Immunohistochemical expression of TFF1 is a marker of poor prognosis in retinoblastoma.

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Abstract

Introduction: The risk of relapse in retinoblastoma is currently determined by the presence of high-risk histopathologic factors in the enucleated eye. However, the probability of developing metastatic disease is heterogeneous among these patients. Evaluating a biological marker to identify high-risk patients could be useful in clinical setting. This study aims to evaluate whether the expression of TFF1, a surrogate for subtype 2 retinoblastoma, is a prognostic marker for relapse and death. **Methods:** This multicenter cohort study included 273 patients, 48 of whom had extraocular disease. Immunohistochemical staining were performed for CRX, ARR3, TFF1 and Ki67. Tumors were classified as histological subtype 1 (HS1) if they had low or no expression of TFF1 (quick score (QS) [?] 50) and as histological subtype 2 (HS2) if they expressed TFF1 diffusely (QS $>$ 50). We studied the association between HS classification and outcome. **Results:** Of 273 patients, 35.9% were classified as HS1, 59.3% as HS2 and 4.8% were not evaluable. In multivariate analysis, patients with HS2 tumors had a higher probability of relapse and death than those with HS1 ($P < 0.0001$ and $P = 0.00020$, respectively). We identified a higher-risk subgroup among HS2 tumors, presenting non-mutually exclusive expression of ARR3 and TFF1 and had an increased risk of relapse and death compared to tumors that displayed mutually exclusive expression ($P = 0.012$ and $P = 0.027$, respectively). **Conclusions**: Expression of TFF1, especially when it is not-mutually exclusive with ARR3, is an independent prognostic marker of poor outcome in retinoblastoma.

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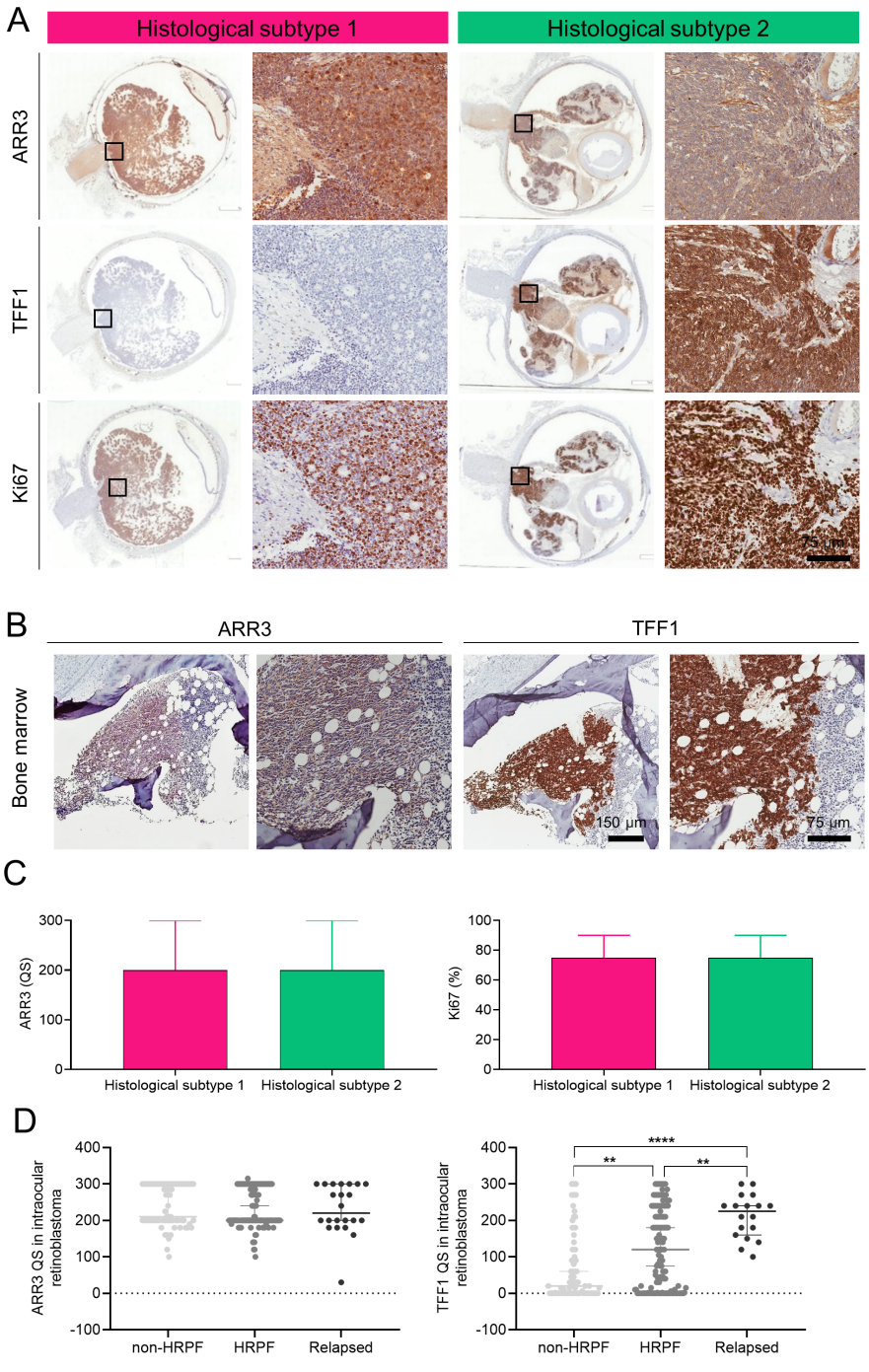

