ABSTRAK

Asap rokok merupakan campuran aerosol kompleks yang mengandung senyawa prokarsinogenik yaitu nitrosamin. Senyawa nitrosamin akan berubah menjadi karsinogenik setelah teraktivasi oleh gen sitokrom P450 2A6 (CYP2A6). CYP2A6 sering mengalami polimorfisme, salah satu polimorfisme yaitu CYP2A6*7 yang mengalami substitusi nukleotida T menjadi C pada urutan nukleotida 8454 pada ekson 9. Hal ini mengakibatkan penurunan aktivitas enzim dalam metabolisme nitrosamin. Variasi alel gen ini ditemukan pada perokok ras kulit hitam cukup tinggi yaitu sebesar 13,33%. Penelitian ini bertujuan mengetahui keberadaan dan frekuensi alel CYP2A6*7 pada isolat DNA nonperokok ras kulit hitam Papua Indonesia. Penelitian ini merupakan penelitian deskriptif observasional yaitu dilakukan identifikasi alel CYP2A6*7 pada 30 sampel isolat DNA nonperokok ras kulit hitam Papua di Indonesia dengan metode *polymerase chain reaction* (PCR) dan dianalisis menggunakan metode elektroforesis. Hasil penelitian menunjukkan adanya alel CYP2A6*7 pada nonperokok ras kulit hitam Papua dengan frekuensi 0%, sehingga dapat disimpulkan bahwa pada ras kulit hitam Papua nonperokok berpotensi mengalami risiko kanker akibat menghirup asap rokok.

Kata Kunci: CYP2A6*7, ras kulit hitam Papua, *Polymerase Chain Reaction* (PCR)

ABSTRACT

*Cigarette smoke is example of a complex aerosol mixture which contains procarcinogen compound such as nitrosamine. Nitrosamine compound will transform into a carcinogenic compound after being activated by cytochrome P450 2A6 gene (CYP2A6). CYP2A6 often experiences polymorphism, which one of them is called CYP2A6*7 which undergoes T nucleotide substitution to C in nucleotide 8454 in exon 9. This polymorphism causes reduction of the enzyme's ability to metabolize nitrosamine. The variation of this allele was found at a quite high rate which is 13.33% in black Papuan smokers. This study aimed to determine the presence and frequency of CYP2A6*7 alleles in DNA isolated from non-smokers population of black Papuan in Indonesia. This research is an observational descriptive study, which was done by identifying CYP2A6*7 alleles in 30 samples of DNA isolated from non-smokers population of black Papuan in Indonesia using polymerase chain reaction (PCR) method and was analyzed using electrophoresis method. The result showed the presence of CYP2A6*7 alleles in non-smoker population of black Papuan with a frequency of 0%, thus it can be concluded that said race has potential risk of cancer due to inhalation of cigarette smoke.*

*Keywords: CYP2A6*7, black Papuan, Polymerase Chain Reaction (PCR)*