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# Potential viral markers of Epstein-Barr Virus-related diseases identified in the sequences of EBV genes

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Epstein-Barr virus (EBV) infection is associated with the broad range of malignancies. EBV nuclear antigen 1 (EBNA1) has the most notable expression in cells, and latent membrane protein 1 (LMP1) is the major EBV oncogene. The aims of this study were to characterize polymorphisms of EBNA1 and LMP1 genes in different EBV-related diseases and to investigate potential sequence patterns that correlate with the clinical presentations of these diseases. Plasma samples from patients with mononucleosis syndrome (IM) (128) and from patients after renal transplantation (T) (116), and 116 nasopharyngeal carcinoma (NPC) biopsies were tested in this study. LMP1 and EBNA1 genes were amplified and analyzed with sequence, phylogenetic and statistical evaluation. The study showed five newly discovered EBNA1 subvariants with noticeable clustering of P-thr-sv-5 in NPC isolates. LMP1 variability showed two newly discovered and NPC-specific variants: Srb1 and Srb2. The B95-8 and North Carolina variants revealed as possible predictors for favorable TNM stages. In contrast, deletions in LMP1 represented possible risk factors for the most disfavorable TNM stage. In addition, the number of specific 33-bp repeats of LMP1, less than reference 4.5, and the combinations of LMP1/EBNA1 variability (deleted LMP1/P-thr and non-deleted LMP1/P-ala), absolutely correlated with elevated levels of hepatic transaminases in IM patients. On the other hand, the LMP1/EBNA1 polymorphism Med/P-thr was identified as a possible risk factor for TNM stage IVB or progression to the N3 stage in NPC patients. In conclusion, potential viral screening markers for European NPC and the primary EBV infection could be recognized.

## Biography

Ana Banko is an associate Professor at the Institute for Microbiology and Immunology, Faculty of Medicine, University of Belgrade. She has completed her PhD, at the same university, researching the potential correlations between genetic variability of EBV and different EBV-associated diseases. She is a researcher of the national scientific project: The Medical Significance of Biological Variability of Viruses. She is also a specialist in Microbiology with Parasitology, and a member of three national referent laboratories. She has published more than 30 publications.

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