

อภินันทนาการ



สำนักหอสมุด

**EFFECTS OF SERICIN-DERIVED OLIGOPEPTIDES ON HYPERTENSION,
VASCULAR STRUCTURE AND TOXICITY STUDY IN RAT**

AMNART ONSA-ARD

สำนักหอสมุด มหาวิทยาลัยนเรศวร

วันลงทะเบียน..... ๓ - ต.ค. ๒๕๕๖.....

เลขทะเบียน..... ๑.๖๓๙๙๒๑๖.....

เลขเรียกหนังสือ..... T..... RA.....

1444
4.A54


A522e
2013

A Thesis Submitted to the Graduate School of Naresuan University
in Partial Fulfillment of the Requirements
for the Doctor of Philosophy Degree
in Medical Sciences (International Program)


August 2013


Copyright 2013 by Naresuan University


This thesis entitled "Effects of Sericin-derived oligopeptides on hypertension, vascular structure and toxicity study in rat" submitted by Amnart Onsa-ard in partial fulfillment of the requirements for the Doctor of Philosophy Degree in Medical Sciences (International Program) is hereby approved.


.....Chair
(Jongrak Attarat, Ph.D.)


.....Committee
(Associate Professor Dawan Shimbhu, Ph.D.)

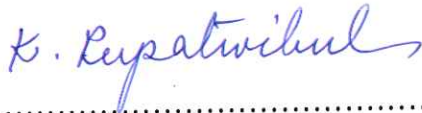

.....Committee
(Assistant Professor Chainarong Tocharus, Ph.D.)


.....Committee
(Damratsamon Surangkul, Ph.D.)


.....Committee
(Assistant Professor Pornphrom Chintana, Ph.D.)


.....Committee
(Assistant Professor Jiraporn Tocharus, Ph.D.)

Approved


.....
(Assistant Professor Kanungnit Pupatwibul, Ph.D.)

Dean of the Graduate School

13 August 2013

ACKNOWLEDGMENTS

First of all, I would like to express my sincere gratitude and appreciation to my advisor, Associate Professor Dr. Dawan Shimbhu for her guidance, criticism, suggestion, supervision, patient and kindness in correcting this thesis. I would like to gratefully thank Assistant Professor Dr. Chainarong Tocharus and Dr. Damratsamon Surangkul, my co-advisor, for their valuable suggestions, comments, criticism and kindness throughout my stay in laboratory at Department of Anatomy, Faculty of Medicine, Chiang Mai University.

I also would like to express my grateful thanks to all members of the thesis committee, Assistant Professor Dr. Jiraporn Tocharus, Dr. Jongrak Attarat and Assistant Professor Dr. Pornphrom Chintana for their helpful advices and suggestions.

I gratefully thank to Agriculture research development agency (ARDA) research Fund for the partial research grant supports in this study. I am also grateful to Assistant Professor Dr. Manote Sutteerawattananonda, School of Food Technology, Institute of Agricultural Technology, Suranaree University of Technology for providing of the oligopeptides extract. I would like to thank University of Phayao for scholarship supporting.

I would like to thank my teachers for their instructions. I also thank to all staff members and all officers of the Department of Anatomy, Faculty of Medicine, Chiang Mai University and Department of Physiology, Faculty of Medical Science, Naresuan University for their precious helps and kindness.

Likewise, I also would like to thanks to Miss, Siriluk Weerasakul, Mrs. Aida Moohammadaree, Mr. Decha Pinkaew, Mr. Pichaya Jumnonprakhon, Mr. Yongyuth Puriboriboon, Miss Chonticha Pudsing, Miss. Rungsa Pantan, Mr, Pornaree Taweekod and Miss. Sarinthon Thummayot and my good anonymous friends for their guidance, helpfulness, encouragement and kindness.

Finally, special appreciation is expressed to my family for their love, give the best things in my life and encourage me to make the work accomplishes.

Amnart Onsa-ard