

**UNIVERSITI TEKNOLOGI MARA**

**DEVELOPMENT OF PCR BASED METHOD FOR THE  
DETECTION OF GENETIC POLYMORPHISM OF  
LEPTIN RECEPTOR (*LEPR*)**

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## TABLES OF CONTENTS

<b>TITLE PAGE</b>	<b>PAGE</b>
APPROVAL SHEET	I
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	vi
LIST OF PLATES	viii
LIST OF ABBREVIATIONS	ix
ABSTRACT	xi
<b>CHAPTER 1 (INTRODUCTION)</b>	
1.1 Introduction	1
1.2 Problem Statement	3
1.3 Objectives	3
1.4 Significance of Study	3
<b>CHAPTER 2( LITERATURE REVIEW)</b>	
2.1 Obesity	4
2.2 Obesity and co-morbidities	5
2.2.1 Obesity and cardiovascular risk	5
2.2.2 Obesity and insulin resistance	6
2.3 Aetiological factors of obesity	6
2.3.1 Genetic factors	7
2.3.2 Dietary intake	7
	8

## **ABSTRACT**

The problem of overweight and obesity among populations in Asia have been highlighted for more than a decade. As a result, many chronic diseases increase steadily with increasing body mass index (BMI). Overweight and obesity lead to various problematic metabolic effects on blood pressure, cholesterol, triglycerides and insulin resistance. Even though there are many aetiologic factors causing obesity, obesity had been associated with genetic polymorphism leptin receptor gene. Leptin acts through its receptor, leptin receptor (LEPR) which is a single-transmembrane-domain receptor of the cytokine-receptor family.

In this study, Polymerase Chain Reaction (PCR) based method was done to detect the presence of LEPR polymorphism.

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

According to World Health Organization (WHO) definition, obesity is a condition where there is an excessive deposition of fat in the body and can be determined by body mass index (BMI). A person is considered as obese if the BMI is greater than or equal to 30.

From data obtained from WHO, it is widely accepted in the medical community that obesity is one of the top five global health risk factors that lead to negative impact in health consequences and reason for the rising number of chronic diseases such as type 2 diabetes, cardiovascular diseases, and numerous cancers. This is because, obesity can lead to a variety of adverse metabolic effects on blood pressure, cholesterol, triglycerides and insulin resistance (Bouchard and Katzmarzyk, 2000).

About 10% of men and 14% of women were obese in 2008 ( $BMI \geq 30 \text{ kg/m}^2$ ), compared only with 5% for men and 8% for women in 1980. This shows that the worldwide prevalence of obesity has doubled between 1980 and 2008. In Asia, overweight and obesity have reached epidemic proportions. The prevalence of overweight and obesity were found to be 33.6% and 19.5%. In addition, childhood obesity also increased rapidly. About two thirds of these overweight kids has higher tendency to become overweight adults.