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The Contribution of X-ray Repair Cross-complementing 6 (*XRCC6*) Genotypes to Nasopharyngeal Carcinoma in Taiwanese

紀宏學[1], 蔡佳紋[1,2], 黃中佑[4,5], 施亮均[1], 張文馨[1,3], 稅皓靄[5], 包大藟[1,2,3]

Hong-Xue Ji[1], Chia-Wen Tsai[1,2], Chung-Yu Huang[4,5], Liang-Chun Shih[1], Wen-Shin Chang[1,3], Hao-Ai Shui[5], Da-Tian Bau[1,2,3]

[1]Terry Fox Cancer Research Laboratory, China Medical University Hospital,
[2]Graduate Institute of Basic Medical Science,
[3]Graduate Institute Clinical Medical Science, China Medical University,
[4]Taichung Armed Forces General Hospital,
[5]Graduate Institute of Medical Science, National Defense Medical Center

Backgrounds: The DNA non-homologous end-joining repair gene *XRCC6/Ku70* involved in the carcinogenesis of oral, prostate, breast and bladder cancers. But the contribution of *XRCC6* to nasopharyngeal carcinoma (NPC) is not studied. **Materials and Methods:** In this study, we investigate the contribution of variant *XRCC6* to the risk of NPC from the levels of DNA, RNA and protein by enrolling 176 NPC patients and 352 cancer-free controls. From the DNA angle, all the subjects were genotyped and the associations of *XRCC6* promoter rs5751129, rs2267437, rs132770, and intron 3 rs132774 polymorphisms with NPC risk were evaluated. From the RNA angle, tissue samples were tested to estimate the *XRCC6* mRNA expression by real time-PCR. From the protein angle, the tissues were examined by Western blotting. **Results:** As for *XRCC6* promoter T-991C, the TC and CC genotypes had a significantly increased risk of NPC compared with the TT genotype. The mRNA and protein expression levels with NPC tissues revealed that a statistically significantly lower *XRCC6* mRNA and protein expressions in the TC/CC samples compared to those with TT genotype. **Conclusion:** Our multi-approach findings at DNA, RNA and protein levels suggested that XRCC6 played an important role in the NPC carcinogenesis and could serve as a target for personalized medicine and therapy.