UNIVERSITI TEKNOLOGI MARA

DEVELOPMENT OF A PCR METHOD FOR THE DETECTION OF POLYMORPHISM OF APOLIPOPROTEIN E GENE

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ABSTRACT

Apo E gene plays an important role in producing apolipoprotein E that serves as a ligand for uptake by lipoprotein receptor so that cholesterol can be removed from the body. Screening of Apo E gene is important before starting drug therapy as different patient will act differently to the statin therapy. The aim of this study is to develop and validate a PCR method for detection of polymorphism of apo E gene. Allele specific PCR together with nested PCR have been used. Two separate amplification are used. First PCR used a set of primers that yield a large product which was used as a template in the second PCR to enhance the sensitivity and specificity of DNA. The PCR was conducted under different annealing temperature to determine the optimal annealing temperature which is 61°C for the first PCR and 57.6°C for the second PCR.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Cholesterol in our body is either derived from the diet or from endogenous synthesis. Majority of the cholesterol is internally synthesised that is 85% and 15% is from our diet (Saladin, 2007). These percentages are shown in order to maintain homeostasis since our body is producing enough cholesterol and we do not need extra cholesterol from our diet. However, it's hard to avoid cholesterol in our diet entirely because many foods contain it. Cholesterol only is being synthesized by animal (Saladin, 2007), thus cholesterol can only be found in food derived from animals and no cholesterol can be found in vegetables or grains.

Cholesterol is a small molecule which consists of a basic four-ringed structure with variation in the functional groups and location of double bonds within the rings (Saladin, 2007). The word 'cholesterol' may frighten peoples as most people think that cholesterol is bad and in order to become healthy, one should not eat cholesterol as it may lead to