Abstract

Polyomaviridae family includes small DNA viruses with simple structure and a small genome encoding only a few proteins. These proteins include large T and small T antigens, as well as 2 to 3 structural proteins known as VP1, VP2 and VP3. In addition, some members of the *Polyomaviridae* family encode in their genome a small non-structural protein called agnoprotein. Among human polyomaviruses, agnoprotein is present in BK polyomavirus and JC polyomavirus. These viruses are the causative agents of some serious diseases in immunocompromised humans and therefore, they are the subject of intensive research. Simian vacuolating virus 40 is another example of a virus which encodes the agnoprotein. Agnoprotein is capable to manipulate its host cell, disrupt vesicle transport and is also crucial for viral replication and transcription. It appears to play an important role in the morphogenesis of virions and/or in their release from the cell. This paper comprehensively summarizes the latest insights into the properties and functions of the agnoprotein BK polyomavirus, JC polyomavirus and SV40 virus, focusing on the production of this protein during infection, its structure, posttranslational modifications, cell localization, interaction partners and the overall importance of this enigmatic protein for the virus replication cycle.