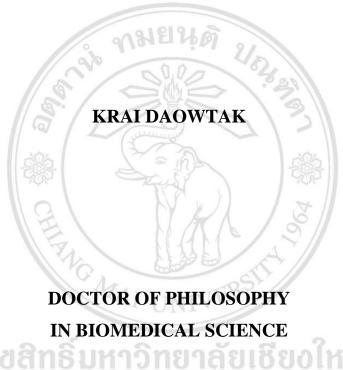
In vitro PHARMACOKINETIC STUDY BETWEEN PHYTOCHEMICALS AND AMYLOID BETA PEPTIDE TOWARDS NEUROPROTECTIVE EFFECT IN ALZHEIMER'S DISEASE



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

> GRADUATE SCHOOL CHIANG MAI UNIVERSITY DECEMBER 2017

In vitro PHARMACOKINETIC STUDY BETWEEN PHYTOCHEMICALS AND AMYLOID BETA PEPTIDE TOWARDS NEUROPROTECTIVE EFFECT IN ALZHEIMER'S DISEASE



A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN BIOMEDICAL SCIENCE

GRADUATE SCHOOL, CHIANG MAI UNIVERSITY DECEMBER 2017

In vitro PHARMACOKINETIC STUDY BETWEEN PHYTOCHEMICALS AND AMYLOID BETA PEPTIDE TOWARDS NEUROPROTECTIVE EFFECT IN ALZHEIMER'S DISEASE

KRAI DAOWTAK

THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN BIOMEDICAL SCIENCE

Examination Committee:

Dimon Chairman

(Assoc. Prof. Dr. Wilart Pompimon)

In houp (Kember athupahom

(Asst. Prof. Dr. Nathupakorn Dechsupa)

11 mpgh Member

(Asst. Prof. Dr. Chalermchai Pilapong)

S. Intorascot Member

(Asst. Prof. Dr. Sorasak Intorasoot)

...Member

(Asst. Prof. Dr. Chatchanok Udomtanakunchai)

27 December 2017

Copyright © by Chiang Mai University

Advisory Committee:

From ISN Advisor

(Asst. Prof. Dr. Chatchanok Udomtanakunchai)

chour on makim .Co-advisor

(Asst. Prof. Dr. Nathupakorn Dechsupa)

CipilapanCo-advisor

(Asst. Prof. Dr. Chalermchai Pilapong)

Suchart Kothan

Co-advisor

(Assoc. Prof. Dr. Suchart Kothan)

ACKNOWLEDGEMENT

First of all, I would like to express my sincere gratitude to my advisor, Assistant Professor. Dr. Chatchanok Udomtanakunchai for her support of my research work, her unfaltering conviction in my capabilities, her appropriately timed guidance and personal support.

My grateful are to all committees who accepted the request to participate in the jury of my thesis and their discussions and advices during my thesis performing.

I express sincere gratitude to all past and present members of PCMCB research group and Center of Excellence for Molecular Imaging (CEMI), Department of Radiologic Technology, Faculty of Associated Medical Sciences, Chiang Mai University, Chiang Mai for their endless support whenever I needed anything.

My specials thanks to Centre d'Investigation Clinique de Besançon and Laboratoire de Toxicologie Cellulaire, EA4267, Faculté de Médecine et de Pharmacie, Université de Franche-Comté, Besançon, France that have been a wonderful help in the laboratory and also great friends outside during perform my research in France.

This thesis work was supported by grants from the Commission on Higher Education, Ministry of Education, the Royal Thai government grant number 224/2551 and partly support from Graduate School of Chiang Mai University.

Finally, I would like to express my deepest gratitude to my parents, my whole family and close relatives for their everlasting love, understanding and numerous supports.

Krai Daowtak