

YB-1 Gene Expression in A375 Malignant Melanoma Cells

Wisam Nabeel Ibrahim¹, Ridhwan Abdul Wahab², Muhammad Ibrahim³ & Mohammad Syaiful Bahari Abdul Rasad^{2,}*

¹Department of Basic Medical sciences, Kulliyah of Nursing, International Islamic University Malaysia

²Department of Biomedical Science, Kulliyah of Allied Health Sciences, International Islamic University Malaysia

³Department of Nutrition Sciences, Kulliyah of Allied Health Sciences, International Islamic University Malaysia

ABSTRACT

Background: YB-1 is a DNA and RNA binding protein that is involved in almost all DNA and mRNA related processes in cellular proliferation and differentiation. An increased expression of YB-1 is frequently being detected in different types of human cancers including breast, ovarian, thyroid and colorectal cancers. In addition, the elevated levels of YB-1 were found to be correlated with tumour progression and resistance to chemotherapy.

Objectives/Research Problem: This study was conducted to measure YB-1 gene expression in A375 Malignant melanoma cell line by comparing its level with normal human fibroblasts cells.

Materials and Method: These cell lines were derived from the American Type Cell Collection (ATCC), USA. The cells were then grown in Dulbecco's Modified Eagle Medium supplied with 10% Foetal bovine serum, 1% of penicillin-streptomycin, 1% HEPES solution and 1% sodium pyruvate. After determination of the cell growth curve, the samples were collected for the exponential growth phase and the plateau growth phase. The samples RNA was then extracted and normalized for cDNA formation followed by reverse transcription PCR. The Cq values were determined for YB-1 protein, alpha tubulin and GAPDH.

Results and Discussion: There was a 12.64-fold increase of YB-1 gene expression in the A375 cell line in comparison with normal fibroblasts cells; also, there was significant reduction in YB-1 gene expression in the plateau phase of growth in comparison with the exponential growth phase in the A375 cells (10.8-fold reduction in expression).

Conclusion: These findings suggest that YB-1 protein can be considered as a marker for A375 tumour growth.

KEYWORDS: YB-1, RT-PCR, Alpha Tubulin, GAPDH and Gene Expression

*CORRESPONDENCE: syaiful@iium.edu.my