ANALYSIS OF THE ANTICANCER ACTIVITY OF THIENOPYRIMIDINES

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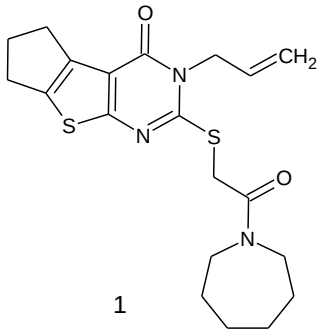
Introduction. Cancer is dangerous for patients and in many cases is very difficult to treat. Moreover, in many cases, therapy is selected individually and requires careful supervision by a doctor. Considering the large number of types of cancer and the complexity of therapy, not only the search for medical technologies, but also the development of new chemotherapeutic agents with high selectivity for human tumor cells remains relevant. Small molecules play an important role among potential anticancer drug candidates.

Aim. Analysis of new relevant literature data on the anticancer activity of thienopyrimidine derivatives.

Materials and methods. Methods of literature search, data analysis and the formation of conclusions based on them.

Results and discussion. Analysis of literature data showed that among thienopyrimidine derivatives, many compounds were found for which anticancer activity at the level of inhibition of cell culture growth was established. The compound with thienopyrimidine fragment 1 was among the leaders in binding to ubiquitin-specific protease 7, and target compounds including cyclohepta[b]thiophene cores 2 were obtained and tested for their inhibitory activity against PARP-1. Compound 3 is the most effective analogue against three cancer cell lines (MCF-7; 6.57 ± 0.200, A-549; 6.31 ± 0.400, PC-3; 7.39 ± 0.500 μg/ml) compared to control doses of doxorubicin, 5-fluorouracil and riluzole.



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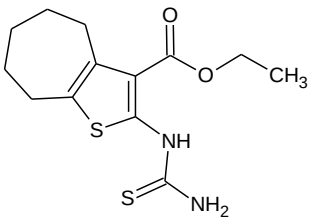

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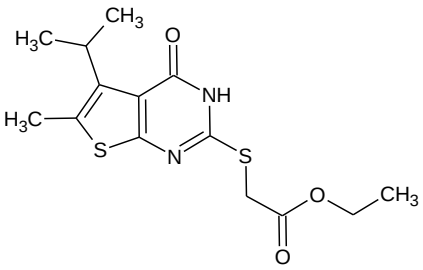

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Conclusions. Based on the analysis of literature data, it was revealed that thienopyrimidine derivatives show anticancer activity in in vitro experiments and in some cases their activity can compete with and even exceed the activity of well-known anticancer drugs that have proven themselves on the market. Thus, the design and development of new pro-cancer drugs among compounds of the thienopyrimidine series is very relevant and promising.