ABSTRACT

Charles University in Prague

Faculty of Pharmacy in Hradec Králové

Department of inorganic and organic chemistry

Candidate: Lenka Valášková

Supervisor: PharmDr. Jaroslav Roh, PhD, Carine Deleuze-Masquefa

Title of diploma thesis: Synthesis of 1-(3-methoxyphenyl)-*N*-methylimidazo[1,2-*a*]quinoxalin-4-amine and study of its physicochemical properties

Melanoma is malign tumor usually located in the skin, mucous membranes or rarely in other parts of the organism. Every year the prevalence of this tumor is growing. Tumors which are detected in early stages can be successfully removed, but when metastasis appear treatment of this type of cancer is difficult. Some tumors (e.g. on problematic places such as on face) cannot be removed by surgery, even if they are soon detected. In these cases, topically administered anticancer drugs can be used. One of those substances is imiquimod (ALDARA®; Figure 1), possesses antiviral, immunostimulating and cytotoxic activity. Limiting factor of this substance is its toxicity- it can be used only topically. The research group of prof. Pierre-Antoine Bonnet deals with the synthesis of imiquimod analogues. Synthesized molecules belong to three chemical groups, which differ in the orientation of imidazole moiety. Their lead structures, providing higher *in vitro* cytotoxic activity against human melanoma cells than imiquimod and fotemustine, which is approved in Europe for metastatic melanoma treatment, are EAPB0203 and EAPB0503 (Figure 1).

The main problem of EAPB0503 is its poor solubility in water. In this work I focused on the synthesis of EAPB0503 and its water-soluble salts.

Unfortunately I did not succeed in formation of salts. Every attempt to dissolve EAPB0503 in water failed.

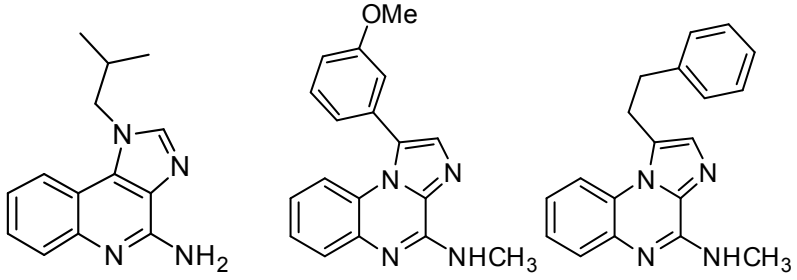

Figure 1. Structures of imiquimod, EAPB0503 and EAPB020