ACTIVITIES AND GENETIC VARIANTS OF CHOLINESTERASE AND PARAOXONASE ENZYMES IN CHIANG MAI FARMERS

WARUNEE JIT-AREE

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

GRADUATE SCHOOL

CHIANG MAI UNIVERSITY

OCTOBER 2004

ISBN 974-980-926-2

ACTIVITIES AND GENETIC VARIANTS OF CHOLINESTERASE AND PARAOXONASE ENZYMES IN CHIANG MAI FARMERS

 \mathcal{H}

WARUNEE JIT-AREE

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

EXAMININIG COMMITTEE	
Dr. Tippawan Prapamontol	CHAIRPERSON
Asst. Prof. Dr.Ampica Mangklabruks	MEMBER
Frof. Dr. Tanin Bhoopat	MEMBER
Dr. Suthee Ratanamongkolgul	MEMBER

10 October 2004

© Copyright by Chiang Mai University

ACKNOWLEDGEMENTS

I would like to thank Dr. Tippawan Prapamontol, my thesis advisor who advice all of experiment techniques, knowledge, study design and thesis preparation. Especially thank to Prof. Dr. Tanin Bhoopat and his colleague, Dr. Steger Hurich, who advised me all of molecular technique especially polymerase chain reaction technique (PCR) and all knowledge about molecular biology.

I also thank Asst. Prof. Dr. Ampica Mangklabruks, Dr.Peter Kunstadter and Dr.Sukda Prenglamphoo, for their kind advice and patient in discussing my thesis work particularly in statistic and social science part. I wish to thanks Dr. John McDermid for his kind advice in proving English language in my thesis. I would like to thank the RIHES field team, Ms. Chonthicha Reungyuthikarn, Ms. Moonchan Wichajarn, Ms. Boonyarat Puisang, Ms. Napha Ruengparin, Ms. Nongluk Kabyoy and Mr. Nakorn Rariwatsakulchai for their help in my thesis work particularly in data and blood collection on the whole study.

Many special thanks to Mr. Surat Hongsibsong, Ms. Mayuree Suton and Mr. Singkeaw Saikrab for their kind and help in Toxicology Laboratory facilities at the Research Institute for Health Sciences.

I also would like to thanks Mr. Russamee Keawwichit, Ms. Kalaya Wongwarapat, Dr.Jeerang Wongtrakul and their assistants in Molecular Laboratory, for their kind help in Molecular Laboratory facilities at the Research Institute for Health Sciences.

I gratefully thank to Prof. Dr. Theera Sirisanthana, the RIHES director, who encouraged me to study in the Master of Health Sciences program and supported the scholarship for the whole study. I gratefully acknowledge the scholarship supported from the Research Institute for Health Sciences Funds (RIHES FUNDS) and the Health System Research Institute (HSRI), Ministry of Public Health, Thailand.

Warunee Jit-Aree

October 2004

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