Studies on Canine EBV-Related Virus

Advisor:

Epstein-Barr virus (EBV) is a ubiquitous human gammaherpesvirus of which the transforming ability to infected cells is associated with several malignancies, e.g. B-lymphocyte derived lymphoma, nasopharyngeal carcinoma (NPC), and oral squamous cell carcinoma (OSCC) (1). Presently, EBV is the only lymphocryptovirus (LCV) known to infect humans. Nevertheless, in our previous study, EBV-encoded nonpolyadenylated small RNAs (EBERs) and DNA sequence of \textit{Bam}HI W fragment were first discovered in canine, indicating the possible presence of EBV in canine (2). In this study, our major aim was to establish an EBV-transformed canine cell line. We started to culture peripheral blood mononuclear cells (PBMCs) from three dogs, 87h, 96h and A195, which had been known previously as positive for \textit{Bam}HI W fragment (2). During cultivation, small clumps of cell aggregates were observed and the survival of cells prolonged till 8 weeks to 17 weeks, revealing an unusual long life compared with that of ordinary PBMCs. Furthermore, DNA sequences of \textit{Bam}HI W fragment and latent membrane protein 1 (LMP1) were detected by polymerase chain reaction (PCR) as well. Interestingly, canine OSCC was recently developed in the velum of dog 87h. Primary culture and subsequent passages of these tumor cells, designated as 87hCOSCC, showed morphological transformation. By PCR, we identified \textit{Bam}HI W sequence of EBV in both episomal form of viral DNA and total DNA extracted from 87hCOSCC, as well as in supernatant of 87hCOSCC culture. These results suggest the possible release of EBV-related virus particle and maintenance of viral episome in the canine OSCC.

References
