DEVELOPMENT OF AN OLIGONUCLEOTIDE LIGATION ASSAY (OLA) FOR THE DETECTION OF HIV-1 **DRUG-RESISTANT MUTATION**

SIRIKWAN DOKUTA

MASTER OF SCIENCE IN HEALTH SCIENCES

THE GRADUATE SCHOOL CHIANG MAI UNIVERSITY EEDDUA DV 2012

DEVELOPMENT OF AN OLIGONUCLEOTIDE LIGATION ASSAY (OLA) FOR THE DETECTION OF HIV-1 DRUG-RESISTANT MUTATION

SIRIKWAN DOKUTA

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

> THE GRADUATE SCHOOL CHIANG MAI UNIVERSITY FEBRUARY 2012

DEVELOPMENT OF AN OLIGONUCLEOTIDE LIGATION ASSAY (OLA) FOR THE DETECTION OF HIV-1 DRUG-RESISTANT MUTATION

SIRIKWAN DOKUTA

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

EXAMINING COMMITTEE _____ THESIS ADVISORY COMMITTEE

Prof. Kiat Ruxrungtham Pr

.. MEMBER Prof. Thira Sirisanthana

Prof. Dr. Niwat Maneekarn

aiwan Utaipat MEMBER

Dr. Utaiwan Utaipat

Prof. Thira Sirisanthana

Dinvat Maneekan CO-ADVISOR Prof. Dr. Niwat Maneekarn

Waiwan Utaipa ...CO-ADVISOR

Dr. Utaiwan Utaipat

28 February 2012 © Copyright by Chiang Mai University

ACKNOWLEDGEMENT

First of all, I would like to express my sincere gratitude to Professor Thira Sirisanthana, my major advisor, for his kindness, encouragement, valuable suggestions and supports in this study.

I am also very grateful to Professor Dr. Niwat Maneekarn, my co-advisor, for his valuable advice and guidance.

I am most grateful to Dr. Utaiwan Utaipat, my co-advisor. I wish to express my deep gratitude for her excellent advice, valuable suggestions for laboratory techniques, knowledge and guidance.

I wish to extend my gratitude to Mr. Rassamee Keawvichit and Mrs. Kanlaya Wongworapat, my laboratory manager and laboratory supervisor respectively, from Clinical Laboratory, the Research Institute for Health Sciences (RIHES), Chiang Mai University, for their advice, encouragement and support in this study and laboratory work. Without their helps and encouragements, this thesis would not have been completed.

I sincerely thank Ms. Jutharat Praparatanapan for her helpful advice and for providing me with the clinical specimens and data.

Grateful acknowledgements are also given to Dr. Nicole Ngo Giang Huong and her staff at the Program for HIV Prevention and Treatment (PHPT) Laboratory, Chiang Mai site, Thailand, for their advice, guidance and provision about the Oligonucleotide Ligation Assay (OLA) technique information. I also thank my friends and my colleagues in the Clinical Laboratory, RIHES, CMU especially Mrs. Panida Yodkeeree, Ms. Chamaiporn Naprom, Ms. Chansom Pantip, Mr. Jeitsada Keitkarn and Ms. Sunisa Butphet and everyone whom I do not mention here, for their encouragement and helpful throughout this study.

I also sincere thank Mr. Peter Lange, Ms. Surangchit Kootathep and the Grant Management Unit (GMU) staff for their financial management of the scholarship.

I would like to thank Mr. Daniel Yang for his helpful and kindness to proofread my thesis.

I would like to express my heartfelt gratitude to the Forgarty AIDS International Training and Research Program, the Johns Hopkins University, for giving me a scholarship to undertake this Master degree of Health Sciences (International Program) at Chiang Mai University. I would also like to acknowledge the Research Institute for Health Sciences, Chiang Mai University for providing the instruments and facility for the study.

Finally, I would like to give my special thanks to my family for their love, patience, understanding and encouragement throughout my study

Sirikwan Dokuta

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่ Copyright[©] by Chiang Mai University All rights reserved