UNIVERSITI TEKNOLOGI MARA

DEVELOPMENT OF A PCR METHOD FOR THE DETECTION OF GENETIC POLYMORPHISM OF *BRCA1*

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ABSTRACT

Breast cancer is one of the most common malignancies in women. It continues to be a major burden and cause of death among women worldwide. Several epidemiologic studies have identified risk factors for breast cancer, including a family history of the disease. There are several genes that have been reported associated with breast cancer and one of them is *BRCA1* gene. *BRCA1* gene is a key role that acts as suppressor gene which is inherited as an autosomal dominant. This study aims to develop a diagnostic test for genetic determination of breast cancer risk by detection of *BRCA1* which may be associated with breast cancer. Thus, in this study, a set of primers was designed and polymerase chain reaction based detection method was developed to detect polymorphism of *BRCA1*. It is important to study on the association of breast cancer with *BRCA1* gene to help further development in clinical studies and improvement of quality of life in world population especially Asian country.

Keyword: *BRCA1* gene, breast cancer, polymerase chain reaction.

CHAPTER 1

INTRODUCTION

1.1 Background

Cancer is a group of diseases that cause cells in the body to change and grow out of control. It invades the healthy cells in the body. Most types of cancer cells form a mass called tumour and named after the part of the body where the tumour arises. When the tumour is initiated, they will generate an inflammatory conditions which is mutagenic and help in increasing the size (Qian & Pollard, 2010).

Breast cancer starts in the cells of the breast as a group of cancer cells which then invade surrounding tissues in other areas of the body. There are the malignant cells. Usually, it is present while one was doing the screening test either when the symptoms have initiated or not. It is a fact that breast cancer is the most commonly diagnosed cancer among women worldwide. Although breast cancer in men is rare, but it also occurs in them (Jemal et al., 2011).

Actually, no one knows the exact causes of breast cancer. What is the regular reason that people expect is breast cancer is always caused by damage to a cell of DNA.