

UNIVERSITI TEKNOLOGI MARA

**AMPLIFICATION OF AXL GENE OF ZIKA
VIRUS ENTRY RECEPTOR**

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ABSTRACT

The incidence of Zika virus infection is dramatically increasing in the year 2015. It is endemic in South America and is about to spread fast worldwide. It is important to identify and isolate the specific cell surface receptor for Zika virus to understand its mechanism. There are few receptors that have been reported to play a role in the Zika virus entry mechanism and one of it is AXL gene. The aim of this study is to amplify the homology arms of AXL gene. The homology arms produced can be used by future researchers to produce the gene knockout for AXL gene. To design primers that are specific to AXL gene, we used the ENSEMBL software, RepeatMasker software and PrimerBlast software. The amplification of homology arms was done by PCR methods together with 12.5 μ L of Master Mix. The size of the PCR product is 1000 bp. All PCR products were analysed with 1.2% agarose gel electrophoresis method by running it together with 1000 bp DNA Ladder marker. The result shows a successful amplification of homology arms for AXL gene. The amplification of homology arms of AXL gene can lead to the production of gene knock-out cassette thus contributing to new discoveries in Zika virus research. The production of gene knockout of AXL gene can give a better understanding of the mechanism of entry of Zika virus.

CHAPTER 1

1.0 INTRODUCTION

1.1 Introduction

Zika virus (ZIKAV) is first found in 1947 and only in 1954 when the first Zika virus was reported in human when 3 humans were infected by the virus in Nigeria. In 2015-2016, the virus outbreaks again in South Pacific particularly in Central America and Brazil that alarmed the World Health Organization (WHO) to announce the Public Health Emergency of International Concern. This has placed the situation the same level as the Ebola virus outbreak in 2014 in West Africa (Boeuf, Drummer, Richards, Scoullar, & Beeson, 2016). On September 1st, 2016, Malaysia had received its first Zika virus case. The infected woman had shown signs of rash and fevers a week after visiting the neighbouring country, Singapore. According to Center for Disease Control, people infected by ZIKAV will show either no symptom or mild symptoms. These include fever, rash and joint pain. The symptoms will last for several days to a week and usually, the infected people will self-treat the symptoms as it is mild symptoms. Moreover, it is difficult to diagnose one with Zika virus infection because patients usually show the same symptoms as other viral infections such as dengue and chikungunya. If a pregnant woman gets infected by ZIKAV, the baby will be born with microcephaly, a condition of an abnormally small head.