UNIVERSITI TEKNOLOGI MARA

# DEVELOPMENT OF A PCR BASED METHOD FOR THE DETECTION OF HLA-B*1502 (GENOTYPE MARKER FOR HYPERSENSITIVITY OF CARBAMAZEPINE)

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# ABSTRACT

Polymerase Chain Reaction (PCR) is an amplification technique used to detect smaller quantities of DNA and beneficial in providing information for genotyping because they allow large numbers of sample to be processed in short time. *HLA-B*1502* has been associated with hypersensitivity reaction that occur in Asian patients treated with Carbamazepine. The aim of this research is to develop PCR based method in detection of HLA-B locus in patient with carbamazepine hypersensitivity and to validate the PCR method that has been developed. The primers were retrieved from journal and modified accordingly to gene sequence and were reconstituted. PCR and Gel electrophoresis to analyze PCR product has been done. Based on the result, detection of *HLA-B*1502* can be achieved via PCR. Hence, detection of *HLA-B*1502* using PCR is beneficial in early prevention of hypersensitivity reaction towards patients who receive carbamazepine treatment.

# CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

Carbamazepine (CBZ) is a tricylic compound effective in the treatment of bipolar depression. The drug was initially marketed for treatment of trigeminal neuralgia, but it is approved for the treatment of epilepsy (Katzung, 2001). It is sold under the brand names Carbatrol, Equetro and Tegretol.

Carbamazepine shows activity against maximal electroshock seizures, it blocks sodium channels at therapeutic concentrations and inhibit high-frequency repetitive firing in neurons in culture (Katzung, 2001).

Serious and sometimes fatal dermatologic reactions, including toxic epidermal necrolysis (TEN) and Steven-Johnson syndrome (SJS), have been reported in patients receiving carbamazepine therapy (Rockville, 2007).

Steven-Johnson syndrome is a hypersensitivity complex affecting the skin and mucous membrane. The disorder causes blistering of mucous membrane, typically in the mouth, eyes and vagina with patchy areas of rash (Alonso, 2007).