

**A BIOMEDICAL INFORMATICS STUDY ON BIOMARKERS OF
COLORECTAL CANCER FOR PRECISION MEDICINE**

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in

BIOMEDICAL ENGINEERING
LIFE SCIENCES AND TECHNOLOGY



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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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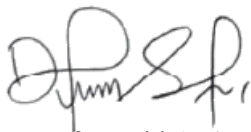

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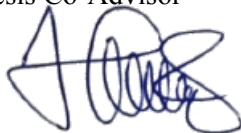
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ABSTRACT

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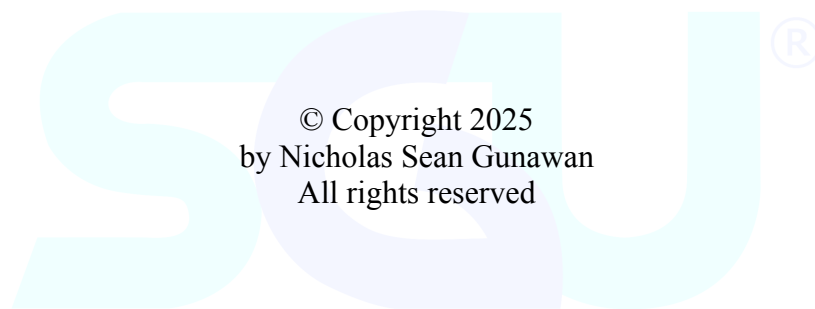
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This thesis attempts to further the understanding of colorectal cancer in a biomedical informatics and precision medicine viewpoint for better diagnostics. Through the analysis of the genetic biomarkers TP53, KRAS, APC, and PIK3CA, especially those for the Indonesian population. The design on the primers that would result from this thesis would highlight the practical importance of the research findings, resulting in improvement of diagnostic accuracy as well as better personalized treatment strategies, all which contributes to the further development of precision medicine while also providing a foundation for future clinical applications.

Keywords: Biomedical Informatics, Precision Medicine, Colorectal Cancer Biomarkers, Gene Expression, Primer Design, Molecular Subtypes



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DEDICATION

I dedicate this thesis to all cancer patients and survivors.



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I would like to express my greatest gratitude to God for providing me with the focus and strength to follow through with the Thesis and completing it, without His guidance this thesis would have never found its complete state.

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TABLE OF CONTENTS

	Page
STATEMENT BY THE AUTHOR.....	2
ABSTRACT.....	3
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
TABLE OF CONTENTS.....	7
LIST OF TABLES.....	8
LIST OF FIGURES.....	10
CHAPTER 1 - INTRODUCTION.....	11
1.1. Background.....	11
1.2. Research Problems.....	12
1.3. Research Objectives.....	12
1.4. Significance of Study.....	12
1.5. Research Questions.....	12
1.6. Hypothesis.....	13
CHAPTER 2 - LITERATURE REVIEW.....	14
2.1. Colorectal Cancer.....	14
2.2. CRC Subtypes.....	14
2.3. CRC Diagnostics.....	16
2.4. Biomarkers and CRC Biomarkers.....	16
2.5. CRC in Indonesia.....	17
2.6. Primer Design.....	18
2.7. Research gap.....	20
CHAPTER 3 – RESEARCH METHODS.....	21
3.1. Materials and Equipment.....	21
3.2. Research Framework.....	21
3.3. Research Pipeline.....	21
3.4. PICOT Format.....	22
3.5. PRISMA Format.....	22
3.6. Primer Design.....	23
CHAPTER 4 – RESULTS AND DISCUSSIONS.....	25
4.1. Initial Review.....	25
4.2. Systematic review.....	26
4.3. Primer Design.....	30
4.4. Final Analysis and Discussion.....	39
CHAPTER 5 – CONCLUSIONS AND RECOMMENDATIONS.....	41
5.1. Conclusion.....	41
5.2. Future Recommendations.....	41
REFERENCES.....	42
GLOSSARY.....	47
APPENDIX.....	48
CURRICULUM VITAE.....	54

LIST OF TABLES

Table	Page
Table 1. Primer-BLAST settings	23
Table 2. Systematic Review of Significant CRC Genes	26
Table 3. Gene codes used for primer design	30
Table 4. KRAS Pair 1	31
Table 5. KRAS Pair 2	31
Table 6. KRAS Pair 3	32
Table 7. KRAS Pair 4	32
Table 8. KRAS Pair 5	32
Table 9. KRAS Pair 6	33
Table 10. KRAS Pair 7	33
Table 11. KRAS Pair 8	33
Table 12. KRAS Pair 9	34
Table 13. KRAS Pair 10	34
Table 14. Chosen KRAS Pair	34
Table 15. APC Pair 1	35
Table 16. APC Pair 2	35
Table 17. APC Pair 3	36
Table 18. APC Pair 4	36
Table 19. APC Pair 5	37
Table 20. APC Pair 6	37
Table 21. APC Pair 7	37
Table 22. APC Pair 8	38
Table 23. APC Pair 9	38

COLORECTAL CANCER FOR PRECISION MEDICINE

Table 24. APC Pair 10	38
Table 25. Chosen APC Pair	39



LIST OF FIGURES

Figures	Page
Fig. 1 PRISMA Workflow	48
Fig. 2 KRAS Graphical BLAST	49
Fig. 3 APC Graphical BLAST	49
Fig. 4 Initial PICOT Search example in Google Scholar	49
Fig. 5 Systematic PRISMA Search example in NCBI Database	50
Fig. 6 Initial search in NCBI Nucleotide database	50
Fig. 7 Pre-filter results of APC example nucleotide search	51
Fig. 8 Post-filter of Human mRNA APC samples	51
Fig. 9 Gene view pre-primer design	52
Fig. 10 Primer design options upper section	52
Fig. 11 Primer design options lower section	53
Fig. 12 Pipeline/Flowchart of the thesis	53