Interaction of *cyclin D1* genotype and smoking habit in lung cancer

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The *cyclin D1 (CCND1)* is critical in the transition of cell cycle from G1 to S phase and unbalanced cell cycle regulation is a hallmarker of carcinogenesis. The study aimed at investigating the association of *CCND1* genotypes with lung cancer risk in Taiwan and examining the gene-environment interaction among *CCND1* genotype and smoking habits. The genotype of *CCND1* A870G (rs9344) and C1722G (rs678653) were determined by polymerase chain reaction (PCR) and restriction fragment length polymorphism (RFLP) analysis of DNA from the blood. The study recruited 358 lung cancer patients and 716 cancer free health controls. The results showed that there were significant differences between lung cancer and control groups in the distribution of the genotypes (P=0.0003) and allelic frequency (P=0.0007) in the *CCND1* rs9344 genotype. Individuals who carried AG or GG genotype had 0.59- and 0.52-fold of odds ratio of developing lung cancer compared to those who carried the AA genotype (95%CI=0.44-0.78 and 0.35-0.79, respectively). There was also an obvious interaction of *CCND1* rs9344 genotype with personal smoking habit on lung cancer risk (P=0.0009). These findings support the conclusion that the cell cycle regulation may play a role in lung cancer development and that *CCND1* rs9344 polymorphism together with smoking habit maybe a useful biomarker for lung cancer prediction.