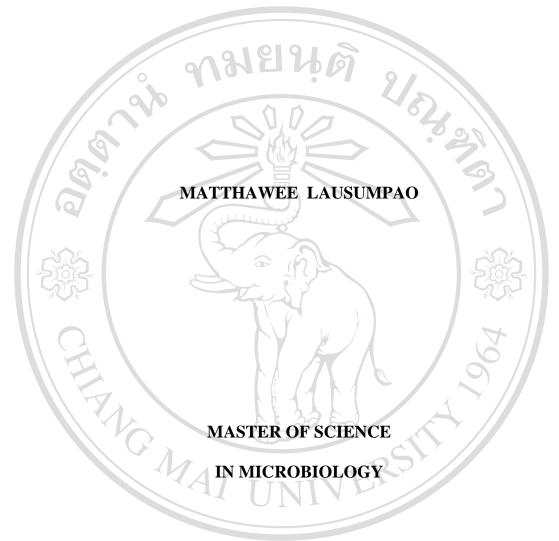
AMINO ACID CHANGES IN THE PR-M JUNCTION THAT AFFECT RELEASE OF DENGUE VIRUS PARTICLES



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

THE GRADUATE SCHOOL

CHIANG MAI UNIVERSITY

APRIL 2008

AMINO ACID CHANGES IN THE PR-M JUNCTION THAT AFFECT RELEASE OF DENGUE VIRUS PARTICLES

MATTHAWEE LAUSUMPAO

A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF SCIENCE

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

THE GRADUATE SCHOOL

CHIANG MAI UNIVERSITY

APRIL 2008

AMINO ACID CHANGES IN THE PR-M JUNCTION THAT AFFECT RELEASE OF DENGUE VIRUS PARTICLES

MATTHAWEE LAUSUMPAO

THIS THESIS HAS BEEN APPROVED

TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF MASTER OF SCIENCE

IN MICROBIOLOGY

EXAMINING COMMITTEE

Norm Lithisombot CHAIRPERSON

Assoc. Prof. Dr. Nopporn Sittisombut

Dr. Poonsook Keelapang

Copyright

Clary Child SMEMBER

MEMBER

MEMBER

Dr. Poonsook Keelapang

Child SMEMBER

Clary Child SMEMBER

OR Clary Child SMEMBER

Dr. Chunya Puttikhunt

9 April 2008

© Copyright by Chiang Mai University

ACKNOWLEDGEMENT

This work could not be possible without these people; Dr. Nopporn Sittisombut, Dr. Poonsook Keelapang, Dr. Amornrat Kanjanahaluethai and colleagues. I would like to thank Ajarn Nopporn Sittisombut, my thesis advisor, who gave me the strong suggestions, and he had allowed me to hit the ground running since I started this thesis.

I also appreciate to Ajarn Poonsook Keelapang and Ajarn Amornrat Kanjanahaluethai who always gave their comments on my work.

Dr. Nicha Charoensri always persuaded me on the positive side, and she spent her times training me for writing this thesis. I am also grateful to all my friends who look after me. I wish to express my gratitude to all the members of the examining committee who spent their time reading drafts of my thesis.

I am also grateful to all the faculty members of the Department of Microbiology, Faculty of Medicine who gave me a great opportunity to join this program.

Finally, I am indebted to my parents for the educational opportunity they gave me. MAIU

Matthawee Lausumpao

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม Copyright[©] by Chiang Mai University rights reserved