

Abstract

This work introduces association between viruses and host cell with respect to sumoylation process. The main aim is referring to influence of this modification both on virus replication strategy and cell cycle. Sumoylation is essential process for cell regulation interfering with general regulation pathways including those performed by e.g. p53 or PML bodies and also epigenetic changes of chromatin. For viruses, sumoylation means stabilization of viral proteins and better timing each phase of viral cycle through viral protein. One point of view is competition of cell and virus for SUMO machinery. Viruses take advantage of sumoylation for inhibition antiviral defense of cells, regulation cell cycle mainly in apoptosis induction and in general for more successful infection. There are cumulating evidence of new proteins and phenomena connected with sumoylation mechanisms as well as viruses exploiting sumoylation for their benefit. Utilization and abuse of sumoylation by viruses point to future possibilities of cell manipulation and virus ability to intervene to this still relatively poorly understood type of cell regulation.