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# NEW PROMISING ANTITUMOR RUTHENIUM COMPLEXES WITH TARGETING LIGANDS

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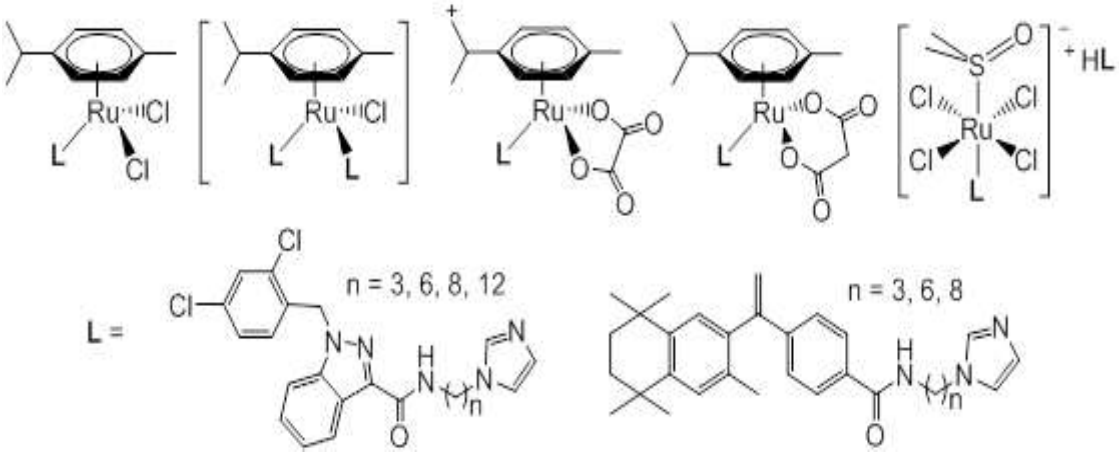
In cancer chemotherapy, almost every second treatment regimen includes platinum drugs, which have a number of severe side effects and resistance. In the search for new non-platinum anticancer drugs, ruthenium compounds show the best performance, especially NAMI-A and RAPTA-C, which have entered clinical trials. Ruthenium compounds have similar kinetics; however, they have greater coordination capabilities and a different mechanism of action. One of the most widely used methods is the introduction of a biologically active organic moiety into the structure of metal-based drugs [1].

Thus, analogues of RAPTA-C with chlorine ligands and NAMI containing modified lonidamine and bexarotene ligands with imidazole were prepared [2,3]. Bexarotene and lonidamine are used in the treatment of cancer in clinical practice and have proven cancer-specific molecular targets. To increase stability towards ligand exchange reaction, analogues with oxalate and malonate moiety and charged complexes with two ligands were obtained.




All obtained compounds were tested for cytotoxicity in vitro on a library of human cancer cell lines; based on the results, lead compounds were selected and studied in extended biological trials.

*This work was supported by Russian Foundation for Basic Research (19-33-90069, 19-03-00394)*

**References**

[1] Y.N. Okulova, I.V. Zenin, I.A. Shutkov, K.I. Kirsanov, O.N. Kovaleva, E.A. Lesovaya, T.I. Fetisov, E.R. Milaeva, A.A. Nazarov, Inorganica Chimica Acta, 2019, 495, 119010.
[2] Y.N. Nosova, D.S. Karlov, S.A. Pisarev, I.A. Shutkov, V.A. Palyulin, M. Baquié, E.R. Milaeva, P.J. Dyson, A.A. Nazarov, Journal of Organometallic Chemistry, 2017, 839, 91-97.
[3] I.A. Shutkov, A.A. Antonets, V.Yu. Tyurin, E.R. Milaeva, A.A. Nazarov, Russian Journal of Inorganic Chemistry, 2021, V66, N4, 502-509.