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EBNA2/c-Myc dependent regulation and adaptor function to LMP1 in NF- κ B signaling: MCT1 and EBV - A first approach

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Epstein Barr Virus, a ubiquitous virus discovered 50 years ago as a first human tumor virus is implicated to latently infect EB cells and epithelial cells. In vitro, EBV could transform B cells into immortalized lymphoblastoid cell lines (LCLs). LCLs expresses six nuclear antigens (EBNA 1, 2, 3A-3C, LP) and three latent membrane proteins (LMP1, 2A-B) creating a cellular milieu for proliferation and survival. This growth transformation program is referred as Latency III. A recent study suggests the role of activated Warburg metabolism in EBV transformed lymphoblastoid cells. Also, previous studies indicate Monocarboxylate Transporter-1 (MCT 1) which is essential in post stages of Warburg metabolism, to be a direct Wnt target. Of importance, the nuclear protein EBNA-2 expressed only at Latency III is a multiple regulator involved in β -catenin accumulation, c-Myc regulation and LMP1 transactivation. Herein we identify MCT-1 regulation is EBV associated and their role with LMP1 in NF- κ B signaling. Immunoblotting and quantitative PCR verified the overexpression of MCT-1 in EBV infected cells as compared to EBV negative cells. In cell-based reporter assays, EBNA-2 and c-Myc regulate MCT-1 expression and the combined effects of MCT-1 and LMP1 in the down-regulation of NF- κ B signaling which was absent when cells were transfected with MCT-1 alone. Taken together, our study supports a model for EBNA-2 and c-Myc dependent expression of MCT-1 and the role of MCT-1 as an adaptor to LMP1 in NF- κ B signaling.

Biography

Suganya Sakthivel is currently a Master's degree student at Tzu chi University, Taiwan and has received her Bachelor's degree from SRM University, India. She has been the District Head-Honcho for a social organization during her graduation. Currently, she is gaining acuity on viral oncology and trying to investigate the interaction between the virus and a host gene.

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