ABSTRAK

ANALISIS STATUS METILASI GEN SEPTIN9 DAN ZNF671 DALAM SAMPEL SALIVA SEBAGAI BIOMARKER POTENSIAL UNTUK DETEKSI DINI KANKER NASOFARING

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Kanker nasofaring (NPC) yang berhubungan dengan infeksi *Epstein-Barr Virus* (EBV) sering terdiagnosis pada stadium lanjut karena lokasi nasofaring yang sulit dijangkau. Oleh karena itu, deteksi dini berbasis metode non-invasif menjadi sangat penting. Penelitian ini bertujuan menganalisis status metilasi gen SEPTIN9 dan ZNF671 dalam saliva sebagai biomarker potensial untuk deteksi dini NPC. Sampel terdiri dari 20 subjek sehat (10 EBV positif, 10 EBV negatif), 10 pasien NPC EBV positif, serta sel RAJI sebagai kontrol positif. Deteksi metilasi dilakukan menggunakan metode *Methylation Sensitive Restriction Enzyme* PCR (PCR-MSRE) dengan enzim HpaII dan MspI. Uji normalitas dilakukan dengan *Shapiro-Wilk*, sedangkan perbandingan antar kelompok dianalisis menggunakan uji *Mann-Whitney*. Hasil menunjukkan tidak ada perbedaan signifikan pada status metilasi antar kelompok ($p>0,05$). Meskipun demikian, penelitian ini menunjukkan bahwa saliva berpotensi digunakan sebagai sampel non-invasif untuk mendeteksi metilasi DNA pada gen target terkait NPC.

Kata Kunci: *Epstein-Barr Virus*, Metilasi DNA, PCR MSRE

ABSTRACT

ANALYSIS OF SEPTIN9 AND ZNF671 GENE METHYLATION STATUS IN SALIVA SAMPLES AS A POTENTIAL BIOMARKER FOR EARLY DETECTION OF NASOPHARYNGEAL CANCER

By

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Nasopharyngeal carcinoma (NPC), commonly associated with *Epstein-Barr Virus* (EBV) infection, is often diagnosed at an advanced stage due to the anatomically inaccessible location of the nasopharynx. Therefore, early detection through non-invasive methods is crucial. This study aimed to evaluate the methylation status of the SEPTIN9 and ZNF671 genes in saliva as potential biomarkers for early NPC detection. Samples were collected from 20 healthy individuals (10 EBV-positive and 10 EBV-negative), 10 EBV-positive NPC patients, and RAJI cells as a positive control. DNA methylation was assessed using the Methylation Sensitive Restriction Enzyme PCR (MSRE PCR) method with HpaII and MspI enzymes. Normality was tested using the Shapiro-Wilk test, and group comparisons were performed using the Mann-Whitney U test. The results showed no statistically significant differences in methylation status between groups ($p > 0.05$). Although not statistically significant, the findings suggest that saliva is a feasible non-invasive sample for detecting DNA methylation in target genes associated with NPC.

Keywords: *Epstein-Barr Virus*, DNA Methylation, MSRE-PCR