

**A BIOMEDICAL INFORMATICS STUDY ON LUNG CANCER
BIOMARKERS FOR PRECISION MEDICINE**

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



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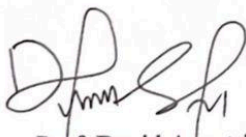
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ABSTRACT

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Lung cancer has a high mortality rate, therefore precision medicine could enhance diagnostics and therapeutic treatments for lung cancer patients. This study aims to identify relevant lung cancer biomarkers with prognostic significance that play a key role in precision medicine, followed by designing a primer targeting the selected biomarkers. This thesis used systematic review to identify potential biomarkers, and later on a primer will be designed using miRprimer tool. Initial review revealed that Non Small Cell Lung Cancer (NSCLC) adenocarcinoma commonly found in Indonesian patients, with miR-375, miR-100, miR-141, and miR-200b selected as potential biomarker candidates. A systematic review conducted to evaluate the prognostic significance of the four biomarkers candidates in patients with NSCLC adenocarcinoma. miR-375 and miR-100 are selected for primer design due to their role in enhancing diagnostics accuracy and their prognostic significance. The miRprimer tools used to design a primer, thereafter the generated primers were validated using PrimerBLAST and good primer criteria.

Keywords: Biomedical Informatics, Lung Cancer Biomarkers, Precision Medicine, miRNA Biomarker, Primer Design



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DEDICATION

I dedicate this work to lung cancer survivors and for those who fight against cancer.



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First and foremost, I would like to express my deepest gratitude to Allah SWT for providing me with strength, health and perseverance to complete this research. Without his blessings, this research would not be accomplished.

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