ABSTRACT:

Major capside protein of *Polyomaviridae* family viruses is able to selfassemble into virus-like particle (VLP) even without the presence of minor proteins, bind exogenous DNA non-specifically and recognise the receptor on the cellular surface. These characteristics determine its use as vector in gene therapy or immunotherapy. It was discovered before that MPyV VLPs significantly stimulate immune system and have strong adjuvant effect. Chimeric VLP derived from mouse polyomavirus carrying exogenous antigene or epitop is supposed to elicit specifically targeted immune response after immunisation. The main obstacle is choice of immunogene that is strong enough to cause adequate immune response. The goal of this thesis was to construct chimeric particles carrying epitop of malignant melanoma, one of the most immunogenic tumours, on their surface, using methods of genetic engineering. For future research of particle's immunogenic properties three types of particles were developed – particles with human and mouse melanoma epitopes, respectively and control particles with ovalbumine epitop. For the purpose of production of chimeric protein was used baculovirus expression system. It was verified then, with the use of electron microscopy, that introduction of tumour antigen into one of surface loops of VP1 protein, namely DE loop, didn't disrupt the ability of selfassembly into VLPs nor the stability of newly formed particles. All three types of particles were able to enter mammalian cells efficiently. Ability of these particles to elicit antitumour immune response will be further researched with use of animal models.