

PL5 Functional study of expression of the Epstein Barr virus encoded LMP1 protein in nasopharyngeal epithelial cells

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Epstein Barr virus (EBV) infection has long been postulated to play a crucial role in the pathogenesis of nasopharyngeal carcinoma. EBV infection is an early event in nasopharyngeal carcinoma. The EBV encoded LMP1 protein is expressed during the latent infection of the virus and is commonly detected in nasopharyngeal carcinoma cells. The pathological role of LMP1 in nasopharyngeal epithelial cells remains elusive due to the lack of cell model representative of nasopharyngeal epithelium. We have recently established an immortalized cell model from non-malignant nasopharyngeal epithelium. The immortalized nasopharyngeal epithelial cell line is non-tumorigenic and retains the differentiation properties of normal nasopharyngeal epithelial cells. This newly established nasopharyngeal epithelial cell system has been used to examine the functional property of LMP1 expression. Expression of LMP1 induced agar independent growth (hallmark of malignant transformation in vitro), stimulated growth and downregulated expression of the p16 gene in the immortalized nasopharyngeal epithelial cells. Other biological properties of LMP1 expression are: increased saturation density, downregulated E-cadherin expression, increased cell mobility and invasive property in nasopharyngeal epithelial cells. Gene expression profiling of the LMP1 expressing cells reveals upregulation of genes for cell survival, angiogenesis and metastasis. Our results suggest that LMP1 expression play an important role in promoting the conversion of premalignant nasopharyngeal epithelial cells to invasive cancer cells.