Comparison of Mutant and Wild-Type p53 Proteins in Merkel Cell Carcinoma

In a previous study of 20 patients with Merkel cell carcinoma (MCC) we reported that p53 appeared to be positive in specimens from patients with a poor clinical outcome (2). The antibody we used to detect p53 protein, clone PAb1801 (Oncogene Science, Cambridge, Mass.), does not distinguish between mutant and wild-type epitopes of p53. We assumed that, since wild-type p53 is thought to be transient, its role would be negligible in the progression of MCC (2). Further study of the literature, however, suggested that wild-type p53 may influence the clinical course of other tumors (3–6). In this follow-up study, we investigated whether wild-type p53 impacts the progress of MCC and whether wild-type p53 has predictable expression relative to mutant p53.

An antibody specific for a wild-type p53 epitope, WAF-1, clone EA10 (Oncogene Research Products), was applied to sections of MCC in 19 of our original cases in a standard immunoperoxidase reaction. Staining results for WAF-1 were compared with the staining of the previous antibody, a putative mutant p53, and with clinical information (Table 1). We assessed the significance of the results with standard chi-square tests, comparing WAF-1 positivity with gender, with primary site (head/neck versus non-head/neck), with previous positivity for p53, and with recurrence/survival. The staining patterns of the two antibodies were different, and there was no correlation between WAF-1 positivity and gender, site of origin of the MCC, previous p53 positivity, or recurrence/survival.

This study suggests that wild-type p53 is a transient protein in MCC. A similar lack of association between wild-type p53 or WAF-1 RNA and prognosis has been described for childhood acute lymphoblastic leukemia (5) and prostatic adenocarcinoma (1). However, some investigators describe a poor prognosis associated with wild-type p53 in patients with olfactory neuroblastoma (6), while others report various outcomes from the introduction of wild-type p53 into pancreatic carcinoma cells (4).

The presence of mutant p53 protein in neoplasms generally suggests a poor prognosis for that class of tumor. In contrast, wild-type p53 protein appears to function diversely in different types of tumors. So, specific study of wild-type p53 may be needed to determine if this antigen could provide prognostic information for a given type of neoplasm.

### REFERENCES


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