Abstract:

Merkel cell polyomavirus (MCPyV) and Human papillomavirus 16 (HPV 16) are members of small tumour DNA viruses *Polyomaviridae* and *Papillomaviridae*, which represent increasing risk for humans resulting from their oncogenic potential. After the acquisition HPV 16 and MCPyV are able to persist for long term in a form of asymptomatic infection, while the aggressive disease is mostly being cleared by the host immune system. Integration of viral genome into the host DNA causes cell transformation resulting in rare but fatal skin carcinomas and epithelial lesions of anogenital tract, head and oropharynx, that may progress into malignant tumours. Their mechanisms of immune system evasion and complete life cycles are not fully understood to this day which highlights some of the reasons why continuing research in this field is of importance. The aim of this thesis is to review model systems used to study infection of MCPyV and HPV 16 *in vitro* and *in vivo.*

Key words: Papillomaviruses, polyomaviruses, virus-like particles, pseudoparticles, animal models, cell culture, human papillomavirus 16, Merkel cell polyomavirus, HPV 16, MCPyV