



Initial Study of Methylation of Genes Located on Chromosome 9 in Vietnamese Nasopharyngeal Carcinoma Patients

Thieu Hong Hue, Le Huyen Ai Thuy, Lao Duc Thuan*

Faculty of Biotechnology, Ho Chi Minh City Open University, Ho Chi Minh City, Vietnam

*Corresponding author, E-mail: thuan.ld@ou.edu.vn

Abstract

Nasopharyngeal carcinoma (NPC) is among the top ten common types of cancer in Vietnam. Its development is caused by three main etiological factors: virology, environmental influences, and genetics. The hypermethylation of tumor suppressor genes (TSGs) has been identified as a contributing factor to the onset of NPC. Recent research has shown a significant correlation between gene methylation on chromosome 9 and the nasopharyngeal tumorigenesis. With the aims to determine the association between genes methylation located chromosome 9 and NPC in Vietnamese patients. A total of 30 NPC biopsy samples and 30 non-NPC brushing samples were enrolled into current study. Nested-specific methylation PCR was applied to analyze the methylation status of 4 genes, including *DAPK*, *p16^{INK4a}*, *p15^{INK4b}* and *p14^{ARF}*. Chi-square analysis was conducted to examine the association between the genes with a 95% confidence interval. As a result, the frequencies of *DAPK*, *p16^{INK4a}*, *p15^{INK4}* and *p14^{ARF}* methylation were found to be 40.00%, 66.67%, 46.67% and 93.33% in NPC biopsy samples and 53.33%, 66.67%, 0% and 40.00% in non-NPC brushing samples, respectively. Moreover, the frequency methylation of one of 4 genes was 93.33% in NPC samples and 80.00% in control samples. Based on statistical analysis, a strong association was observed between the methylation of *p15^{INK4}* and *p14^{ARF}* with NPC (both p-value < 0.001), while no association was observed between the methylation of *DAPK* and *p16^{INK4a}* with NPC (both p-value > 0.05). In conclusion, the data suggested the profile of those characteristics could help to further develop potential biomarkers for the prognosis, diagnosis and therapy for NPC in Vietnam.

Keywords: *Nasopharyngeal Carcinoma, Methylation, DAPK Gene, P14 Gene, P15 Gene, P16 Gene*