The p53 Protein Detected by Immunohistochemical Staining Is Not Always Mutant

Diana M. Barnes, PhD[1], Charlotte J. Fisher, MRC Path, MSc, MBChB[1], Simon A. Rasbridge, BSc, MBBS, MRCP, MRC Path[1], Catriona MacGeoch, PhD[2], and David P. Lane, PhD, FRSE[3]

[1] ICRF Clinical Oncology Unit, Guy's Hospital, London, SE1 9RT, United Kingdom
[2] ICRF Clare Hall Laboratories, Potters Bar, HERTS, EN6 3LD, United Kingdom
[3] CRC Laboratories, University of Dundee, Dundee, DD1 4HN, United Kingdom

Abstract In human mammary carcinoma, positive immunohistochemical staining for p53 protein is not always indicative of mutation in the p53 gene. Although positive staining is seen in excess of 50% of tumours, mutations have been found in only some 20% of cases. In this presentation, positive p53 staining in mammary carcinomas will be related to the presence and absence of mutation and other possible underlying mechanisms.

In some positively stained tumours a mutation has been found. In others, no mutation has been demonstrated and apart from possible stabilisation by a protein such as MDM2, there are alternative underlying mechanisms for this discrepancy. Wild type p53 is elevated in response to DNA damage. This effect can be seen in patients given pre-operative chemotherapy and in cell lines irradiated with UV light and with x-rays. Strong positive staining in scattered nuclei has been found in cell lines with activated *ras* and *myc* genes. We postulate that this may also be the reason for similar patterns observed in human tumours.

Comparable mechanisms may be active in inherited cancers. Although positive p53 staining in some Li-Fraumeni syndrome patients is associated with mutation, in other Li-Fraumeni-like families, no mutation has been found despite positive staining in tumour **and** normal tissues.

Whatever the mechanism underlying the stabilisation of the protein, increased expression of p53 protein in the majority of tumour cells appears to be associated with poor prognosis in breast carcinoma.

Biomarker for Breast Cancer Chemoprevention: Antimalignin Antibody

Samuel Bogoch, MD, PhD and Elenore S. Bogoch, MD

Foundation for Research on the Nervous System and Boston University School of Medicine, Boston, MA 02215

Abstract Recognin M has been isolated from MCF-7 malignant mammary cells. It is a 10 kD cancer polypeptide antigen rich in glutamic and aspartic acids related to malignin isolated from glial brain tumors (Glu13, Asp9, His2). An IgM auto-antibody against Recognin M, antimalignin, has been isolated from human serum, produced both as a mouse monoclonal antibody and in human form by challenge of human lymphocytes with the antigen *in vitro*. It has been isolated from malignant cells obtained at surgery and autopsy by elution and immunoabsorption to its immobilized purified antigen. Antimalig-