



# Interleukin-7 receptor gene polymorphism at +1237 locus and its effect on susceptibility to opportunistic infections among HIV and AIDS patients in Limpopo Province, South Africa

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**ABSTRACT.** Over the past decade, an increasing number of studies have demonstrated correlations between host genetics and susceptibility to diseases. However, few studies have investigated the effects of host genetics on the occurrence of opportunistic infections among human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) patients. In the present study, the frequency of the interleukin (*IL*)-7 $\alpha$  +1237 A/G single nucleotide polymorphisms was determined in relation to opportunistic infection occurrence among HIV and AIDS patients in the Vhembe District. Demographic, clinical,

and socioeconomic status data were collected from patients using a structured questionnaire. Genomic DNA was extracted from mouthwash samples using the QIAmp Blood Mini Kit. Genotyping of the *IL-7R $\alpha$*  +1237 gene was conducted using a sequence-specific polymerase chain reaction method. We found that the *IL-7R $\alpha$*  +1237 genotype distribution in our study population differed from those in European populations with a predominance of the A/G genotype. Individuals carrying the A/G genotype primarily suffered from chest pain ( $\chi^2 = 5.016$ ,  $P = 0.025$ ), while individuals carrying the G/G genotype were protected from chest pain but had a higher prevalence of sexually transmitted disease (23 vs 16.9%); however, the difference was not statistically significant ( $P = 0.435$ ). Individuals carrying the A/A genotype were more susceptible to diarrhea (32 vs 13.6%) ( $P = 0.034$ ). Our data will support gene therapy and may be used to modify the course of diseases among HIV patients as well as the general population. Further studies using larger populations are needed to confirm these hypotheses.

**Key words:** Human immunodeficiency virus; Limpopo Province; Interleukin-7; Opportunistic infections; Single nucleotide polymorphisms; +1237 locus