



# Genetic variability of genes involved in DNA repair influence treatment outcome in osteosarcoma

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**ABSTRACT.** We conducted a perspective study to investigate the role of ERCC1 (rs11615), ERCC2 (rs13181 and rs1799793), ERCC4 (rs1800067), and ERCC5 (rs17655) in NER pathway in the prognosis of osteosarcoma patients. In total, 146 osteosarcoma patients were recruited between 2008 and 2013. ERCC1 rs11615, ERCC2 rs13181 and rs1799793, ERCC4 rs1800067, and ERCC5 rs17655 gene polymorphisms were assessed by polymerase chain reaction-restriction fragment length polymorphism assay. By multivariate Cox proportional hazards models, we found that carriers of ERCC1 rs11615 TT genotype showed significantly favorable survival compared to wide-type CC genotype, and the adjusted OR (95%CI) was 0.24 (0.08-0.96). Moreover, we found that subjects with ERCC2 rs1799793 AA genotype were associated with decreased hazards of death in multivariate analysis (HR = 0.22, 95%CI = 0.12-0.93). In conclusion, our results suggest that ERCC1 rs11615 and ERCC2 rs1799793 may be useful genetic prognostic markers for osteosarcoma in a Chinese population.

**Key words:** DNA repair genes; Osteosarcoma; Polymorphism; Overall survival