Expression of Apoptosis Inhibitor Survivin: Common and Independent of p53 Aberration in Thai Cancer Patients

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ABSTRACT

Survivin is an anti-apoptotic protein that is suppressed by wild-type p53 and overexpressed in various types of human tumours. Although wild-type p53 has been reported to repress expression of the survivin gene by binding to its promoter, whether loss of p53 function is responsible for the induction of survivin gene expression in tumour tissues is unknown. In this study, we examined the expression levels of survivin and p53 by Western blot analysis to determine the frequency and the relationship between their anomalies and with the clinicopathologic features of liver, lung and colorectal tumours in Thai patients.

The results suggested that in normal tissues, survivin and p53 could only be detected in 3 out of 36 (8.3%) and 5 out of 36 (13.9%), respectively. In contrast, these two proteins were significantly increased in tumour tissues. p53 protein was accumulated in 19 out of 36 tumour tissues (52.7%) and survivin was detectable in 32 out of 36 cases (88.9%). Survivin was overexpressed in 63.6% of the hepatocellular carcinomas, while all of the colorectal and non-small cell lung carcinomas overexpressed survivin. Survivin overexpression, but not p53 accumulation, was significantly associated with advanced stage of tumours (p=0.007) and metastasized tumours (p=0.025). No association between p53 and survivin positivity was observed.

Our results further indicate that the activation of survivin is required for tumourigenesis and is frequently found in Thai cancer patients, indicating that the approches of down regulating survivin as a cellular target for cancer therapy should be very promising for Thai population. Although p53 has been previously reported to repress survivin gene transcription, overexpression of survivin frequently found in human tumours may not entirely depend on the loss of p53 function.

Key words: p53, Survivin, Thai cancer patients