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Significant Association between Interleukin-10 Genotypes and Oral Cancer Risk

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Backgrounds: The interleukin-10 (IL-10) is an immunosuppressive cytokine which may facilitate carcinogenesis by down-regulating interferon gamma production and supporting tumor escape from the immune response. Polymorphisms within the promoter of *IL-10* gene may not only contribute to differential IL-10 expression levels among individuals but also to oral cancer susceptibility. **Materials and Methods:** In this hospital-based study, the associations of *IL-10* A-1082G (rs1800896), T-819C (rs3021097), and A-592C (rs1800872) polymorphisms with oral cancer risk were examined. A total 788 cases with oral cancer risk and 956 controls were genotypes and analyzed by polymerase chain reaction and restriction fragment length polymorphism (PCR-RFLP). **Results:** The results showed that there were significant differential distribution among oral cancer and control subjects in the genotypic ($P=6.29 \times 10^{-11}$) and allelic ($P=2.80 \times 10^{-13}$) frequencies of *IL-10* A-1082G. Individuals who carried AG or GG genotype on *IL-10* A-1082G had a 1.90- and 3.27-fold higher risk of developing NPC compared to those who carried AA genotype (95% confidence interval=1.51-2.39 and 1.95-5.47). None of the other two polymorphisms investigated appear to affect cancer risk. In gene-environment interaction analysis, we have firstly provided evidence showing that there is an obvious joint effect of *IL-10* A-1082G genotype with individual smoking and areca chewing habits on NPC risk. **Conclusion:** The AG and GG genotypes of *IL-10* A-1082G, together with risky smoking and areca chewing habits, synergistically contribute to individual susceptibility for oral cancer.