

# Synergistic Association of *CHRNA5* (rs16969968) Polymorphism towards Increased Susceptibility to Squamous Cell Lung Cancer in North Indian Smokers

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**Aim:** Recent studies have been done on European, African Americans, Japanese, Bangladeshis and Koreans to find out the relationship between genetic variants of *CHRNA5* (rs16969968) polymorphism and risk of lung cancer. The results have been seen contradictory in different ethnic population. But not a single study has been reported on North Indian population for *CHRNA5* (rs16969968) polymorphic gene towards lung cancer risk. The present case- control study performed analysis of genetic variation *CHRNA5* (rs16969968) gene using 206/307 study subjects in association with lung cancer risk with smoking status.

**Methods:** The case- control study was evaluated for the *CHRNA5* polymorphism by using a PCR-RFLP method.

**Results:** There has been no significant association have been found in relationship between *CHRNA5* polymorphic gene and risk of lung cancer (OR= 1.22; 95%CI=0.56-2.6; p= 0.60). However, the study has also evaluated the genetic variants in *CHRNA5* polymorphism with respect to different histology of lung cancer but no significant OR has been found in this relation to increase risk of lung cancer (OR=1.23; 95%CI= 0.4-3.6; p=0.70). Further, study subjects stratified according to smoking status and pack year but similarly it has been seen that in North Indian population smoking has not significant effects on the D398N polymorphism in  $\alpha 5$  subunit of nAChRs coded by *CHRNA5* gene having G>A mutation in North Indian population (OR= 1.46; 95%CI= 0.6-3.3; p= 0.37).

**Conclusion:** The polymorphism in the *CHRNA5* gene did not seem to be important risk modifiers for lung cancer and related histological subtypes, along with smoking in North Indian population.