

**IDENTIFICATION AND CHARACTERIZATION OF FUNCTIONAL
PARTNER OF THE CD99 MOLECULE**

SUPANSA PATA

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN BIOMEDICAL SCIENCE**

**THE GRADUATE SCHOOL
CHIANG MAI UNIVERSITY**

SEPTEMBER 2011

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright © by Chiang Mai University
All rights reserved

**IDENTIFICATION AND CHARACTERIZATION OF FUNCTIONAL
PARTNER OF THE CD99 MOLECULE**

SUPANSA PATA

**DOCTOR OF PHILOSOPHY
IN BIOMEDICAL SCIENCE**

THE GRADUATE SCHOOL

CHIANG MAI UNIVERSITY

SEPTEMBER 2011

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright © by Chiang Mai University
All rights reserved

**IDENTIFICATION AND CHARACTERIZATION OF FUNCTIONAL
PARTNER OF THE CD99 MOLECULE**

SUPANSA PATA

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

EXAMINING COMMITTEE

S. Wongratana
.....CHAIRPERSON

Assoc. Prof. Dr. Surasakdi Wongratanaheewin

W. Kasinrer
..... MEMBER

Prof. Dr. Watchara Kasinrer

Chatchai Tayapiwattana
..... MEMBER

Assoc. Prof. Dr. Chatchai Tayapiwattana

S. Chiampanichayakul
..... MEMBER

Asst. Prof. Dr. Sawitree Chiampanichayakul

Pavel Otahal
..... MEMBER

Dr. Pavel Otahal, M.D.

THESIS ADVISORY COMMITTEE

W. Kasinrer
.....ADVISOR

Prof. Dr. Watchara Kasinrer

V. Horejsi
.....CO-ADVISOR

Prof. Dr. Vaclav Horejsi

Chatchai Tayapiwattana
.....CO-ADVISOR

Assoc. Prof. Dr. Chatchai Tayapiwattana

S. Chiampanichayakul
.....CO-ADVISOR

Asst. Prof. Dr. Sawitree Chiampanichayakul

12 September 2011

©Copyright by Chiang Mai University

ACKNOWLEDGEMENTS

The author wishes to express sincere gratitude and appreciation to Prof. Dr. Watchara Kasinrerak, thesis advisor, for his excellent guidance, continuous discussion and infinite knowledge. Without his support and encouragement, this thesis could not be accomplished.

My sincerest thanks particularly go to Assoc. Prof. Dr. Chatchai Tayapiwattana and Asst. Prof. Dr. Sawitree Chiampanichayakul, my thesis co-advisors for their special efforts, unforgettable support, and encouragement.

I would like to offer my special thanks to my co-advisor Prof. Dr. Vaclav Horejsi and Dr. Pavel Otahal for their valuable supervisions, assistance, excellent discussion and encouragements during my stay and doing research in the Laboratory of Molecular Immunology, Institute of Molecular Genetics, Academy of Sciences of the Czech Republic, Prague, Czech Republic.

I wish to express my deepest gratitude and appreciation to Dr. Tomas Brdicka and Dr. Panida Khunkaewla for guidance and interest in solving many problems throughout my works. I also wish to express my great appreciation to all staff members of Prof. Dr. Watchara Kasinrerak's and Prof. Dr. Vaclav Horejsi's laboratory for their kind help, friendship and co-operation, especially Miss Kodchakorn Mahasongkram and Miss Witida Laopajon. I would like to give special thanks to Mr. Matous Hrdinka and Peter Draber for his greatest experimental training and kindness.

Many thanks are also extended to all of my friends for their help and warm friendship.

I also wish to express my great appreciation to Assoc. Prof. Dr. Surasakdi Wonggratanacheewin and all examining committees for their kindness suggestions and valuable advice.

I would like to thank the Department of Medical Technology, Faculty of Associated Medical Sciences, Chiang Mai University, Chiang Mai, Thailand and the Laboratory of Molecular Immunology, Institute of Molecular Genetics, Academy of Sciences of the Czech Republic, Prague, Czech Republic for providing instruments and a place for the study.

I would like to gratefully acknowledge the Royal Golden Jubilee Ph.D. Program and the National Science and Technology Development Agency and the National Research University Project under Thailand's Office of the Higher Education Commission for their financial support.

Finally, I would like to express my great gratitude to my parents and my relatives for their love and encouragement throughout this study.

Supansa Pata