

## Genetic polymorphisms of CYP19, CYP1B1 & alcohol and breast cancer

Kyoung Mu Lee , Keun-Young Yoo, Woong-Yang Park, Sook-Un Kim, Ji-Yoeb Choi, Aesun Shin, Se-Hyun Ahn, Dong-Young Noh, Kuk-Jin Choe, Josef Abel, Yon Ko, Volker Harth, Ari Hirvonen, Daehee Kang\*

*Department of Preventive Medicine, Seoul National University College of Medicine, Seoul, Korea*

Lifetime cumulative exposure to estrogens is known as the most important determinant of breast cancer development. CYP19 and CYP1B1 are involved in the synthesis and further metabolism of estradiol, respectively. A case-control study was performed to assess the potential influence of CYP19 (Arg264Cys: C→T) and CYP1B1 (Val432Leu: G→C) genotypes on the risk of breast cancer in Korean women. CYP19 genotype was determined by dynamic allele-specific hybridization system (DASH) for 288 cases and 288 age-matched controls (frequency matching) from 389 confirmed incident cases and 346 controls recruited from three teaching hospitals located in Seoul, Korea (1995-2001). CYP1B1 genotype was determined by real-time PCR for 297 and 241 controls from 1995 to 1999. Adjusted odds ratios and 95% confidence intervals were estimated by unconditional logistic regression analysis. CYP19 CT or TT genotypes significantly increased the risk of breast cancer (OR=1.4, 95% CI=1.0-2.0). There was significant interactive effect of CYP19 genotype and alcohol consumption on breast cancer development (p for interaction=0.029). Ever-drinking women with CT or TT genotypes showed 3.1 fold increased risk of breast cancer compared with never-drinking women with CC genotype (OR=3.1, 95% CI=1.6-5.9). However, no significant association between CYP1B1 and breast cancer was observed. CYP1B1 GC or CC genotypes did not increase the risk of breast cancer (OR=1.1, 95% CI=0.7-1.6). Our results suggest that CYP19 genotype and alcohol consumption play important roles in breast cancer development and these factors synergistically increase the risk of breast cancer in Korean women.

Keywords : CYP19 , CYP1B1, Alcohol, Breast cancer