Abstract

The polyomavirus genome is present in the host cell as circular double-stranded DNA associated with nucleosomes. Consequently, the expression of polyomavirus genes is affected by the location of nucleosomes on DNA and histone modifications. This thesis reviews the current state of knowledge regarding the polyomavirus minichromosome structure and the effects of nucleosome phasing and histone modifications on polyomaviral replication cycle. In addition, factors conditioning these phenomena are discussed. Drawing on available literature, neither nucleosome phasing nor histone modifications appear to be random. However, not all viral DNA molecules are identical in these respects. Processes such as early and late transcription, replication and encapsidation thus occur only within certain fractions of the set of DNA molecules