oxyphenazine antibiotic by *Pseudomonas aureofaciens* phz 127/11 bacteria and characterized its ability to inhibit the growth AML cells Kasumi-1 line. These cells produce chimeric AML1-ETO protein modulating expression level of genes that are crucial for the appropriate differentiation of granulocytes. The cells are positive for myeloperoxidase showing a morphology of myeloid maturation.

Isolation of bacterial phenazine antibiotics from the culture medium for *P. aureofaciens* phz 127/11 growth was carried out according to a scheme proposed by M. Levitch, E. Stadtman. Identification of phenazine compounds was performed using liquid chromatography with mass spectrometric detection LCMS-QP8000α ("Shimadzu" Japan).

In order to study cytotoxic effect of the 1-oxyphenazine on Kasumi-1 line cells, phenazine antibiotic (0.5-12 mg/ml) was added to the culture medium. Cells were counted in 72 hours after phenazine applying. 1-oxyphenazine was shown to suppress AML cell growth in dose dependent manner. At a rate of 10 mg/ml 1-oxyphenazine not only inhibited reproduction of cells Kasumi-1 line: percentage of alive cells fallen to 36.5% in comparison with untreated cells, but also had strong cytotoxic effect: it caused apoptotic death of 59.76% of cells.

We have shown that 1-oxyphenazine synthesized by *P. aureofaciens* phz 127/11 inhibits proliferation as well as viability of Kasumi-1 cells.

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