UNIVERSITI TEKNOLOGI MARA

AMPLIFICATION OF THE PURINE-RICH REGION FROM DOWNSTREAM OF MIRNA17-92A SEQUENCE FOR TRIPLE-HELIX STUDY

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ABSTRACT

Most of the cancer treatments are invasive and have other adverse effects to the cancer patient. The triplex-forming oligonucleotide (TFO) can be the alternative way to treat cancer patient without harm their body. In this research, the triplex forming oligonucleotide (TFO) sequence downstream to the miRNA 17-92a cluster in HepG2 cancer cell lines had been amplified as the initiation step in constructing the study on the TFO in hepatic cancer cells. The TFO binding site is too small to get the good band's view on the gel, therefore the conditions of gel electrophoresis also being optimized.

CHAPTER 1

INTRODUCTION

1.1. Background of Study

Tumor or cancer is the disease that causes death of 7.6 million people worldwide and the incidence of 12.7 million people in 2008 (WHO). The mortality rate is estimated to be increased in 2013 with the value of 580,350 people worldwide (Siegel, Naishadham, & Jemal, 2013). The research in 2013 also estimate the incidence of cancer incredibly high which is approximately 1,660,290 people will be developed cancer (Siegel et al., 2013). Statistics in Malaysia shows that cancer is the fourth leading cause of death and the most killer among the malignancies (Lim, 2002). The common cancers that most of people suffer are breast cancer, liver cancer and also lung cancer.

There are several treatments available for cancer patients which are either by surgery, chemotherapy, radiotherapy and hormone treatment or any two of the treatments. Cancer survivors by surgery removal of internal mammary nodes (Veronesi, Marubini, Mariani, Valagussa, & Zucali, 1999) and the removal cells itself do give positive results but unfortunately decline after a year (Ganz et al., 1996). The treatment of chemotherapy also contributes adverse effect to the patients which is gonads damage such as Leydig cells dysfunction and germinal epithelium in testis (Howell & Shalet, 1998) and premature menopausal and infertility in young female