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The Effects of Epstein Barr Virus Recombinant Proteins EBNA 1 and LMP 1 on The Endoplasmic Reticulum Stress, Apoptosis and Cell Proliferation in Pancreatic Beta Cell Culture

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Abstract **–** Proliferative activity of Epstein Barr Virus (EBV) proteins occurs via two mediators (Epstein Barr Nuclear Antigen1-EBNA1 and latent membrane Protein1-LMP1). In this study, it is aimed to investigate that recombinant viral EBV protein of pancreatic cell loss those applying to reverse. In addition to that related proteins as well as DNA damage and stress effects on insulin synthesis and release and their contributions were also investigated. Insulin analyses were carried out by ELISA techniques using commercial kit for insulin. Comet assay for DNA damage and on the other hand to ER stress, levels of mRNA expression of the gene of interest were tested. As a result of RT-PCR applications, mRNA expression levels of genes of ATF4, ATF6, PERK, GRP78 and CHOP, which are ER stress markers, orderly increased 10-fold, 19-fold, 15,03-fold, 6,63-fold, and 8,05-fold according to DMSO control group in thapsigargin group. It is observed this increase on the expression of the genes which are ER stress marker is repressed by interest proteins. The conclusion was that EBV recombinant proteins LMP1 and EBNA1 proliferation genes which are responsible for expression levels increased but also ER stress marker gene expression level by suppressing the ER stress-induced beta cell loss in reversing would be advantageous. In this regard, our results, if supported by further studies, the EBV will be possible to use as virotherapic agents in antidiabetic treatment.

Keywords – Epstein Barr Virus, EBNA1, LMP1, Diabetes, Endoplasmic Reticulum Stress.