



## Association of MHC class III gene polymorphisms with ER-positive breast cancer in a Chinese Han population

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**ABSTRACT.** Polymorphisms of the major histocompatibility complex (MHC) have been linked to many diseases, especially autoimmune disorders. Previous studies have shown that genetic variants in MHC class III are associated with breast cancer. To determine if there is an association between MHC class III and breast cancer risk in the Chinese Han population, we carried out a hospital-based case-control study in Guangdong and Jiangsu Provinces, including 216 histologically confirmed breast cancer patients and 216 healthy controls. Nine SNP markers distributed

in the class III-coding region were detected using the Sequenom MassARRAY® iPLEX System. Deviation from Hardy-Weinberg equilibrium was observed for seven SNPs. There was no significant association between these seven SNP variants and breast cancer in these Chinese women (unconditional logistic regression analysis). However, chr6\_31697494 at *BAT2*, one of the seven SNPs, was found to be significantly associated with both ER- and PR-positive breast cancer. In addition, both chr6\_31911109 at *C6orf48* and chr6\_31975605 at *ZBTB12*, another two of the seven SNPs, show relevance with ER-positive breast cancer. In conclusion, this is the first evidence that genetic polymorphisms in the MHC class III region are significantly associated with ER-positive breast cancer in the Han Chinese population.

**Key words:** Breast cancer; MHC class III; Chinese Han population; Single nucleotide polymorphism