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AMPLIFICATION OF EXON 3 OF HUMAN PATATIN-LIKE PHOSPHOLIPASE DOMAIN CONTAINING 3 GENE (*PNPLA3*) USING POLYMERASE CHAIN REACTION

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ABSTRACT

Liver fibrosis is the accumulation of scar tissue in the liver. It takes place due to prolonged inflammation and in response of the liver towards injuries or diseases. The mutation of *PNPLA3* gene from 10109 C>G in exon 3 may lead to liver fibrosis. This is associated with risk factors that are common in Malaysia such as CLD, NAFLD and excessive alcohol consumption. A set of primer with size of 355 bp that will amplify exon 3 of *PNPLA3* gene has been successfully designed in the detection of the mutation of *PNPLA3* gene even though the result shows absence of mutation. Future studies using the successfully designed primer can be conducted with people of high risk to develop liver fibrosis among Malaysian. By doing so, public may have better awareness on the genetic factors that may contribute to this disease among our population.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Liver fibrosis is a disease condition that can develop due to many factors, mainly caused by chronic liver diseases (CLD) such as hepatitis B, hepatitis C and alcoholic liver disease. Chronic liver injury will cause repetitive tissue damage, and thus results in impaired regenerative capacity marked by altered inflammatory infiltrate and chronic wound healing response (Trautwein, Friedman, Schuppan, & Pinzani, 2015). These will trigger fibrosis progression and also contributes to fibrosis resolution.

It is reported that presence of fatty liver is a significant risk factor for liver fibrosis. A term fatty liver disease is used to portray a build-up of excess fat in the liver cell. According to the American Liver Foundation (ALF), for the liver to have some fat is normal, however if it exceeds 5% to 10% of the liver's weight, it will be considered as excessive. It may not seem like a huge problem to us, yet the final outcome of the fat accumulating in the liver will be a risk to the health status, where it will