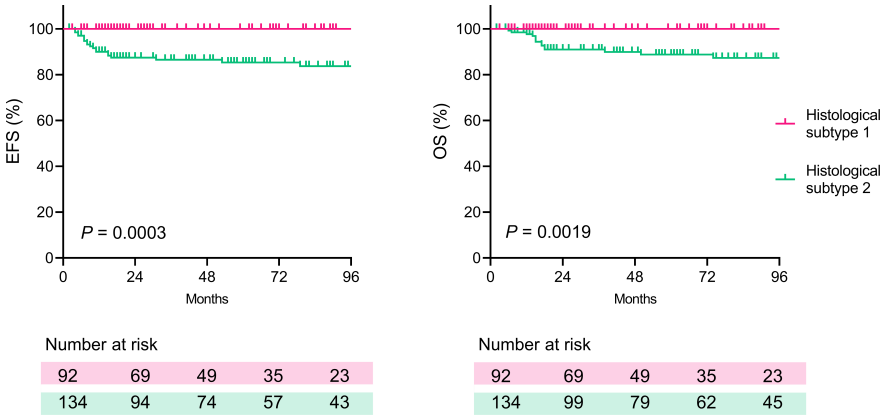

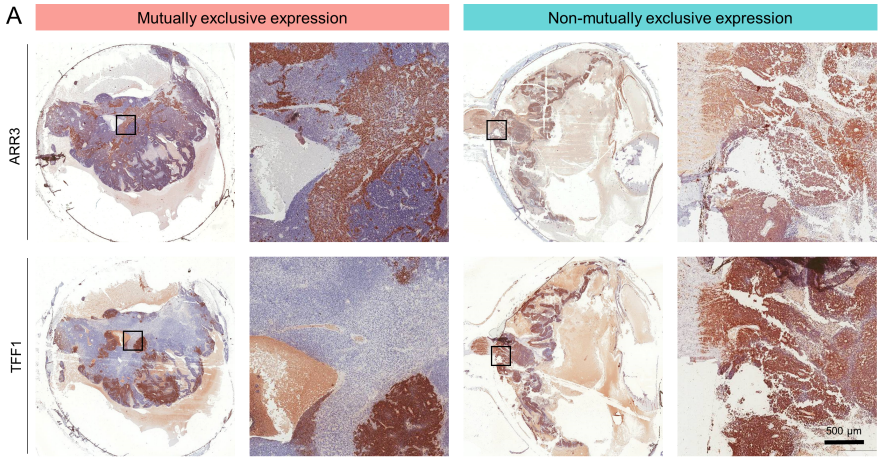

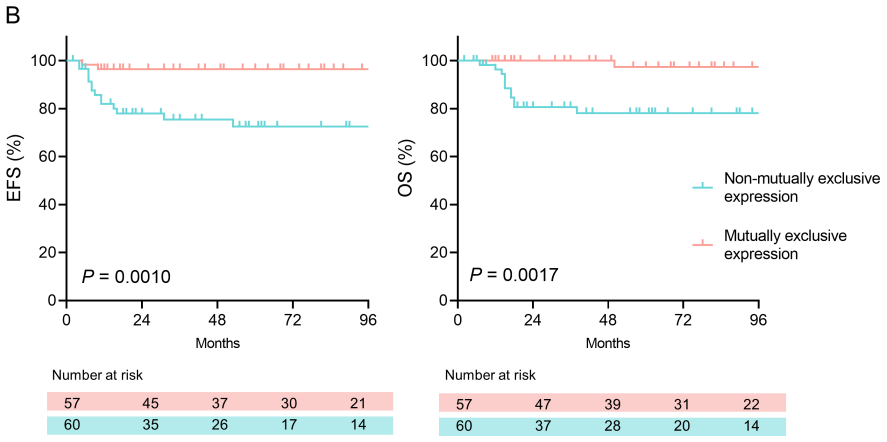

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