

H1**Regulation of p53 Expression in an Acidic Environment after Radiation**

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The purpose of this study was to investigate the molecular mechanism by which environmental pH alters the radiation-induced expression of p53, the key regulator of cellular responses to radiation. We have already reported that an acidic environment markedly prolongs the radiation-induced expression of p53 and also prolongs the radiation-induced G2/M arrest. In the present study, we have observed that an acidic environment suppresses the expression of Mdm2 and increases the phosphorylation of p53ser15. The kinases responsible for the phosphorylation of p53ser15 appears to be DNA-PK, ATM kinase. The activation of these kinases was prolonged in an acidic environment after irradiation. It is concluded that the prolonged expression of p53 after irradiation in acidic environment is due to an increase in the stability of p53 mRNA and delayed degradation of p53 protein. In light of the fact that the intratumor environment is acidic, the alteration of radiation-induced production and accumulation of p53 in acidic environment may significantly influence the response of tumors to radiotherapy.