

**IDENTIFICATION OF RECTAL CANCER GENES
BY MICROARRAY ANALYSIS**

NIPAPORN THIPMANEE

**MASTER OF SCIENCE
IN BIOINFORMATICS**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved
**THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY**

SEPTEMBER 2011

**IDENTIFICATION OF RECTAL CANCER GENES
BY MICROARRAY ANALYSIS**

NIPAPORN THIPMANEE

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE
IN BIOINFORMATICS**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

**THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY**

SEPTEMBER 2011

**IDENTIFICATION OF RECTAL CANCER GENES
BY MICROARRAY ANALYSIS**

NIPAPORN THIPMANEE

THIS THESIS HAS BEEN APPROVED
TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN BIOINFORMATICS

EXAMINING COMMITTEE

.....CHAIRPERSON
Asst. Prof. Dr. Lily Ingrisawang

.....MEMBER
Assoc. Prof. Dr. Jeerayut Chaijaruwanich

.....MEMBER
Assoc. Prof. Imjai Chitapanarux, MD

THESIS ADVISORY COMMITTEE

.....ADVISOR
Asst. Prof. Dr. Sukon Prasitwattanaseree

.....CO-ADVISOR
Assoc. Prof. Dr. Jeerayut Chaijaruwanich

.....CO-ADVISOR
Dr. Nisa Chawapun

.....CO-ADVISOR
Asst. Prof. Taned Chitapanarux, MD

.....CO-ADVISOR
Assoc. Prof. Imjai Chitapanarux, MD

22 September 2011

© Copyright by Chiang Mai University

ACKNOWLEDGEMENTS

Many people have helped me throughout my degree. I feel proud of my decision to study Bioinformatics and do this research.

I am grateful to acknowledge Dr. Sukon Prasitwattanaseree for very important suggestions on my work during my graduate study at Chiang Mai University, in my work. Although, he has many duties, he spends his time to provide valuable guidance to me.

I wish to acknowledge my advisor Dr. Jeerayut Chaijaruwanich, Dr. Nisa Chawapun and Dr. Imjai Chitapanarux, MD. During a period of my graduate student, I am truly grateful to Dr. Jeerayut, Dr. Nisa and Dr. Imjai for their patience and guidance throughout this research. Especially, I would like to express my deeply grateful to Dr. Nisa for her generous support and inspiration for me. I would also like to acknowledge Dr. Taned Chitapanarux, MD for serving as my thesis co-advisor.

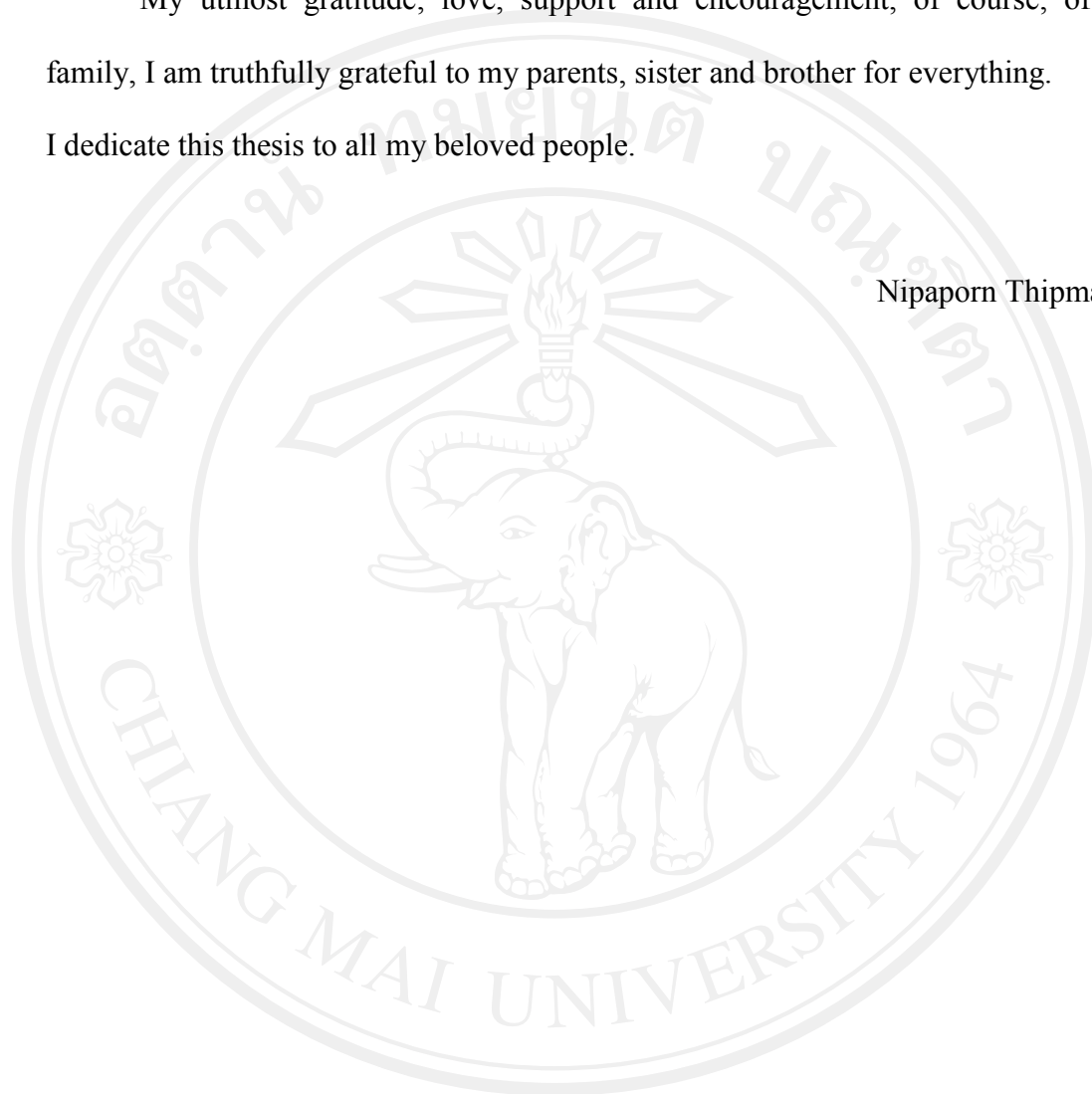
I would also like to acknowledge Dr. Lily Ingsrisawang for being on my examining committee.

I am very grateful for all members of Bioinformatics Research Laboratory (BIRL) and Cancer Treatment and Research Center. I am greatly indebted to Mr. Keng Jiamkitwattana for conducting microarray raw data for my thesis and supporting me everything.

Special thank to Science Achievement Scholarship of Thailand for providing financial support.

My utmost gratitude, love, support and encouragement, of course, of my family, I am truthfully grateful to my parents, sister and brother for everything. I dedicate this thesis to all my beloved people.

Nipaporn Thipmanee



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved