



The Institute of Molecular Biosciences
Mahidol University

Report 2008-2009



**INSTITUTE OF MOLECULAR BIOSCIENCES
MAHIDOL UNIVERSITY**

**2008-2009
REPORT**

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www.mb.mahidol.ac.th

Preface

The Institute of Molecular Biosciences (MB) was established in 2009 as a research institute under the new organizational structure of Mahidol University with missions of promoting research excellence and training in Molecular Biosciences. The institute is founded by a merging between the previous two sister institutes: Institute of Science and Technology for Research and Development and Institute of Molecular Biology and Genetics.

The goal of MB is to produce knowledge, innovations and scientific personnel to be used for the betterment of health and economy of the region. Research areas of MB focus on important human diseases and improvement of major agricultural and bio-products of the region. Along with these research activities, MB provides postgraduate education through international M.Sc. and Ph.D. programs, such as Molecular Genetics and Genetic Engineering, and Neuroscience. MB also provides specialized academic services to the public and certain organizations.

Currently the Institute accommodates 53 principal investigators, 137 supporting staffs, and 120 graduate students in its international M.Sc. and Ph.D. programs. This official report compiles the activities and outputs during the year 2008-2009 in research, education, and academic services. Annually, the Institute receives about 80-90 million Baht of research grants from various sources and generates around 100 published articles in international peer-review journals.

Professor Prasert Auewarakul, M.D., Dr. med.

MB Director

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History

The Institute of Molecular Biosciences (MB) was recently established in 2009, by combining the strengths and facilities of the previous Institute of Science and Technology for Research and Development, and Institute of Molecular Biology and Genetics. The mission of the new institute is to be a first-rate research center in molecular biosciences, as well as a center for multi-disciplinary networking and collaboration. Research activities at the Institute of Molecular Biosciences cover both basic and applied research in areas of high priority for the public health and the economy of Thailand. The research activities are extensive, conducted by 53 principle investigators affiliated with the institute, producing around 100 international publications each year. On-going research areas include thalassemia; dengue vaccine development and molecular biology of dengue virus; neuroscience and behavioral biology; conservation biology; microbial genetics; plant molecular biology; molecular biology of aquatic animals; structural biology; biopolymers; and biomedical engineering.

In addition, the Institute also offers high quality postgraduate education and training in the areas of Molecular Genetics-Genetic Engineering, Neuroscience, and Biomedical Instrumentation.

Vision

A world class research institute in molecular biosciences, we make global impact with locally relevant research.

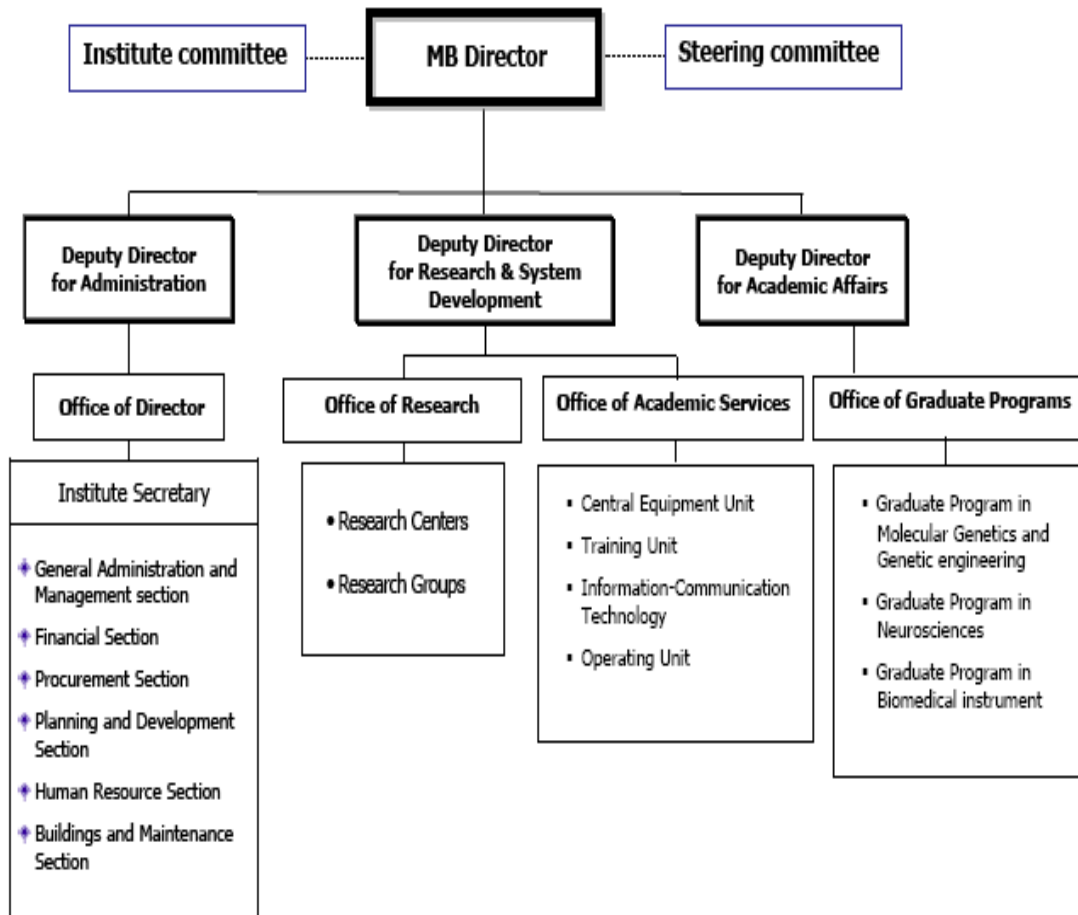
Missions

Our mission is to conduct research with realistic impact to the advancement of science, especially in the areas of high priority for the country, and to produce human resource in sciences with integrity.

Objectives

- To promote research and academic excellence in Molecular Biosciences at an international level
- To provide high quality research training and academic services for the Thai and global community

Organization Chart



Steering Committee

1. President of Mahidol University	Advisor
2. Professor Amaret Bhumiratana	Chairman
3. Professor Emeritus Prawase Wasi	Member
4. Professor Vicharn Panich	Member
5. Professor Emeritus Yongyuth Yuthavong	Member
6. Professor Emeritus Sakol Panyim	Member
7. Professor Emeritus Prapon Wilairat	Member
8. Professor Jisnuson Svasti	Member
9. Professor Vichai Boonsaeng	Member
10. Professor Suthat Fucharoen	Member
11. Professor Vichai Reutrakul	Member
12. Professor Boonsong Ongphiphadhanakul	Member
13. Associate Professor Prasit Palittapongarnpim	Member
14. Associate Professor Sansanee Chaiyaroj	Member
15. Dr.Prida Malasit	Member
16. Professor Prasert Auewarakul	Secretary

International Advisory Committee

1. President of Mahidol University	Advisor
2. Professor Amaret Bhumiratana	Chairman
3. Professor Aaron Ciechanover	Member
4. Professor Harald Zur Hausen	Member
5. Professor Bert Sakman	Member
6. Professor Ram Sasisekharan	Member
7. Professor Prasert Auewarakul	Secretary

Institute Committee

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2. Dr. Pranee Fucharoen	Member
3. Associate Professor Chartchai Krittanai	Member
4. Associate Professor Varaporn Akkarapatumwong	Member
5. Associate Professor Naiphinich Kotchabhakd	Member
6. Associate Professor Sutee Yoksan	Member
7. Assistant Professor Witoon Tirasophon	Member
8. Professor Piyarat Govitrapong	Member
9. Associate Professor Apinunt Udomkit	Member
10. Assistant Professor Kulnasan Saikhun	Member
11. Dr. Nuananong Jirakanjanakit	Member
12. Mrs. Supranee Sukkamonsantiporn	Member
13. Ms. Suwanna Sansuntornthep	Secretary

Administration



Professor Prasert Auewarakul
Director



Dr. Pranee Fucharoen
Deputy Director



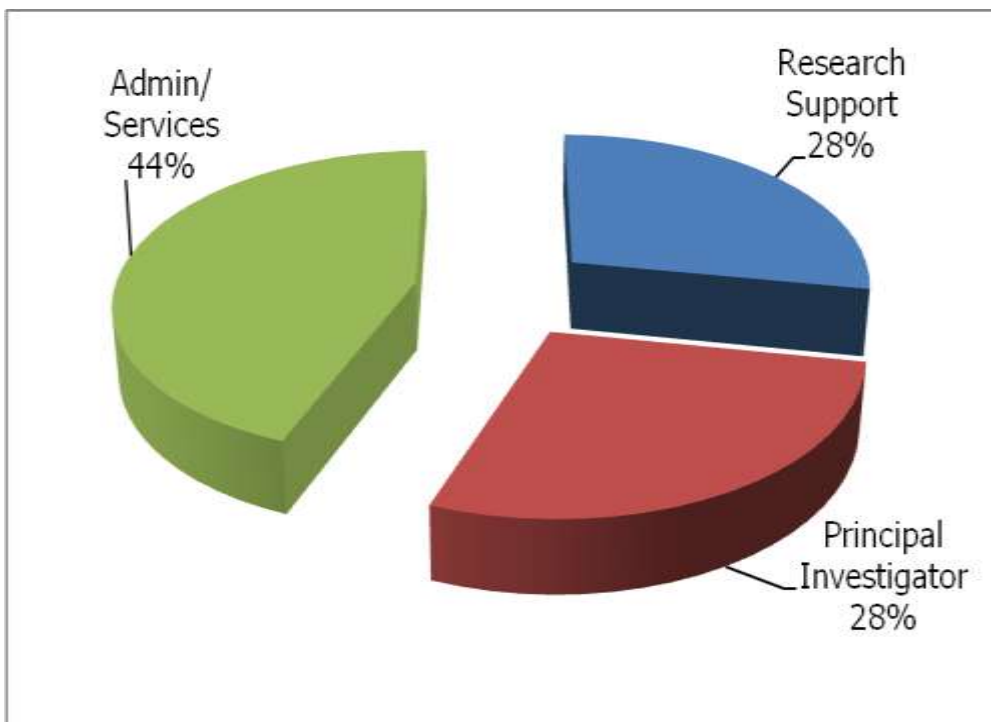
Associate Professor Chartchai Krittanai
Deputy Director



Associate Professor Varaporn Akkarapatumwong
Deputy Director

Number of Staff and Personnel

Staff	Civil Servant	University Employee	Total
Academic & Research	26	27	53
• Professor	3	2	5
• Associate Professor	7	3	10
• Assistant Professor	9	7	16
• Lecturer	4	10	14
• Researcher	3	5	8
Supporting Staff	43	94	137
• Research support	18	35	53
• Administration / Services	25	59	84
Total	69	112	190



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Yupin Seepan	ext. 1151	
Sangvian Sangkajai		
Pensri Hongthong		

Annual Budget and Funding

ST: Institute of Science and Technology for Research and Development

IMBG: Institute of Molecular Biology and Genetics

Sources	Fiscal year / Institute			
	2008		2009	
	ST	IMBG	ST	IMBG
1.Thai Government				
Institute Budget	34,575,100	7,807,100	42,362,100	14,170,300
Institute Revenue	8,607,500	550,000	8,649,000	785,000
Total (1)	43,182,600	8,357,100	51,011,100	14,955,300
2. Mahidol University Grant				
University Budget	9,733,000	13,138,000	10,498,000	11,119,000
University Revenue	363,700	-	-	659,000
Total (2)	10,096,700	13,138,000	10,498,000	11,778,000
3. External Research Grant				
National Science and Technology Development Agency (NSTDA)	6,379,770	4,506,383	16,429,165	3,789,500
The Thailand Research Fund (TRF)	4,116,338	5,143,333	1,488,000	4,639,000
Thailand Center of Excellence for Life Sciences (TCELS)	30,000,000	-	-	-
Commission on Higher Education (CHE)	440,000	6,615,000	335,800	8,042,500
National Research Council of Thailand (NRCT)	23,246,460	-	23,246,460	-
Vejdusit Foundation	-	-	100,000	-
Sumitomo Rubber(Thailand)Co.,Ltd.	-	-	600,000	-
World Health Organization (WHO)	-	-	680,000	-
Yokohama Rubber, Co., Ltd.	-	-	239,520	-
Bridgestone Co., Ltd.	-	-	364,400	-
Total (3)	64,182,568	16,264,716	43,483,345	16,471,000
Grand Total (1+2+3)	117,461,868	37,759,816	104,992,445	43,204,300
Combined Grand Total	155,221,684		148,196,745	

Research



AREAS OF RESEARCH EXCELLENCE

Institute of Molecular Biosciences is highly recognized for its research excellence. The former institution, IMBG was ranked first in research output among Thailand higher education institutions in Science and Technology in the most recent evaluation in 2007 by Thailand Research Fund. The main areas of research at the Institute of Molecular Biosciences can be summarized as follows:

Thalassemia Research

The research covers studies varying in depth and scope from clinical to molecular levels, which includes research in genome-wide search for genetic modifiers determining heterogeneity of disease severity, novel treatments by gene therapy and oral iron chelation, and searching for drugs that can stimulate hemoglobin F synthesis in order to improve **patients' quality of life. Various researchers have** joined together to establish a network to connect with researchers of other local and international institutes. The Asian Thalassemia Network has been established to work in collaboration with neighboring countries towards the prevention and control of thalassemia in the region.

Vaccine Development

Vaccine development is one of the priorities of the Institute of Molecular Biosciences. For over 20 years, research and development of vaccines for Dengue and Japanese encephalitis virus have been the two main activities carried out at the Center for Vaccine Development. The Center is recognized as a Reference Laboratory on Dengue Diagnostics by World Health Organization and it is used as a laboratory base for flavivirus vaccine evaluation by many partners worldwide.

The institute is working towards a safe and effective live-attenuated vaccine against dengue hemorrhagic fever. A tetravalent live-attenuated vaccine candidate with excellent preclinical profile has been developed and is being prepared for phase 1 clinical trial. In addition, new and improved Japanese encephalitis live and inactivated vaccines are being developed with promising outcomes.

Molecular Biology and Genetics

Research in Molecular Biology and Genetics can be classified into five main research areas:

Molecular Biology of Cyanobacteria: This research focuses on both basic and applied aspects of cyanobacteria (blue green algae). The goals for basic research are to elucidate the structure-function relationships of cyanobacterial regulatory sequences, in order to improve heterologous gene expression in cyanobacteria. The goals for applied research include the use of recombinant cyanobacteria as biocatalysts for biodegradation of organophosphate pesticides and as hosts for producing biofuel.

Molecular Biology of Plants: The main research involves the genetic mapping and molecular isolation of economically important traits in cassava (*Manihot esculenta* Crantz) using molecular markers and associated techniques. This work will lead to a better understanding of the genetic basis of biological diversity and be useful for plant breeding programs for cassava.

Molecular Biology of Aquatic Animals: This research focuses on the prevention of viral diseases in shrimps, and the reproductive biology of shrimps. Recently, the RNAi (RNA interference) technology has been explored and successfully demonstrated to control or knock down specific genes in shrimp. The development of this effective technology is now being extensively examined for potential application in shrimp breeding farms.

Medical Molecular Biology: Research activities in this area focus mainly on a number of diseases that have a significant impact on global health, including dengue hemorrhagic fever. Research is aimed at investigating the methods by which the dengue virus enters into cells, how the virus is propagated within cells, and the cellular consequences of viral infection. Other research areas include distal renal tubular acidosis, a kidney disease which is a public health problem in the northeastern population of Thailand, and structure/function studies of major allergens of house mite (HDM) that cause allergic reactions in the Thai population.

Structural Biology: Research in structural biology emphasizes the structure and function relationship of the mosquito-larvicidal proteins from *Bacillus thuringiensis* and *Bacillus sphaericus*, by using several approaches, aimed at understanding the insecticidal function, synergistic interaction and also facilitating the improvements of toxin activity. In addition, the structural biology and functional characterization of two enzymes, glutathione S-transferases (GST) and NS3-NS2B protease, associated with the dengue virus, are also being examined. While GST plays a central role in the detoxification linked to pesticide resistance in mosquitoes, the dengue protease is a target for drug and viral inhibitor designs.

Neuroscience and Behavioral Biology

Research in Neuroscience and Behavioural Biology employs the “Multi-omic” approaches to the understanding of the organization and function of the brain and the nervous system, i.e. from genes to proteins, to neurons and glia cells, to local neural circuits, to neural pathways - systems and behavior in both health and diseases. An international and local collaborative research network in this area is attempting to develop specific neural stem cell lines for the treatment of neuro-degenerative and neuro-developmental disorders, e.g. CVA-stroke, spinal cord injuries, Parkinson’s and Alzheimer’s diseases, cerebral palsy and Autistic Spectrum Disorders. Other on-going longitudinal research projects include various studies on the treatment of substance and drug abuses; the molecular biology of the pineal gland and beneficial effects of the hormone melatonin; the molecular mechanisms of neuronal signaling, early gene expression and the programmed cell death in neuro-degenerative diseases; the comparative neurobiology of the cerebellum and the control of movements; the neurobiology of sleep and sleep disorders; effects of stress on the neural control of cardiac functions; neural mechanisms of learning–memory and brain-based learning; and neuro-imaging and neuro-informatics.

Stem Cell Biology and Reproductive Sciences

Research focuses on stem cell biology including establishment of embryonic and adult stem cells in animal models and in humans. Stem cells are loaded into scaffolds for tissue engineering and differentiation to various specific cells for the treatment of human diseases.

Research activities also focus on assisted reproductive biotechnologies (ART) including *in vitro* fertilization and embryo transfer (IVF-ET), sperm and embryo sexing, gametes and embryo cryopreservation and nuclear transfer. ARTs are used for increasing mass production of economically valuable animals such as cattle and for conservation of endangered species, such as elephant, eld's deer and serow.

Research Output

Summary of the research output for the year 2008 and 2009

Year	International Publication	International Presentation	National Presentation	No.of PI*	Paper/PI
2008	100	46	56	57	1.75
2009 (Jan - Oct)	93+	11	71	53	1.75+

* PI = Principal Investigator

List of International Publication in 2008

1. Pandit Riyaz, Svasti Saovaros, Sripichai Orapan, Munkongdee Thongperm, Triwitayakorn Kanokporn, Winichagoon Pranee, Fucharoen Suthat, Peerapittayamongkol Chayanon Association of SNP in exon 1 of HBS1L with hemoglobin F level in beta(0) thalassemia/hemoglobin E International Journal of Hematology Volume: 88 Issue: 4 Pages: 357-361 Published: NOV 2008
IF = 1.491
2. Winichagoon Pranee, Svasti Saovaros, Munkongdee Thongperm, Chaiya Wantana, Boonmongkol Piatip, Chantrakul Nawarath, Fucharoen Suthat Rapid diagnosis of thalassemias and other hemoglobinopathies by capillary electrophoresis system Translational Research Volume: 152 Issue: 4 Pages: 178-184 Published: OCT 2008
IF = 1.325
3. Chaisuriyathepkul A, Chaisuriyathepkul Anont, Klinpituksa Pairote, Phinyocheep Pranee, Nakason Charoen, Kittipoom Sumet Synthesis of acrylated styrene-isoprene-styrene copolymer E-Polymers Pages: 1-9 Published: NOV 4 2008
IF = 0.917
4. Rasri K, Mason P, Govitrapong P, Pevet P, Klosen P Testosterone-driven seasonal regulation of vasopressin and galanin in the bed nucleus of the stria terminalis of the djungarian hamster (phodopus sungorus) Neuroscience Volume: 157 Issue: 1 Pages: 174-187 Published: NOV 11 2008
IF = 3.352
5. Thein-Han WW, Kitiyanant Y, Misra RDK Chitosan as scaffold matrix for tissue engineering Materials Science and Technology Volume: 24 Issue: 9 Pages: 1062-1075 Published: SEP 2008
IF = 0.713
6. Zimmermann Michael B.), Fucharoen Suthat, Winichagoon, Pattanee, Sirankapracha Pornpan, Zeder Christophe, Gowachirapant Sueppong, Judprasong Kunchit, Tanno Toshihiko, Miller Jeffery L, Hurrell Richard F Iron metabolism in heterozygotes for hemoglobin E (HbE), alpha-thalassemia 1, or beta-thalassemia and in compound heterozygotes for HbE/beta-thalassemia American Journal Clinical Nutrition Volume: 88 Issue: 4 Pages: 1026-1031 Published: OCT 1 2008
IF = 6.603
7. Rattana Worayuthakarn, Sasiwadee Boonya-udtayan, Eakarot Arom-oon, Poonsakdi Ploypradith, Somsak Ruchirawat Nopporn Thasana Synthesis of unsymmetrical benzil licoagrodione Journal of Organic Chemistry Volume: 73 Issue: 18 Pages: 7432-7435 Published: SEP 19 2008
IF = 3.959
8. Phakhodee W, Sahakitpichan P, Deechongkit S, Ruchirawat S Investigation of the acid-mediated cyclisation of amide acetal for the synthesis of benzazepinone Heterocycles Volume: 75 Issue: 8 Pages: 1963-1970 Published: AUG 1 2008
IF = 1.066
9. Saikhun K, Faisaikarm T, Ming Z, Lu KH, Kitiyanant Y alpha-tocopherol and L-ascorbic acid increase the in vitro development of IVM/IVF swamp buffalo (Bubalus bubalis) embryos

Animal Volume: 2 Issue: 10 Pages: 1486-1490 Published: OCT 2008
IF = 0.994

10. Soodchomshom B, Tang IM, Hoonsawat R Quantum transport of injected electrons in an asymmetric FM/I-J/SC/I-2/FM junction: Directional dependence Physica C-Superconductivity and its Applications Volume: 468 Issue: 14 Pages: 1006-1012 Published: JUL 15 2008
IF = 1.079

11. Wattanasirichaigoon,P Promsonthi,A Chuansumrit,J Leopairut, P Yanatatsaneejit, P Rattanatanyong,T Munkongdee, S Fucharoen, A Mutirangura Maternal uniparental disomy of chromosome 16 resulting in hemoglobin Bart's hydrops fetalis Clinical Genetics Volume: 74 Issue: 3 Pages: 284-287 Published: SEP 2008
IF = 3.181

12. Soodchornshom B, Tang IM, Hoonsawat R Quantum modulation effect in a graphene-based magnetic tunnel junction Physics Letters A Volume: 372 Issue: 30 Pages: 5054-5058 Published: JUL 21 2008
IF = 1.711

13. Ounjaijean S, Thephinlap C, Khansuwan U, Phisalapong C, Fucharoen S, Porter JB, Srichairatanakool S Effect of green tea on iron status and oxidative stress in iron-loaded rats Medicinal Chemistry Volume: 4 Issue: 4 Pages: 365-370 Published: JUL 2008
IF = -

14. Pon-On W, Meejoo S, Tang IM Substitution of manganese and iron into hydroxyapatite: Core/shell nanoparticles Materials research Bulletin Volume: 43 Issue: 8-9 Pages: 2137-2144 Published: AUG-SEP 2008
IF = 1.484

15. Jitsopakul N, Thammasiri K, Ishikawa K Cryopreservation of Vanda coerulea protocorms by encapsulation-dehydration Cryoletters Volume: 29 Issue: 3 Pages: 253-260 Published: MAY-JUN 2008
IF = 1.141

16. Tocharus J, Chongthammakun S, Govitrapong P Melatonin inhibits amphetamine-induced nitric oxide synthase mRNA overexpression in microglial cell lines Neuroscience Letters Volume: 439 Issue: 2 Pages: 134-137 Published: JUL 11 2008
IF = 2.085

17. Ana P. Goncalvez,Cheng-Hsin Chien,Kamolchanok Tubthong, Inna Gorshkova, Carrie Roll, Olivia Donau, Peter Schuck, Sutee Yoksan, Sy-Dar Wang, Robert H. Purcell and Ching-Juh Lai Humanized monoclonal antibodies derived from chimpanzee Fabs protect against Japanese encephalitis virus in vitro and in vivo Journal of Virology Volume: 82 Issue: 14 Pages: 7009-7021 Published: JUL 2008
IF = 5.332

18. Khamhan Supawut, Baimark Yodthong,Chaichanadee Sumalee, Phinyocheep Pranee, Kittipoom Sumet Water vapor permeability and mechanical properties of biodegradable chitosan/methoxy poly(ethylene glycol)-b-poly(epsilon-caprolactone) nanocomposite films International Journal of Polymer Analysis and Characterization Volume: 13 Issue: 3 Pages: 224-231 Published: 2008

IF = 0.386

19. Leelayoova S, Suputtamongkol Y, Subrungruang I, Worapong J, Chavalitshewinkoon Petmitr P, Mungthin M Evidence supporting the zoonotic and non-zoonotic transmission of *Enterocytozoon bieneusi* Annals of Tropical Medicine and Parasitology Volume: 102 Issue: 5 Pages: 459-461 : JUL 2008

IF = 1.349

19. Jirakanjanakit N, Leemingsawat S, Dujardin JP The geometry of the wing of *Aedes (Stegomyia) aegypti* in isofemale lines through successive generations Infection Genetics and Evolution Volume: 8 Issue: 4 Pages: 414-421 Published: JUL 2008

IF = 2.407

20. Jirakanjanakit N, Leemingsawat S, Dujardin JP *Aedes aegypti*: Experimental data supports a genetic background for shape variation. Infection Genetics and Evolution Volume: 8 Issue: 4 Pages: S8-S8 Published: JUL 2008

IF = 2.407

21. R Khammanit, S Chantakru, Y Kitiyanant, J Saikhun Effect of serum starvation and chemical inhibitors on cell cycle synchronization of canine dermal fibroblasts Theriogenology Volume: 70 Issue: 1 Pages: 27-34 Published: JUL 1 2008

IF = 1.911

22. Yunyongwattanakorn J, Tanaka Y, Sakdapipanich J, Wongsasuthiukul V Highly-purified natural rubber by saponification of latex: Analysis of residual proteins in saponified natural rubber Rubber Chemistry and Technology Volume: 81 Issue: 1 Pages: 121-137 Published: MAR-APR 2008

IF = 0.843

23. Lirdprapamongkol K, Kramb JP, Chokchaichamnankit D, Srisomsap C, Surarit R, Sila-Asna M, Bunyaratvej A, Dannhardt G, Svasti J Juice of *Eclipta prostrata* inhibits cell migration in vitro and exhibits anti-angiogenic activity in vivo In Vivo Volume: 22 Issue: 3 Pages: 363-368 Published: MAY-JUN 2008

IF = 1.143

24. Svasti S, Boonchoy C, Vanichsetakul P, Winichagoon P, Fucharoen S Molecular mechanism of beta-thalassaemia caused by 22-bp duplication Annals of Hematology Volume: 87 Issue: 8 Pages: 633-637 Published: AUG 2008

IF = 2.342

25. Phongsamart W, Yoksan S, Vanaprappa N, Chokephaibulkit K Dengue virus infection in late pregnancy and transmission to the infants Pediatric Infectious Disease Journal Volume: 27 Issue: 6 Pages: 500-504 Published: JUN 2008

IF = 3.086

26. Klongpanichapak S, Phansuwan-Pujito P, Ebadi M, Govitrapong P Melatonin inhibits amphetamine-induced increase in alpha-synuclein and decrease in phosphorylated tyrosine hydroxylase in SK-N-SH cells Neuroscience Letters Volume: 436 Issue: 3 Pages: 309-313 Published: MAY 16 2008

IF = 2.085

27. Sripichai O, Makarasara W, Munkongdee T, Kumkhaek C, Nuchprayoon I, Chuansumrit A, Chuncharunee S, Chantrakoon N, Boonmongkol P, Winichagoon P, Fucharoen S A scoring system for the classification of beta-thalassemia/Hb E disease severity *American Journal of Hematology* Volume: 83 Issue: 6 Pages: 482-484 Published: JUN 2008
IF = 1.949
28. Chairut Kasettrathata, b, Nattaya Ngamrojanavanichb, Suthep Wiyakrutta, Chulabhorn Mahidola, d, Somsak Ruchirawata, d and Prasat Kittakoopa Cytotoxic and antiplasmodial substances from marine-derived fungi, *Nodulisporium* sp and CRI247-01 *Phytochemistry* Volume: 69 Issue: 14 Pages: 2621-2626 Published: OCT 2008
IF = 2.322
29. Nalakarn P, Tang IM, Triampo W Fractal studies on the spatial patterns of trees: A case study of Khao Yai National Park, Thailand *Scienceasia* Volume: 34 Issue: 4 Pages: 409-415 Published: DEC 2008
IF = 0.044
30. Jitsopakul N, Thammasiri K, Ishikawa K Cryopreservation of *betula striata* Mmature seeds, 3-day germinating seeds and protocorms by droplet-vitrification *Cryoletters* Volume: 29 Issue: 6 Pages: 517-526 Published: NOV-DEC 2008
IF = 1.141
31. Chetsawang B, Kooncumchoo P, Govitrapong P, Ebadi M 1-Methyl-4-phenyl-pyridinium ion-induced oxidative stress, c-Jun phosphorylation and DNA fragmentation factor-45 cleavage in SK-N-SH cells are averted by selegiline *Neurochemistry International* Volume: 53 Issue: 6-8 Pages: 283-288 Published: DEC 2008
IF = 2.975
32. Rund D, Fucharoen S Genetic Modifiers in Hemoglobinopathies *Current Molecular Medicine* Volume: 8 Issue: 7 Pages: 600-608 Published: NOV 2008
IF = 4.624
33. Ajimaporn A, Shavaili S, Ebadi M, Govitraipong P Zinc rescues dopaminergic SK-N-SH cell lines from methamphetamine-induced toxicity *Brain Research Bulletin* Volume: 77 Issue: 6 Pages: 361-366 Published: DEC 16 2008
IF = 1.943
34. Sowattanagoon W, Kochabhakdi N, Petrie J. K Buddhist values are associated with better diabetes control in Thai patients *The International Journal of Psychiatry in Medicine* Volume: 38(4): 481-491, 2008
IF = -
35. Amnuaypornsrri S, Sakdapipanich J, Toki S, Hsiao BS, Ichikawa N, Tanaka Y Strain-induced crystallization of natural rubber: Effect of proteins and phospholipids *Rubber Chemistry and Technology* Volume: 81 Issue: 5 Pages: 753-766 Published: NOV-DEC 2008
IF = 0.843
36. Ruksee, N., Tongjaroenbuangam, W., Casalotti, S.O., Govitrapong, P. Amphetamine and pseudoephedrine cross-tolerance measured by c-Fos protein expression in brains of chronically treated rats *BMC Neuroscience* 9:99, 2008, Pages 1-8

IF = 2.987

37. Myers, J., Ittiprasert, W., Raghavan, N., Miller, A., Knight, M. Differences in cysteine protease activity in *Schistosoma mansoni*-resistant and -susceptible *Biomphalaria glabrata* and characterization of the hepatopancreas cathepsin B full-length cDNA *Journal of Parasitology* Volume 94, Issue 3, June 2008, Pages 659-668

IF = 1.129

38. Thongtip, Nikorn, Saikhun Jumnian, Mahasawangkul Sittidet, Kornkaewrat, Kornchai, Suthanmapinanh Piyawan, Pinyopummin Anuchai Effect of Pentoxifylline on the Motility Characteristics and Viability of Spermatozoa in Asian Elephants (*Elephas maximus*) with Low Semen Quality *Thai Journal of Veterinary. Medicine.* Volume: 38 Issue: 3 Pages: 37-45 Published: SEP 2008

IF = -

39. Saikhun J, Sriussadaporn S, Thongtip N, Pinyopummin A, Kitiyanant Y Nuclear maturation and development of IVM/IVF canine embryos in synthetic oviductal fluid or in co-culture with buffalo rat liver cells *Theriogenology* Volume: 69 Issue: 9 Pages: 1104-1110 Published: JUN 2008

IF = 1.911

40. Meerang M, Nair J, Sirankapracha P, Thephinlap C, Srichairatanakool S, Fucharoen S, Bartsch H Increased urinary 1,N-6-ethenodeoxyadenosine and 3,N-4-ethenodeoxycytidine excretion in thalassemia patients: Markers for lipid peroxidation-induced DNA damage *Free Radical Biology and Medicine* Volume: 44 Issue: 10 Pages: 1863-1868 Published: MAY 2008

IF = 4.813

41. Michael L, Limenta G, Jirasomprasert T, Tankanitlert J, Svasti S, Wilairat P, Chantharaksri U, Fucharoen S, Morales NP UGT1A6 genotype-related pharmacokinetics of deferiprone (L1) in healthy volunteers *British Journal of Clinical Pharmacology* Volume: 65 Issue: 6 Pages: 908-916 Published: JUN 2008

IF = 2.681

42. Pengsaa K, Limkittikul K, Luxemburger C, Yoksan S, Chambonneau L, Ariyasriwatana C, Lapphra K, Chanthavanich P, Lang J, Sabchareon A Age-specific prevalence of dengue antibodies in Bangkok infants and children *Pediatric Infectious Disease Journal* Volume: 27 Issue: 5 Pages: 461-463 Published: MAY 2008

IF = 3.086

43. Sukmee T, Siripattanapipong S, Mungthin M, Worapong J, Rangsin R, Samung Y, Kongkaew W, Bumrungsana K, Chanachai K, Apiwathanasorn C, Rujirojindakul P, Wattanasri S, Ungchusak K, Leelayoova S A suspected new species of *Leishmania*, the causative agent of visceral leishmaniasis in a Thai patient *International Journal for Parasitology* Volume: 38 Issue: 6 Pages: 617-622 Published: MAY 2008

IF = 3.392

44. Vattanaviboon P, Sangseekhiow K, Winichagoon P, Promptmas C. Detection and haplotype differentiation of Southeast Asian alpha-thalassemia using polymerase chain reaction and a piezoelectric biosensor immobilized with a single oligonucleotide probe *Translational Research* Volume: 151 Issue: 5 Pages: 246-254 Published: MAY 2008

IF = 1.325

45. Siripattanapipong S, Leelayoova S, Mungthin M, Worapong J, Tan-Ariya P. Study of DHPS and DHFR genes of *Pneumocystis jirovecii* in Thai HIV-infected patients *Medical Mycology* Volume: 46 Issue: 4 Pages: 389-392 Published: 2008
IF = 1.67
46. Sotthibundhu A, Sykes AM, Fox B, Underwood CK, Thangnipon W, Coulson EJ beta-amyloid(1-42) induces neuronal death through the p75 neurotrophin receptor *Journal of Neuroscience* Volume: 28 Issue: 15 Pages: 3941-3946 Published: APR 9 2008
IF = 7.49
47. Fucharoen S, Winichagoon P, Svasti S, Sripichai O, Munkongdee T, Ping C, Bangce Y, Saenman D, Tang K Recent advances in the laboratory diagnosis of thalassaemia *International Journal of Laboratory Hematology* Volume: 30 Pages: 42-42 Supplement: Suppl. 1 Published: JUN 2008
IF = -
48. Stucki A, Cieza A, Michel F, Stucki G, Bentley A, Culebras A, Tufik S, Kotchabhakdi N, Tachibana N, Ustun B, Partinen M Developing ICF core sets for persons with sleep disorders based on the international classification of functioning, disability and health *Sleep Medicine* Volume: 9 Issue: 2 Pages: 191-198 Published: JAN 2008
IF = 2.795
49. Thongtip N, Saikhun J, Mahasawangkul S, Kornkaewrat K, Pongsopavijitr P, Songsasen N, Pinyopummin A Potential factors affecting semen quality in the Asian elephant (*Elephas maximus*) *Reproductive Biology and Endocrinology* Volume: 6 Article Number: 9 Pages 1-9 Published: MAR 17 2008
IF = 2.37
50. Sripichai O, Munkongdee T, Kumkhaek C, Svasti S, Winichagoon P, Fucharoen S Coinheritance of the different copy numbers of alpha-globin gene modifies severity of beta-thalassemia/Hb E disease *Annals of Hematology* Volume: 87 Issue: 5 Pages: 375-379 Published: MAY 2008
IF = 2.342
51. Thasana N, Bjerke-Kroll B, Ruchirawat S A facile synthesis of telisatin a via microwave-promoted annulation and Reformatsky reaction *Synlett* Issue: 4 Pages: 505-508 Published: MAR 3 2008
IF = 2.763
52. Glavaski-Joksimovic A, Thonabulsombat C, Wendt M, Eriksson M, Palmgren B, Jonsson A, Olivius P Survival, migration, and differentiation of Sox1-GFP embryonic stem cells in coculture with an auditory brainstem slice preparation *Cloning and Stem Cells* Volume: 10 Issue: 1 Pages: 75-87 Published: MAR 2008
IF = 2.937
53. Kongrit C, Siripunkaw C, Brockelman WY, Akkarapatumwong V, Wright TF, Eggert LS Isolation and characterization of dinucleotide microsatellite loci in the Asian elephant (*Elephas maximus*) *Molecular Ecology Resources* Volume: 8 Issue: 1 Pages: 175-177 Published: JAN 2008
IF = -
54. Tankaniltert J, Morales NP, Fucharoen P, Fucharoen S, Chantharaksri U. Association between promoter and coding region mutations of UDP-glucuronosyltransferase 1A1 and beta-thalassemia/Hb

E with cholelithiasis *European Journal of Haematology* Volume: 80 Issue: 4 Pages: 351-355
Published: APR 2008
IF = 2.163

55. Prachyawarakorn V, Mahidol C, Sureram S, Sangpetsiripan S, Wiyakrutta S, Ruchirawat S, Kittakoop P Diketopiperazines and phthalides from a marine derived fungus of the order pleosporales *Planta Medica* Volume: 74 Issue: 1 Pages: 69-72 Published: JAN 2008
IF = 2.848

56. Soodchomshom B, Tang IM, Hoonsawat R The critical Josephson currents in MgB₂/normal metal/MgB₂ tunnel junctions: Bogoliubov-de Gennes approach
Physica C-Superconductivity and its Applications Volume: 468 Issue: 1 Pages: 47-53 Published: JAN 1 2008
IF = 1.079

57. Buntup D, Skare O, Solbu TT, Chaudhry FA, Storm-Mathisen J, Thangnipon W beta-amyloid 25-35 peptide reduces the expression of glutamine transporter SAT1 in cultured cortical neurons
Neurochemical Research Volume: 33 Issue: 2 Pages: 248-256 Published: FEB 2008
IF = 1.811

58. Ngampramuan S, Baumert M, Beig MI, Kotchabhakdi N, Nalivaiko E Activation of 5-HT_{1A} receptors attenuates tachycardia induced by restraint stress in rats *American Journal of Physiology-Regulatory Integrative and Comparative* Volume: 294 Issue: 1 Pages: R132-R141 Published: JAN 2008
IF = 3.661

59. Piboonsatsanasakul P, Wootthikanokkhan J, Thanawan S Preparation and characterizations of direct methanol fuel cell membrane from sulfonated polystyrene/poly(vinylidene fluoride) blend compatibilized with poly(styrene)-b-poly(methyl methacrylate) block copolymer *Journal of Applied Polymer Science* Volume: 107 Issue: 2 Pages: 1325-1336 Published: JAN 15 2008
IF = 1.008

60. Chuansumrit A, Chaiyaratana W, Pongthanapisith V, Tangnararatchakit K, Lertwongrath S, Yoksan S The use of dengue nonstructural protein 1 antigen for the early diagnosis during the febrile stage in patients with dengue infection. *Pediatric Infectious Disease Journal* Volume: 27 Issue: 1 Pages: 43-48 Published: JAN 2008
IF = 3.086

61. Rungtip Soiapornkul, Liqi Tong, Wipawan Thangnipon, Robert Balaza, Carl W. Cotman Interleukin-1b interferes with signal transduction induced by neurotrophin-3 in cortical neurons *Brain Research* Volume 1188: Pages: 189-197: 10 January 2008
IF = 2.218

62. Sarakul O, Vattanaviboon P, Wilairat P, Fucharoen S, Abe Y, Muta K Inhibition of alpha-globin gene expression by RNAi *Biochemical and Biophysical Research Communications* MAY 2008 (3), 369, 935-938.
IF = 2.749

63. Kittayapong P, Yoksan S, Chansang U, Chansang C, Bhumiratana A Suppression of dengue transmission by application of integrated vector control strategies at sero-positive GIS-Based foci *American Journal of Tropical Medicine and Hygiene*

JAN 2008(1):78, 70-76
IF = 2.183

64. Ikeda Y, Phinyocheep P, Kittipoom S, Ruanchaoren J, Kokubo Y, Morita Y, Hijikata K, Kohjiya S. Mechanical characteristics of hydrogenated natural rubber vulcanizates *Polymers for Advanced Technologies* Volume: 19 Issue: 11 Pages: 1608-1615 Published: NOV 2008
IF = 1.504

65. Young Mo Sohn, J.B. Tandan, Sutee Yoksan, Min Ji, Heechoul Ohrr A 5-year follow-up of antibody response in children vaccinated with single dose of live attenuated SA14-14-2 Japanese encephalitis vaccine Immunogenicity and anamnestic response *Vaccine* 2008;26:1638-1643
IF = 3.377

66. Barbazan P, Tuntaprasart W, Souris M, Demoraes F, Nitatpattana N, Boonyuan W, Gonzalez JP Assessment of a new strategy based on *Aedes aegypti* (L) pupal productivity, for the surveillance and control of dengue transmission in Thailand *Annals of Tropical Medicine and Parasitology* Mar 2008;(2)102: 161-71
IF = 1.349

67. Tong LQ, Balazs R, Soiapomkul R, Thangnipon W, Cotman CW Interleukin-1beta impairs brain derived neurotrophic factor-induced signal transduction *NeuroBiology of Aging* 2008: (9)29:1380-1393
IF = 5.607

68. N Rattanasom, S prasertsri, T Ruangritnumchai comparison of the mechanical properties at similar hardness level of natural rubber filled with various reinforcing-fillers *Polymer Testing*. Volume 28, Issue 1, February 2009, Pages 8-12
IF = 1.357

69. Salvacon Gatchalian, Yafu Yo, Benli Zhou, Lei Zhang, Sutee Yoksan, Kim Kelly, Kathleen M. Neuzil, Mansour Yaich, Julie Jacobson Comparison of the immunogenicity and safety of measles vaccine administered alone or with live, attenuated Japanese encephalitis SA 14-14-2 vaccine in Philippine infants *Vaccine* 2008;26:2234-2241
IF = 3.377

70. Jearawirihapaisarn N, Moolton HM, Buckley B, Roberts J, Sazani P, Fucharoen S, Lversen PL, Kole R Sustained Dystrophin Expression Induced by Peptide-conjugated Morpholino Oligomers in the Muscles of mdx Mice *Molecular Therapy*. 2008;16:1624-1629
IF = 5.862

71. Thongtip N, Saikhun J, Mahasawangkul S, Kornkaewrat K, Suthanmapinanh P, Pinyopummin A Effect of Pentoxifylline on the Motility Characteristics and Viability of Spermatozoa in Asian Elephants (*Elephas maximus*) with Low Semen Quality *Thai Journal of Veterinary Medicine* Volume: 38 Issue: 3 Pages: 37-45 Published: SEP 2008

72. Areechun Sotthibundhu, Doungjai Buntup, Channarong sanghirun, korbkit Cherdchu, Cheeraratana Cheeramakara, sirintorn Chansirikarnjan, Ekapot Nimkulrat, chesda Udommongkol, Wanna Wongmek, Wipawan Thandnipon Low serum Vitamin B12 in Alzheimer's Patients as Detected by a Solid phase Radioimmunoassay *Siriraj Medical Journal* 2008;60: 66-68.

73. Tirawongsaroj, P., Sriprang, R., Harnpicharnchai, P., Thongaram, T., Champreda, V., Tanapongpipat, S., Pootanakit, K., and Eurwilaichitr, L. Novel thermophilic and thermostable lipolytic enzymes from Thailand hot spring metagenomic library. *J. Biotechnology*: 2008 Jan 1; 133(1): 42-9. IF = 2.565
74. Torres, J., Lin, X., and Boonserm, P. A trimeric building block model for Cry toxins *in vitro* ion channel formation. *Biochim Biophys Acta*. 2008 Feb. 1778: 392-397. IF = 3.640
75. Powthongchin B*, Angsuthanasombat C. High level of soluble expression in *Escherichia coli* and characterisation of the CyaA pore-forming fragment from a *Bordetella pertussis* Thai clinical isolate. *Arch Microbiol.* 2008 Feb; 189(2): 169-174. IF= 1.838
76. Sraphet, S*, Moolmuang, B. Na-Chiangmai, A. Panyim, S. Smith, DR. Triwitayakorn K. Use of Cattle microsatellite markers to assess genetic diversity of Thai swamp buffalo (*Bubalus bubalis*). *Asian-Aust. J. Anim. Sci.* 2008 Feb; 21(2):177-180. IF= 0.857
77. Promdonkoy B., Rungrod A., Promdonkoy P., Pathaichindachote W., Krittanai C. and Panyim S. Amino acid substitutions in **CA and CC of Cyt2Aa2 alter hemolytic activity and mosquito-larvicidal specificity**. *J. Biotechnology*: 2008 Feb 1; 133(3): 287-293. IF= 2.565
78. Treerattrakool, S*, Panyim, S., Chan, S.M., Withyachumnarnkul, B., and Udomkit, A. Molecular characterization of gonad-inhibiting hormone of *Penaeus monodon* and elucidation of its inhibitory role in vitellogenin expression by RNA interference. *FEBS J.*:2008 Mar; 275(5): 970-980. IF= 3.396
79. Wonganu B*, Pootanakit K, Boonyapakron K, Champreda V, Tanapongpipat S, Eurwilaichitr L. Cloning, expression and characterization of a thermotolerant endoglucanase from *Syncephalastrum racemosum* (BCC18080) in *Pichia pastoris*. *Protein Expr. Purif.* 2008 Mar; 58(1), 78-86. IF= 1.94
80. Kanokratana, P., Chantasingh, D., Champreda, V., Tanapongpipat, S., Pootanakit, K., and Eurwilaichitr, L. Identification and expression of cellobiohydrolase (CBHI) gene from an endophytic fungus, *Fusicoccum* sp. (BCC4124) in *Pichia pastoris*. *Protein Expr. Purif.* 2008 Mar; 58(1): 148-153. IF= 1.94
81. Bourchookarn, A, Chongsatja, P.O., Thongboonkerd, V., and Krittanai, C. Proteomic analysis of altered proteins in lymphoid organ of yellow head virus infected *Penaeus monodon*. *Biochim. Biophys. Acta*. 2008 Mar; 1784(3) :504-511. IF= 3.078
82. Kongrit, C. Siripunkaw, C. Brochelman, W.Y. Akkarapatumwong, V. Wright, T.F. Eggert, L.S. Isolation and characterization of dinucleotide microsatellite loci in the Asian elephant (*Elephas maximus*). *Mole Ecol Res.* 2008 Jan 28; 8(1):175-177. IF= 1.257
83. Junthorn, U. Unai, S. Kanthang, P. Ngamsaad, W. Modchang, C. Triampo, W. Krittanai, C. Triampo, D. Lenbury, Y. Single-particle tracking method for quantitative tracking and biophysical studies of the MinE protein. *J Korean Phys Soc.* 2008 Mar; 52(3):639-48. IF= 1.204
84. Dechklar, M, Udomkit, A. Panyim, S. Characterization of Argonaute cDNA from *Penaeus monodon* and implication of its role in RNA interference. *Biochem Bioph Res Comm.*: 2008 Mar 21; 367(4):768-74. IF= 2.749

85. Promdonkoy, B. Promdonkoy, P. Wongtawan, B. Boonserm, P. Panyim, S. Cys31, Cys47, and Cys195 in BinA Are Essential for Toxicity of a Binary Toxin from *Bacillus sphaericus*. *Curr Microbiol.* 2008 Apr; 56(4):334-338.
IF= 1.167
86. Chungjatupornchai, W* and Fa-Aroonsawat, S. Biodegradation of organophosphate pesticide using recombinant cyanobacteria with surface- and intracellular-expressed organophosphorus hydrolase. *J. Microbiol. Biotechnol.* 2008 May; 18(5):946-951.
IF= 2.062
87. Tangphatsornruang, S. Sraphet, S. Singh, R. Okogbenin, E. Fregene, M. Triwitayakorn, K. Development of polymorphic markers from expressed sequence tags of *Manihot esculenta* Crantz. *Mol Ecol Res.* 2008 May;8(3): 682-685.
IF= 1.257
88. Jirapongsananuruk, O. Sripramong, C. Pacharn, P. Udompunturak, S. Chinratanapisit, S. Piboonpocanun, S. Visitsunthorn, N. Vichyanond, P. Specific allergy to *Penaeus monodon* (seawater shrimp) or *Macrobrachium rosenbergii* (freshwater shrimp) in shrimp-allergic children. *Clin Exp Allergy.* 2008 Jun; 38(6):1038-1047.
IF= 3.729
89. You, E.M. Chiu, T.S. Liu, K.F. Tassanakajon, A. Klinbunga, S. Triwitayakorn, K. de la Pena, L. D. Li, Y. Yu, H. T. Microsatellite and mitochondrial haplotype diversity reveals population differentiation in the tiger shrimp (*Penaeus monodon*) in the Indo-Pacific region. *Anim Genet.* 2008 Jun; 39(3):267-277.
IF= 2.64
90. Iempridee, T*. Thongphung, R. Angsuthanasombat, C. Katzenmeier, G. A comparative biochemical analysis of the NS2B (H)-NS3pro protease complex from four dengue virus serotypes. *Biochim. Biophys. Acta.* 2008 Jul-Aug; 1780(7-8):989-994.
IF= 2.371
91. Ongvarrasopone, C*. Chanasakulniyom, M. Sritunyalucksana, K. Panyim, S. Suppression of PmRab7 by dsRNA Inhibits WSSV or YHV Infection in Shrimp. *Mar Biotechnol.* 2008 Jul-Aug; 10(4):374-81.
IF= 2.503
92. Upanan S*, Kuadkitkan A, Smith DR. Identification of dengue virus binding proteins using affinity chromatography. *J Virol Methods.* 2008 Aug; 151(2):325-8.
IF= 1.933
93. Chintapitaksakul, L*. Udomkit, A. Smith, DR. Panyim, S. Sonthayanon, B. Expression analysis of selected haemocyte transcripts from black tiger shrimp infected with yellow head virus. *ScienceAsia.* 2008 Sep; 349(3):327-33.
IF= -
94. Jearawiriyapaisarn N*, Moulton HM, Buckley B, Roberts J, Sazani P, Fucharoen S, Iversen PL, Kole R. Sustained dystrophin expression induced by peptide-conjugated morpholino oligomers in the muscles of mdx mice. *Mol Ther.* 2008 Sep; 16(9):1624-9.
IF= -5.970
95. Sanitt P*, Promdonkoy B, Boonserm P. Targeted mutagenesis at charged residues in *Bacillus sphaericus* BinA toxin affects mosquito-larvicidal activity. *Curr Microbiol.* 2008 Sep; 57(3):230-4.
IF= 1.330
96. Susantad, T. and Smith, DR. siRNA-Mediated silencing of the 37/67-kDa high affinity laminin receptor in Hep3B cells induces apoptosis. *Cell Mol Biol Lett.* 2008 Sep 18; 13(3):452-64.
IF= 1.454

97. Prusis, P. Lapins, M. Yahorava, S. Petrovska, R. Niyomrattanakit, P. Katzenmeier, G. Wikberg, J.E.S. Proteochemometrics analysis of substrate interactions with dengue virus NS3 proteases. *Bioorganic and Medicinal Chemistry*. 2008 Oct 15; 16(20):9369-9377.

IF= 3.075

98. Whankaew, S*. Tangphatsornruang S. and Triwitayakorn, K. Development of simple sequence repeat (SSR) markers from expressed sequence tags (ESTs) of the black tiger shrimp (*Penaeus monodon*). *Mol Ecol Res*. 2008 Nov; 8(6):1494-96.

IF= 1.605

99. Monshupanee, T*. Gregory, ST. Douthwaite, S. Chungjatupornchai, W. Dahlberg, AE. Mutations in conserved Helix 69 of 23S rRNA of *Thermus thermophilus* that affect capreomycin resistance but not posttranscriptional modifications. *J Bacteriol*. 2008 Dec; 190(23):7754-61.

IF= 3.636

100. Thammachat S*, Pathaichindachote W, Krittanai C, Promdonkoy B. Amino acids at N- and C-termini are required for the efficient production and folding of a cytolytic delta-endotoxin from *Bacillus thuringiensis*: *BMB Reports (J Biochem Mol Biol)* 2008 Nov 30; 41(1) : 820-5.

IF = 1.811

List of International Publication in 2009

1. Prakanrat S, Phinyocheep P, Daniel P. Spectroscopic Investigation of Polystyrene Surface Grafting on Natural Rubber. *Applied Spectroscopy*: Volume: 63 Issue: 2 Pages: 233-238. Published: FEB 2009.
IF= 2.062
2. Hunsperger EA, Yoksan S, Buchy P, Nguyen VC, Sekaran SD, Enria DA, Pelegrino JL, Vázquez S, Artsob H, Drebot M, Gubler DJ, Halstead SB, Guzmán MG, Margolis .Evaluation of commercially available anti-dengue virus immunoglobulin M tests.: *Emerging Infectious Diseases* :15(3):436-40. Published: MAR 2009.
IF= 6.449
3. Jitkaew S, Witasp E, Zhang S, Kagan VE, Fadeel B. Induction of caspase- and reactive oxygen species-independent phosphatidylserine externalization in primary human neutrophils: role in macrophage, *Journal of Leukocyte Biology* :Volume: 85, Issue: 3, Pages: 427-437. Published: MAR 2009.
IF= 4.605
4. Jirasomprasert T, Morales NP, Limenta LMG, Sirijaroonwong S, Yamanont P, Wilairat P, Fucharoen S, Chantharaksri U. Pharmacokinetic-related pro-oxidant activity of deferiprone in -thalassemia. *Free Radical Research*: Volume 43, Issue 5 May 2009, pages 485 - 491.
IF= 2.826
5. Xiao ZY, Deng PY, Rojanathammanee L, Yang CX, Grisanti L, Permpoonputtana K, Weinshenker D, Doze VA, Porter JE, Lei S. Noradrenergic Depression of Neuronal Excitability in the Entorhinal Cortex via Activation of TREK-2K(+) Channels ,*Journal of Biological Chemistry* :Volume: 284 Issue: 16 Pages: 10980-10991 Published: APR 17 2009 .
IF= 5.52
6. Mukda S, Kaewsuk S, Ebadi M, Govitrapong P. Amphetamine-Induced Changes in

- Dopamine Receptors in Early Postnatal Rat Brain, *Developmental Neuroscience: Volume: 31 Issue: 3 Pages: 193-201 Published: 2009.*
 IF= 2.817
7. Rabablert J, Yoksan S. Attenuated D2 16681-PDK53 vaccine: defining humoral and cell-mediated immunity, *Current Pharmaceutical Design: 2009;15(11):1203-11.*
 IF= 4.399
 8. John Bauman, Natee Jearawiriyapaisarn and Ryszard Kole. , Therapeutic Potential of Splice-Switching Oligonucleotides, *Oligonucleotides: Volume 19, Number 1, 2009.*
 IF= 2.00
 9. Morales NP, Limenta LMG, Yamamont P, Jirasomprasert T, Wilairat P, Chantharaksri U, Chuncharunee S, Fucharoen S, Bioequivalence study of a film-coated tablet of deferiprone in healthy Thai volunteers, *International Journal of Clinical Pharmacology and Therapeutics: Volume: 47 Issue: 5 Pages: 358-364 Published: MAY 2009 .*
 IF= 1.299
 10. Kaewsuk S, Tannenberg RK, Kuo SW, Bjorkman ST, Govitrapong P, Stadlin A, Dodd PR, Regional Expression of Dopamine D-1 and D-2 Receptor Proteins in the Cerebral Cortex of Asphyxic Newborn Infants , *Journal of Child Neurology :Volume: 24 Issue: 2 Pages: 183-193 Published: FEB 2009 .*
 IF= 1.433
 11. Chetsawang B, Chetsawang J, Govitrapong P. Protection against cell death and sustained tyrosine hydroxylase phosphorylation in hydrogen peroxide- and MPP+-treated human neuroblastoma cells with melatonin, *Journal of Pineal Research : Volume: 46 Issue: 1 Pages: 36-42 Published: JAN 2009.*
 IF= 5.056
 12. Chomcheon P, Wiyakrutta S, Sriubolmas N, Ngamrojanavanich N, Mahidol C, Ruchirawat S and Kittakoop P. Metabolites from the endophytic mitosporic Dothideomycete sp. LRUB20, *Phytochemistry: Volume 70, Issue 1, January 2009, Pages 121-127.*
 IF= 2.946
 13. Thanawana S, Radabutrab S, Thamasirianuntb P, Amornsakchaib T and Suchivab K. Origin of phase shift in atomic force microscopic investigation of the surface morphology of NR/NBR blend film , *Volume 109, Issue 2, January 2009, Pages 189-192 .*
 IF= 2.629
 14. Phakhodee W, Ploypradith P, Sahakitpichanaand P, Ruchirawat S. A new synthetic approach towards isoquinobenzazepinone and isoindolinobenzazepinone using acid-mediated cyclisation and Heck reaction, *Tetrahedron: Volume 65, Issue 1, 3 January 2009, Pages 351-356.*
 IF= 2.897
 15. Svasti S, Suwanmanee T, Fucharoen S, Moulton HM, Nelson MH, Maeda N, Smithies O, Kole R. RNA repair restores hemoglobin expression in IVS2-654 thalassemic mice , *Proc Natl Acad Sci USA (PNAS) : Volume: 106 Issue: 4 Pages: 1205-1210 Published: JAN 27 2009*
 IF= 5.978
 16. Chomcheon P, Wiyakrutta S, Sriubolmas N, Ngamrojanavanich N, Kengtong S, Mahidol C, Ruchirawat S, Kittakoop P. Aromatase inhibitory, radical scavenging, and antioxidant activities of depsidones and diaryl ethers from the endophytic fungus *Corynespora cassiicola* L36, *Phytochemistry: Volume: 70 Issue: 3 Pages: 407-413 Published: FEB 2009.*
 IF= 2.946
 17. Barbazan P, Palabodeewat S, Nitatpattana N, Gonzalez JP. Detection of Host Virus-Reactive

Antibodies in Blood Meals of Naturally Engorged Mosquitoes, Vector-Borne and Zoonotic Diseases: Volume: 9 Issue: 1 Pages: 103-107 Published: FEB 2009.
IF= 2.195

18. Rattanasom N, Prasertsri S, Ruangritnumchai T. Comparison of the mechanical properties at similar hardness level of natural rubber filled with various reinforcing-fillers, *Polymer Testing*: Volume: 28 Issue: 1 Pages: 8-12 Published: FEB 2009.
IF= 1.736
19. Amnuayporn Sri S, Sakdapipanich J, Tanaka Y. Green Strength of Natural Rubber: The Origin of the Stress-Strain Behavior of Natural Rubber *Journal of Applied Polymer Science*: Volume: 111 Issue: 4 Pages: 2127-2133 Published: FEB 15 2009.
IF= 1.187
20. Nuntagij P, Oddo S, LaFerla FM, Kotchabhakdi N, Ottersen OP, Torp R. Amyloid Deposits Show Complexity and Intimate Spatial Relationship with Dendrosomatic Plasma Membranes: An Electron Microscopic 3D Reconstruction Analysis in 3xTg-AD Mice and Aged Canines. *Journal of Alzheimers Disease*: Volume: 16 Issue: 2 Pages: 315-323 Published: 2009.
IF= 5.101
21. Kongsuphol P, Mukda S, Nopparat C, Villarroel A, Govitrapong P. Melatonin attenuates methamphetamine-induced deactivation of the mammalian target of rapamycin signaling to induce autophagy in SK-N-SH cells., *Journal of Pineal Research*: Volume: 46 Issue: 2 Pages: 199-206 Published: MAR 2009.
IF= 5.056
22. Krobthong S, Jullanope S, Tang IM. Role of interlayer coupling in cuprate high-T_c superconductors. *ScienceAsia*: Volume: 35 Issue: 1 Pages: 64-69. Published: MAR 2009.
IF= 0.044
23. Suwanpugdee A, Kornkeawrat K, Saikhun K, Siriaroonrat B, Tipkantha W, Doungsa-ard K, Sa-ardrit M, Suthunmapinatha P, Pinyopummin A. Semen characteristics and sperm morphology of serow (*Capricornis sumatraensis*). *Theriogenology*: Volume: 71 Issue: 4 Pages: 576-585 Published: MAR 1 2009.
IF= 2.041
24. Nulsri E, Richardson DR, Lerdwana S, Fucharoen S, Yamagishi T, Kalinowski DS, Pattanapanyasat K. Antitumor activity and mechanism of action of the iron chelator, Dp44mT, against leukemic cells. *American journal of hematology*: Volume 84 Issue: 3 Pages: 170-176. Published: 2009.
IF= 2.126
25. Brodie JF, Helmy OE, Brockelman WY, Maron JL. Functional differences within a guild of tropical mammalian frugivores. *Ecology*: Volume: 90 Issue: 3 Pages: 688-698. Published: MAR 2009.
IF= 4.874
26. Sowattanangoona N, Kotchabhakdi N and Petriec KJ. The influence of Thai culture on diabetes perceptions and management. *Diabetes Research and Clinical Practice*: Volume 84, Issue 3, June 2009, Pages 245-251.
IF= 1.888
27. Worapong J and Strobel GA, Biocontrol of a root rot of kale by *Muscodor albus* strain MFC2. *BioControl*: 200, 54:301-3.
IF= 1.957
28. Sutipornpalangkul W, Unchern S, Sanvarinda Y, Chantharaksri U, Fucharoen S. Modification of Platelet Shape Change Parameter by Oxidized Lipoprotein from β -

- thalassemia/Hemoglobin E. *J Med Assoc Thai*: 2009; 92 (4): 504-9.
IF=0.239
29. Rojanathammanee L, Harmon EB, Grisanti LA, Govitrapong P, Ebadi M, Grove BD, Miyagi M, Porter JE., The 27-kDa Heat Shock Protein Confers Cytoprotective Effects through a beta 2-Adrenergic Receptor Agonist-Initiated Complex with beta-Arrestin. *Molecular Pharmacology*: Volume: 75 Issue: 4 Pages: 855-865 Published: APR 2009.
IF= 4.711
30. Wisessmith W, Phansuwan-Pujito P, Govitrapong P, Chetsawang B. ,Melatonin reduces induction of Bax, caspase and cell death in methamphetamine-treated human neuroblastoma SH-SY5Y cultured cells. *Journal of Pineal Research*: Volume: 46 Issue: 4 Pages: 433-440 Published: MAY 2009.
IF= 5.056
31. Chaiyaratana W, Chuansumrit A, Pongthanapisith V, Tangnararatchakit K, Lertwongrath S, Yoksan S. , Evaluation of dengue nonstructural protein 1 antigen strip for the rapid diagnosis of patients with dengue infection. *Diagnostic Microbiology and Infectious Disease*: 2009 May; 64(1):91-2. Epub 2009 Feb 18.
IF= 2.139
32. Rattanasom N, Prasertsri S. Relationship among mechanical properties, heat ageing resistance, cut growth behaviour and morphology in natural rubber: Partial replacement of clay with various types of carbon black at similar hardness level. *Polymer Testing*: Volume: 28 Issue: 3 Pages: 270-276 Published: MAY 2009.
IF= 1.736
33. Batsomboon P, Phakhodee W, Ruchirawat S and Ploypradith S , Generation of ortho-Quinone Methides by p-TsOH on Silica and Their Hetero-Diels-Alder Reactions with Styrenes. *Journal of Organic Chemistry*: Volume: 74 Issue: 10 Pages: 4009-4012 Published: MAY 15 2009.
IF= 3.952
34. Hang VT, Nguyet NM, Trung DT, Tricou V, Yoksan S, Dung NM, Van Ngoc T, Hien TT, Farrar J, Wills B, Simmons CP, Generation of ortho-Quinone Methides by p-TsOH on Silica and Their Hetero-Diels-Alder Reactions with Styrenes. *Journal of Organic Chemistry*: Volume: 74 Issue: 10 Pages: 4009-4012 Published: MAY 15 2009.
IF= 3.952
35. Tangdenpaisala K, Sualeka S, Ruchirawata S and Ploypradith P , Diagnostic Accuracy of NS1 ELISA and Lateral Flow Rapid Tests for Dengue Sensitivity, Specificity and Relationship to Viraemia and Antibody Responses. *Plos Neglected Tropical Diseases*: Volume: 3 Issue: 1 Number: e360 Published: JAN 2009.
IF= 2.897
36. Baimark Y, Srisa-ard M, Threeprom J, Phinyocheep P and Kittipoom S , Preparation of Surfactant-Free Nanoparticles of Methoxy Poly(ethylene glycol)-b-poly(D,L-lactide-co-glycolide-co-epsilon-caprolactone). *Colloid Journal*: Volume: 71 Issue: 1 Pages: 18-21 Published: 2009.
IF= 0.560
37. Brodie JF, Helmy OE, Brockelman WY, Maron JL, Bushmeat poaching reduces the seed dispersal and population growth rate of a mammal-dispersed tree. *Ecological Applications*: Volume: 19 Issue: 4 Pages: 854-863 Published: 2009.
IF= 3.628
38. Kaewsuk S, Sae-ung K, Phansuwan-Pujito P, Govitrapong P, Melatonin attenuates methamphetamine-induced reduction of tyrosine hydroxylase, synaptophysin and growth-associated protein-43 levels in the neonatal rat brain. *Neurochemistry International*:

Volume 55, Issue 6, November 2009, Pages 397-405.
IIF = 3.228

39. Niamsa N, Srisuwan Y, Baimark Y, Phinyocheep P, Kittipoom S, Preparation of nanocomposite chitosan/silk fibroin blend films containing nanopore structures. *Carbohydrate Polymers*: Volume 78, Issue 1, 4 August 2009, Pages 60-65.
IF = 2.644
40. Tayapiwatana C, Kuntaruk S, Tatu T, Chiampanichayakul S, Munkongdee T, Winichagoon P, Fuchareon S and Kasinrerak W. , *International Journal of Hematology* : Volume: 89 Issue: 5 Pages: 559-567 Published: JUN 2009.
IF = 1.283
41. Wittayarat M, Thongphakdee A, Chatdarong K, Saikhun K, Techakumphu M. , P1 Cell cycle analysis of cultured skin fibroblasts from the leopard (*Panthera pardus*). *Thai Journal of Veterinary Medicine*: Volume 39, Issue 1, March 2009, Pages 73-73.
IF = 0
42. Thein-Han WW, Saikhun J, Pholpramoo C, Misra RDK, Kitiyanant Y. , Chitosan-gelatin scaffolds for tissue engineering: Physico-chemical properties and biological response of buffalo embryonic stem cells and transfectant of GFP-buffalo embryonic stem cells. *Acta Biomaterialia*: In Press.
IF = 3.727
43. Radabuttra S, Thanawan S, Amornsakchai T. , Chlorination and characterization of natural rubber and its adhesion to nitrile rubber. *European Polymer Journal*: Volume 45, Issue 7, July 2009, Pages 2017-2022.
IF = 2.143
44. Soodchomshom B, Tang IM, Hoonsawat R. Josephson effects in MgB₂/Thin Insulator/MgB₂ tunnel junction. *Solid State Communications*: Volume: 149 Issue: 25-26 Pages: 1012-1016 Published: JUL 2009.
IF = 1.557
45. Glavaski-Joksimovic A, Thonabulsombat C, Wendt M, Eriksson M, Ma H, Olivius P. , Morphological differentiation of tau-green fluorescent protein embryonic stem cells into neurons after co-culture with auditory brain stem slices. *Neuroscience*: Volume 162, Issue 2, 18 August 2009, Pages 472-481.
IF = 3.556
46. Rattanasom N, Prasertsri S, Suchiva K, Mechanical properties, thermal stability, gas permeability, and phase morphology in natural rubber/ bromobutyl rubber blends. *Journal of Applied Polymer Science*: Volume: 113 Issue: 6, Published: MAY 2009, Pages 3985-3992.
IF = 1.187
47. Mukda S, Møller M, Ebadi M, Govitrapong P. The modulatory effect of substance P on rat pineal norepinephrine release and melatonin secretion. *Neuroscience Letters*: Volume 461, Issue 3, 15 September 2009, Pages 258-261.
IF = 2.20
48. Meerang M, Nair J, Sirankapracha P, Thephinlap C, Srichairatanakool S, Arab K, Kalpravidh R, Vadolas J, Fuchareon S, Bartsch H. , Accumulation of lipid peroxidation-derived DNA lesions in iron-overloaded thalassemic mouse livers: Comparison with levels in the lymphocytes of thalassemia patients. *International Journal of Cancer*: Volume 125 Issue 4, Pages 759-766, Published: 4 Mar 2009.
IF = 4.734
49. Thampithak A, Jaisin Y, Meesarapee B, Chongthammakun S, Piyachaturawat P, Govitrapong P, Supavilai P, Sanvarinda Y. , Transcriptional regulation of iNOS and COX-2 by a novel

compound from *Curcuma comosa* in lipopolysaccharide-induced microglial activation .
 Neuroscience Letters: Volume 462, Issue 2, 22 September 2009, Pages 171-175.
 IF= 2.20

50. Buntup D, Chayasodom A, Surarit R, Jutapakdeegul N, Thangnipon W. , Effects of amyloid-beta peptide on glutamine transporter mRNA expression and cell viability in cultured rat cortical cells. *ScienceAsia*: Volume: 35 Issue: 2 Pages: 156-160 Published: JUN 2009.
 IF= 0.044
51. Pon-On W, Winotai P, Tang IM. , Ferromagnetic resonance study of amorphous and nanocrystalline Fe₈₁B_{13.5}Si_{3.5}C₂ Ribbons. *International Journal of Modern Physics B*: Volume: 23 Issue: 16 Pages: 3391-3402 Published: JUN 30 2009.
 IF= 0.558
52. Srinoun K, Svasti S, Chumworathayee W, Vadolas J, Vattanaviboon P, Fucharoen S, and Winichagoon P., Imbalanced globin chain synthesis determines erythroid cell pathology in thalassemic mice. *Haematologica Hematology Journal*: published July 16, 2009.
 IF= 5.978
53. Niamsa N, Srisuwan Y, Baimark Y, Phinyocheep P, Kittipoom S. , Preparation of nanocomposite chitosan/silk fibroin blend films containing nanopore structures. *Carbohydrate Polymers*: Volume: 78 Issue: 1 Pages: 60-65 Published: AUG 4 2009.
 IF= 2.644
54. Wannatung T, Litanatudom P, Leecharoenkiat A, Svasti S, Fucharoen S and Smith DR., Increased erythropoiesis of b-thalassaemia/Hb E proerythroblasts is mediated by high basal levels of ERK1/2 activation. *British Journal of Haematology*: Volume 146 Issue 5 Pages 557–568, September 2009.
 IF= 4.478
55. Thongtip N, Mahasawangkul S, Thitaram C, Pongsopavijitr P, Kornkaewrat K, Pinyopummin A, Angkawanish T, Jansittiwate S, Rungsri R, Boonprasert K, Wongkalasin W, Homkong P, Dejchaisri S, Wajjwalku W, Saikhun K. , Successful artificial insemination in the Asian elephant (*Elephas maximus*) using chilled and frozen-thawed semen. *Reproductive Biology and Endocrinology*: 2009, 7:75 (19 July 2009).
 IF= 2.63
56. Sukonthabhirom S, Saengtharatip S, Jirakanchanakit N, Rongnoparut P, Yoksan S, Daorai A, Chareonviriyaphap T. , Genetic structure among Thai populations of *Aedes aegypti* mosquitoes . *Journal of Vector Ecology*: Volume 34, Issue 1, June 2009, Pages 43-49.
 IF= 1.057
57. Sanmun D, Witasp E, Jitkaew S, Tyurina YY, Kagan VE, Ahlin A, Palmblad J, Fadeel B. , Involvement of a functional NADPH oxidase in neutrophils and macrophages during programmed cell clearance: implications for chronic granulomatous disease . *American Journal of Physiology-Cell Physiology*: Volume: 297 Issue: 3 Pages: C621-C631 Published: 2009.
 IF= 4.230
58. Ittiprasert W, Nene R, Miller A, Raghavan N, Lewis F, Hodgson J, Knight M. , *Schistosoma mansoni* infection of juvenile *Biomphalaria glabrata* induces a differential stress response between resistant and susceptible snails . *Experimental Parasitology*: Volume 123, Issue 3, November 2009, Pages 203-211.
 IF= 1.751
59. Worapong J, Strobel GA., Biocontrol of a root of kale by *Muscodora albus* strain MFC2. *BioControl*: Volume 54, Number 2, April 2009.
 IF= 1.957

60. Kumfu S, Chattipakorn S, Fucharoen S and Chattipakorn N. Pathways of iron uptake into cardiomyocytes. *International Journal of Cardiology*: in Press.
IF= 3.121
61. Powthongchin B., Angsuthanasombat C., Effects on haemolytic activity of single proline substitutions in the *Bordetella pertussis* CyaA pore-forming fragment. *Archives of Microbiology*: Volume 191(1), page 1-9, Jan 2009.
IF= 1.975
62. Wongtrakul J, Wongsantichon J, Varrarattanavech A, Leelapat P, Prapanthadara L, Ketterman AJ., Molecular cloning and expression of several new anopheles cracens epsilon class glutathione transferases. *Protein and Peptide Letters*: Volume 16(1), page 75-81, Jan 2009.
IF= 1.281
63. Tiewisiri K., Fischer WB., Angsuthanasombat C. Lipid-induced conformation of helix 7 from the pore-forming domain of the *Bacillus thuringiensis* Cry4Ba toxin: Implications for toxicity mechanism. *Archives of Biochemistry and Biophysics*: Volume 482(1-2), page 17-24, Feb 2009.
IF= 2.626
64. Panyasrivanit M., Khakpoor A., Wikan N., Smith DR. Co-localization of constituents of the dengue virus translation and replication machinery with amphisomes. *Journal of General Virology*: Volume 90(Part 2), page 448-456, Feb 2009.
IF= 3.092
65. Suksanpaisan L., Susantad T., Smith DR. Characterization of dengue virus entry into HepG2 cells. *J Biomed Sci*: Volume 16(17), Art. No. 4 Feb 2009.
IF= 2.013
66. Bauman J., Jearawiriyapaisarn N., Kole R., Therapeutic potential of splice-switching oligonucleotides. *Oligonucleotides*: Volume 19(1), page 1-13, Mar 2009.
IF= 2.00
67. Chungjatupornchai W., Fa-aoonsawat S. Translocation of green fluorescent protein to cyanobacterial periplasm using ice nucleation protein. *Journal of Microbiology*: Volume 47(2), page 187-192, Apr 2009.
IF= 1.385
68. Sriwilajaroen N., Boonma S., Attasart P., Pothikasikorn J., Panyim S., Noonpakdee W. Inhibition of *Plasmodium falciparum* proliferation in vitro by double-stranded RNA directed against malaria histone deacetylase. *Biochemical and Biophysical Research Communications*: Volume 381(2), page 144-147, 3 Apr 2009.
IF= 2.648
69. Assavalapsakul W., Chinnirunvong W., Panyim S. Application of YHV-protease dsRNA for protection and therapeutic treatment against yellow head virus infection in *Litopenaeus vannamei*. *Diseases of Aquatic Organisms*: Volume 84(2), Page 167-171, 6 Apr. 2009.
IF= 1.586
70. Panyasrivanit M., Khakpoor A., Wikan N., and Smith DR. Linking dengue virus entry and translation/replication through amphisomes. *Autophagy*: Volume 5(3), Page 434-5, 23 Apr. 2009.
IF= 5.479
71. Tanaka Y., Yamagata S., Kitago Y., Yamada Y., Chimnaronk S., Yao M., Tanaka I. Deduced RNA binding mechanism of Thil based on structural and binding analyses of a minimal RNA ligand. *RNA*: Volume 15(8), Page 1498-1506, May 2009.
IF= 5.018

72. Khakpoor A., Panyasrivanit M., Wikan N., Smith DR. A role for autophagolysosomes in DEN-3 production in HepG2 cells. *Journal of General Virology*: Volume 90 (Pt 5), Page 1093-103, May 2009.
IF= 3.092
73. Wikan N., Kuadkitkan A., Smith DR. The *Aedes aegypti* cell line CCL-125 is dengue virus permissive. *Journal of Virological Methods*: Volume 157(2), Page 227-30, May 2009.
IF= 2.077
74. Havanapan PO., Kanlaya R., Bourchookarn A., Krittanai C., Thongboonkerd V. C-Terminal Hemocyanin from Hemocytes of *Penaeus vannamei* Interacts with ERK1/2 and Undergoes Serine Phosphorylation. *Journal of Proteome Research*: Volume 8(5), Page 2476-83, May 2009.
IF= 5.684
75. Sriyab S., Yojina J., Ngamsaad W., Kanthang P., Modchang C., Nuttavut N., Lenbury Y., Krittanai C., Triampo W. Mesoscale modeling technique for studying the dynamics oscillation of Min protein: Pattern formation analysis with lattice Boltzmann method. *Computers in Biology and Medicine*: Volume 39(5), Page 405-488, May 2009.
IF= 1.272
76. Chimnarong S., Suzuki T., Manita T., Ikeuchi Y., Yao M., Suzuki T., Tanaka I. RNA helicase module in an acetyltransferase that modifies a specific tRNA anticodon. *EMBO Journal*: Volume 28(9), Page 1362-1373, 6 May 2009.
IF= 8.295
77. Sangcharoen A., Tepanant W., Kidsanguan S., Promdonkoy B., Krittanai C. Investigation of the unfolding pathway of *Bacillus thuringiensis* Cyt2Aa2 toxin reveals an unfolding intermediate. *Journal of Biotechnology*: Volume 141(3-4), Page 137-141, 20 May 2009.
IF= 2.748
78. Yap YK, Duangjit J., Panyim S. N-terminal of Papaya ringspot virus type-W (PRSV-W) helper component proteinase (HC-Pro) is essential for PRSV systemic infection in zucchini. *Virus Genes*: Volume 38(3), Page 461-467, Jun 2009.
IF= 1.376
79. Pongsavee M., Yamkamon V., Dakeng S., O-charoenrat P., Smith DR., Saunders GF., Patmasiriwat P. The BRCA1 3'-UTR: 5711+421T/T_5711+1286T/T genotype is a possible breast and ovarian cancer risk factor. *Genetic Testing and Molecular Biomarkers*: Volume 13(3), Page 307-317, Jun 2009.
IF= 1.120
80. Boonanuntanasarn S., Panyim S., Yoshizaki G. Usage of putative zebrafish U6 promoters to express shRNA in Nile tilapia and shrimp cell extracts. *Transgenic Research*: Volume 18(3), Page 323-325. Jun 2009.
IF= 2.809
81. Chimnarong S., Forouhar F., Sakai J., Yao M., Tron, CM. Atta, M., Fontecave M., Hunt JF., Tanaka I. Snapshots of dynamics in synthesizing N (6)-isopentenyladenosine at the tRNA anticodon. *Biochemistry*: Volume 48(23), Page 5057-65, 16 Jun 2009.
IF= 3.379.
82. Wong-ekkabut J., Chadsuthi S., Triampo W., Doungchawee G., Triampo D., Krittanai C. Leptospirosis research: Response of pathogenic spirochete to ultraviolet-A irradiation. *African Journal of Biotechnology*: Volume 8(14), Page 3341-3352, 20 Jul 2009.
IF= 0.547
83. Jaiyen Y. Masrinoul P., Kalayanarooj S., Pulmanusahakul R., Ubol S. Characteristics of dengue virus-infected peripheral blood mononuclear cell death that correlates with the

severity of illness. *Microbiology and Immunology* :
IF= 1.421

84. Unai S., Kanthang P., Junthon U., Ngamsaad W., Triampo W., Modchang C., Krittanai C. Quantitative analysis of time-series fluorescence microscopy using a spot tracking method: application to Min protein dynamics. *Biologia*: Volume 64(1), Page 27-42, Aug 2009.
IF= 0.406
85. Wannatung T., Lithanatudom P., Leecharoenkiat A., Svasti S., Fucharoen S., Smith DR. Increased erythropoiesis of b-thalassaemia/Hb E proerythroblasts is mediated by high basal levels of ERK1/2 activation. *British Journal of Haematology*: Volume 146(5), Page 557-568, Sep 2009.
IF= 4.478
86. Attasart P., Kaewkhaw R., Chimwai C., Kongphom U., Namramoon O., Panyim S. Inhibition of white spot syndrome virus replication in *Penaeus monodon* by combined silencing of viral *rr2* and shrimp *PmRab7*. *Virus Research*: Volume 145(1), Page 127-133, Oct 2009.
IF= 2.429
87. Khaokhiew T., Angsuthanasombat C., Promptmas C. Correlative effect on the toxicity of three surface-exposed loops in the receptor-binding domain of the *Bacillus thuringiensis* Cry4Ba toxin. *FEMS Microbiology Letters*: Volume 300(1), Page 139-145, Nov 2009.
IF= 2.021
88. Kunkeaw S., Tangphatsornruang S., Smith DR., Triwitayakorn K. Genetic linkage map of cassava (*Manihot esculenta* Crantz) based on AFLP and SSR markers. *Plant Breeding*: 1 Jun 2009
IF= 1.28
89. Limpanawat S., Promdonkoy B., Boonserm P. The c-terminal domain of binA is responsible for *Bacillus sphaericus* binary toxin binA-binB. *Current Microbiology*. Volume 59 (5), Page 509-513, Nov 2009.
IF= 1.330
90. Tanyaratsrisakul S., Malainual N., Jirapongsananuruk O., Smith W.A., Thomas W.R., Piboonpocanun, S. Structural and IgE binding analyses of recombinant der p2 expressed from the hosts *Escherichia coli* and *Pichia pastoris*. *Archives of Allergy and Immunology*. Volume 151(3), Page 190-198, 29 Sep 2009.
IF= 2.131
91. Luangwedchakarn, V. Jirapongsananuruk, O. Niemela, JE. Thepthai, C. Chokephaibulkit, K. Sukpanichnant, S. Pacharn, P. Visitsunthorn, N. Vichyanond, P. Piboonpocanun, S. Fleisher, TA. A Novel Mutation of the IL12RB1 Gene in a Child with Nocardiosis, Recurrent Salmonellosis and Neurofibromatosis Type I: First Case Report from Thailand. *Asian Pacific Journal of Allergy and Immunology*. 2009 Jun-Sep, 27(2-3), 161-165.
IF= 0.569
92. Ponkham, P. Daduang, S. Kitimasak, W. Krittanai, C. Chokchaichamnankit, D. Srisomsap, C. Svasti, J. Kawamura, S. Araki, T. Thammasirirak, S. Complete amino acid sequence of three reptile lysozymes. *Comparative Biochemistry and Physiology, Part C*. 2009. (in Press).
IF=2.530
93. Bienvenu F, Jirawatnotai S, Elias JE, Mejer CA, Mizeracka K, Marson A, Frampton GM, Cole MF, Odom D, Odajima J, Geng Y, Zagozdzon A, Jecrois M, Young RA, Liu XS, Cepko C, Gygi S, Sicinski P. Transcriptional function of cyclin D1 upstream of Notch revealed by a "genetic-proteomic" screen. *Nature* (in press).
IF= 28.751

Conference Presentation in 2008

1. Angsuthanasombat C, Boonserm P, Pootanakit K, Promptmas C, Yokthongwattana K, Promdonkoy B, Leetachewa, S. Teiwsiri, K. Kitiworakarn, J. Sakdee, S. Molecular biophysics and structural biochemistry of bacterial protein toxins. Commission on Higher Education Congress I University Staff Development Consortium, Ambassador City Jomtien, Pattaya, Chonburi, Thailand, September 5-7, 2008.
2. Boonserm P, Limpanawat S, Sanitt P, Promdonkoy B. Structure and function of the binary toxin, a mosquito-larvicidal agent of *Bacillus sphaericus*. The 8th TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 16-18, 2008.
3. Chalayat C, Katzenmeier G. Enzymological studies on the Japanese encephalitis virus NS2B/NS3 serine protease. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29, 2008.
4. Chalayat C, Katzenmeier G. Molecular biological characterization of the NS2B-NS3 protease from Japanese encephalitis virus. The Second International Conference on Dengue and Dengue Haemorrhagic Fever "Global Innovation to Fight Dengue", Hilton Arcadia Phuket, Phuket, Thailand, October 15-17, 2008.
5. Duangjit J, Yap Y. Establishment of chloroplast transformation system for *Bacillus thuringiensis* Cry4Ba mosquito larvicidal protein in tobacco. The 20th Annual Meeting and International Conference of the Thai Society for Biotechnology "Biotechnology for Global Care", Taksila Hotel, Maha Sarakham, Thailand, October 14-17, 2008.
6. Fugthong A, Boonyapakron K, Tanapongpipat S, Eurwilaichitr L, Pootanakit K. Cloning and expression of a fungal (BCC17694) phytase in *Pichia pastoris*. The 11th National Graduated Research Conference, Valaya Alongkorn Rajabhat University Under the Royal Patronage, Khlong Luang, Pathum Thani, Thailand, December 17-18, 2008.
7. Ho T, Kiatpathomchai W, Panyim S, Udomkit A. Molecular and functional characterization of cDNA encoding a novel type of molt-inhibiting hormone of *Penaeus monodon*. World Aquaculture, Busan Exhibition and Convention Center, Busan, Korea, May 19-23, 2008.
8. Itthisoponpisarn P, Yapom R, Yap Y. Post-transcriptional gene silencing and papaya ringspot virus resistance. 9th International Congress of Plant Pathology, Lingotto Conference Centre, Turin, Italy, August 24-29, 2008.
9. Kamlangdee A, Chungjatupornchai W. Characterization of regions of Som A (*Synechococcus* outer membrane A) that affect surface display of organophosphorus hydrolase on cyanobacteria. The 10th National Graduate Research Conference, Sukhothai Thammathirat Open University, Nonthaburi, Thailand, September 11-12, 2008.
10. Kamlangdee A, Chungjatupornchai W. Regions of SomA that affect surface display of organophosphorus hydrolase on cyanobacteria. The Third Science and Technology Congress for Young Scientists, Bangkok International Trade & Exhibition Centre, Bangkok, Thailand, March 22-23, 2008.

11. Kanthang P, Triampo W, Nattavut N, Krittanai C. Biophysical aspects of the Min protein dynamics and pattern formations. Commission on Higher Education Congress I University Staff Development Consortium, Ambassador City Jomtien, Pattaya, Chonburi, Thailand, September 5-7, 2008.
12. Katzenmeier G. A novel therapeutic target against dengue virus diseases-the NS2B/NS3 two-component protease. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29, 2008.
13. Khakpoor A, Smith DR. Mechanism of ER stress induction by dengue infection in HepG2 cells. The Second International Conference on Dengue and Dengue Haemorrhagic Fever "Global Innovation to Fight Dengue", Hilton Arcadia Phuket, Phuket, Thailand, October 15-17, 2008.
14. Khomkhum N, Promdonkoy B, Angsuthanasombat C, Promdonkoy B. Inter-molecular interaction between *Bacillus thuringiensis* Cry4Ba and Cry4Aa mosquito-larvicidal proteins in lipid membranes results in enhanced toxicity. 41st Annual Meeting of the Society for Invertebrate Pathology and 9th International Conference on *Bacillus thuringiensis*. University of Warwick, Coventry, United Kingdom, August 3-7, 2008.
15. Khomkhum N, Promdonkoy B, Boonserm P. Complementation of the *Bacillus thuringiensis* Cry4Aa and Cry4Ba mosquito-larvicidal activity. The 10th National Graduate Research Conference, Sukhothai Thammathirat Open University, Nonthaburi, Thailand, September 11-12, 2008.
16. Kuadkitkan A, Smith DR. Identification of Dengue virus serotype 2 receptors in mosquito cells. The Second International Conference on Dengue and Dengue Haemorrhagic Fever "Global Innovation to Fight Dengue", Hilton Arcadia Phuket, Phuket, Thailand, October 15-17, 2008.
17. Kullawong N, Tirasophon W. Generation of chinese hamster ovary (CHO) cell line to highly produce human erythropoietin (EPO) using dihydrofolate reductase (DHFR)/methotrexate (MTX)-mediated gene amplification system. Commission on Higher Education Congress I University Staff Development Consortium, Ambassador City Jomtien, Pattaya, Chonburi, Thailand, September 5-7, 2008.
18. Kunkeaw S, Tangphatsornruang S, Smith DR, Triwitayakorn K. Cloning and expression of xylanase from *Trichoderma reesei* in *Kluyveromyces lactis*. 2nd USM Penang International Postgraduate Convention 2008, Universiti Sains Malaysia, Penang, Malaysia, June 18-50, 2008.
19. Leetachewa S, Angsuthanasombat C. Soluble expression of the cloned *Bacillus thuringiensis* Cry4Ba pore-forming fragment in *Escherichia coli*. The 8th TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 16-18, 2008.
20. Limpanawat S, Boonserm P, Promdonkoy B. Characterization of functional domains of *Bacillus sphaericus* binary toxin. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29, 2008.
21. Limpanawat S, Boonserm P, Promdonkoy B. Functional analysis of truncated BinA component of the binary toxin from *Bacillus sphaericus*. 41st Annual Meeting of the Society for Invertebrate Pathology and 9th International Conference on *Bacillus thuringiensis*, University of Warwick, Coventry, United Kingdom, August 3-7, 2008.

22. Panyasrivanit M, Suksanpaisan L, Ekkapongpisit M, Smith DR. Localization of dengue virus translation replication complex at autophagic vacuole. The Second International Conference on Dengue and Dengue Haemorrhagic Fever "Global Innovation to Fight Dengue", Hilton Arcadia Phuket, Phuket, Thailand, October 15-17, 2008.
23. Phanaksri T, Tirasophon W. Construction of efficient promoter for gene expression in *Bacillus subtilis*. Commission on Higher Education Congress I University Staff Development Consortium, Ambassador City Jomtien, Pattaya, Chonburi, Thailand, September 5-7, 2008.
24. Piboonpocanun S, Pariyaprasert W, Boonchoo S, Visitsunthorn N, Jirapongsananuruk O. Determination of storage time for shrimp extract : analysis of specific IgE-allergen profile. The 8th TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 16-18, 2008.
25. Poopear S, Tangphatsornruang S, Boonseng O, Smith DR, Triwitayakorn K. Construction of genetic linkage maps of cassava (*Manihot esculenta* Crantz). The 20th Annual Meeting and International Conference of the Thai Society for Biotechnology "Biotechnology for Global Care", Taksila Hotel, Maha Sarakham, Thailand, October 14-17, 2008.
26. Poopear S, Tangphatsornruang S, Boonseng O, Triwitayakorn K. Construction of genetic linkage maps of cassava (*Manihot Esculenta* Crantz). 2nd USM Penang International Postgraduate Convention 2008, Universiti Sains Malaysia, Penang, Malaysia, June 18-50, 2008.
27. Puripunpinyo B, Angsuthanasombat C, Ketterman A, Katzenmeier G. Study of ring amino acid cluster in domain II in aspects of structure and function of the *Bacillus thuringiensis* Cry4Ba toxin. The Third Science and Technology Congress for Young Scientists, Bangkok International Trade & Exhibition Centre, Bangkok, Thailand, March 22-23, 2008.
28. Puripunpinyo B, Angsuthanasombat C, Leetachewa S. Characterisation of residues stabilizing $\beta 2$ - $\beta 3$ and $\beta 4$ - $\beta 5$ hairpins critical for toxicity of the *Bacillus thuringiensis* Cry4B toxin. The 10th National Graduate Research Conference, Sukhothai Thammathirat Open University, Nonthaburi, Thailand, September 11-12, 2008.
29. Puripunpinyo B, Leetachewa S, Angsuthanasombat C. Hydrophobicity in the core of receptor-binding domain critical for toxicity of the *Bacillus thuringiensis* Cry4Ba TPXIN. The 20th Annual Meeting and International Conference of the Thai Society for Biotechnology "Biotechnology for Global Care", Taksila Hotel, Maha Sarakham, Thailand, October 14-17, 2008.
30. Saisawang C, Temviriyankul P, Ketterman A. Identification of physiological roles of glutathione transferase in drosophila. The 34th Congress on Science and Technology of Thailand , Queen Sirikit National Convention Center, Bangkok, Thailand, October 31-November 2, 2008.
31. Saisawang C, Temviriyankul P, ketterman A. Physiological characterization of recombinant glutathione the interaction with kinase protein in JNK mapk pathway. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29,2008.
32. Sangcharoen A, Kidsanguan S, Krittanai C. Conformational changes of the mosquitocidal Cyt2Aa2 toxin were revealed during the unfolding pathway. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29,2008.

33. Sathapondecha P, Udomkit A. Identification of differentially expressed genes in brain and thoracic ganglia of *Penaeus monodon* in response to GIH-knockdown. The Third Science and Technology Congress for Young Scientists, Bangkok International Trade & Exhibition Centre, Bangkok, Thailand, March 22-23, 2008.
34. Sathapondecha P, Udomkit A. Identification of genes involving in ovarian maturation in brain and thoracic ganglia of *Penaeus monodon*. World Aquaculture, Busan Exhibition and Convention Center, Busan, Korea, May 19-23, 2008.
35. Sathapondecha P, Udomkit A. Up-regulation of genes involving in ovarian maturation in black tiger shrimp (*Penaeus monodon*) by dsRNA-mediated silencing of gonad-inhibiting hormone. The 10th National Graduate Research Conference, Sukhothai Thammathirat Open University, Nonthaburi, Thailand, September 11-12, 2008.
36. Singkhamannan K, Boonserm P, Promptmas C. Amino acid substitutions in selected regions of *Bacillus sphaericus* BinB toxin revealed residues important for toxicity. 41st Annual Meeting of the Society for Invertebrate Pathology and 9th International Conference on *Bacillus thuringiensis*. University of Warwick, Coventry, United Kingdom, August 3-7, 2008.
37. Smith DR. The dengue virus-host cell interaction. 2nd USM Penang International Postgraduate Convention 2008, Universiti Sains Malaysia, Penang, Malaysia, June 18-50, 2008.
38. Smith DR, Khakpoor A, Panyasrivanit M. The dengue virus translation-replication complex is located in close association with autophagic membranes. The Second International Conference on Dengue and Dengue Haemorrhagic Fever "Global Innovation to Fight Dengue", Hilton Arcadia Phuket, Phuket, Thailand, October 15-17, 2008.
39. Sukati S, Svasti S, Fucharoen S, Katzenmeier G. A functional role for calpain and proteolysis in the erythrocyte as modulators of disease severity in **thalassemia**. **Symposium of Protein Society of Thailand "Frontiers in Protein Research"**, Chulabhorn Research Institute Conference Center, Thailand, August 28-29, 2008.
40. Taengchaiyaphum S, Kritanai C. Characterization of phosphoproteome in the hemocyte of viral infected *P. monodon*. The 34th Congress on Science and Technology of Thailand, Queen Sirikit National Convention Center, Bangkok, Thailand, October 31-November 2, 2008.
41. Taengchaiyaphum S, krittanai C. Analysis of phosphoproteins in the hemocyte of *Penaeus monodon*. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29, 2008.
42. Tangsongcharoen C, Boonserm P, Promdonkoy B. Functional characterization of truncated BinB toxin from *Bacillus sphaericus*. The 34th Congress on Science and Technology of Thailand, Queen Sirikit National Convention Center, Bangkok, Thailand, October 31-November 2, 2008.
43. Tanyaratsrisakul S, Jirapongsananuruk O, Malainual N, Thomas W, Piboonpocanun S. Allergenicity of house dust mite group 2 isoforms found in Thailand. Commission on Higher Education Congress I University Staff Development Consortium, Ambassador City Jomtien, Pattaya, Chonburi, Thailand, September 5-7, 2008.

44. Thamachat S, Promdonkoy B, Krittanai C. Characterization of amino acids on N and C-terminal fragments of Cyt2Aa toxin. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29, 2008.
45. Thamwiryasati N, Powthongchin B, Ketterman A, Angsuthanasombat C. Purified CyaC-acyltransferase cloned from *bordetella pertussis* catalyzes the hydrolysis of synthetic substrates in vitro. Biochemistry and Molecular Biology 2008, Kobe, Japan, December 9-12, 2008.
46. Thamwiryasati N, Powthongchin B, Angsuthanasombat C. Purified CyaC-acyltransferase cloned from *bordetella pertussis* catalyzes the hydrolysis of synthetic substrates in vitro. The American Society for Cell Biology 48th Annual Meeting, San Francisco, America, December 13-17, 2008.
47. Thongphung R, Katzenmeier G. Functional interdependence of the dengue virus NS3 serine protease and NTPASE/HELICASE domains. The Second International Conference on Dengue and Dengue Haemorrhagic Fever "Global Innovation to Fight Dengue", Hilton Arcadia Phuket, Phuket, Thailand, October 15-17, 2008.
48. Tirasophon W, Phanaksri T. Construction and characterization of candidate promoters for efficient gene expression in *Bacillus subtilis*. The 8th TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 16-18, 2008.
49. Visitsattapongse S, Kittiworakarn J, Angsuthanasombat C. Charge-reversal mutagenesis in the β 10- β 11 loop enhanced larvicidal activity of the *Bacillus thuringiensis* Cry4Ba toxin. Commission on Higher Education Congress I University Staff Development Consortium, Ambassador City Jomtien, Pattaya, Chonburi, Thailand, September 5-7, 2008.
50. Wannatung T, Svasti S, Fucharoen S, Smith DR. Erythropietin signal transduction in thalassaemia. International Thalassaemia Conference 2008, Suntec Singapore International Convention & Exhibition Centre, Singapore, October 8-11, 2008.
51. Weerachawangkul C, Booyapakorn K, Eurwilaichitr L, Champreda V, Pootanakit K. Identification of a novel xylanase enzyme from a bagasse-degrading microbial consortium. The 34th Congress on Science and Technology of Thailand, Queen Sirikit National Convention Center, Bangkok, Thailand, October 31-November 2, 2008.
52. Wikan N, Kuadkitkan A, Smith DR. Analysis of dengue virus entry into the *Aedes aegypti* cell line CCL-125. The Second International Conference on Dengue and Dengue Haemorrhagic Fever "Global Innovation to Fight Dengue", Hilton Arcadia Phuket, Phuket, Thailand, October 15-17, 2008.
53. Wongsantichon J, Robinson R, Ketterman A. Hydrophobic substrate binding site in the structure of glutathione transferase, adGSTD4-4. The 34th Congress on Science and Technology of Thailand, Queen Sirikit National Convention Center, Bangkok, Thailand, October 31-November 2, 2008.
54. Wongsantichon J, Robinson R, Ketterman A. Hydrophobic substrate binding site in the structure of glutathione transferase, anGSTD4-4. Symposium of Protein Society of Thailand "Frontiers in Protein Research", Chulabhorn Research Institute Conference Center, Thailand, August 28-29, 2008.

55. Yap Y, Panyim S. Analysis of papaya ringspot virus pathogenesis. 9th International Congress of Plant Pathology, Lingotto Conference Centre, Turin, Italy, August 24-29, 2008.
56. Yasri P, Panyim S, Udomkit A. Double-stranded RNA-mediated inhibition of induction of infectious hypodermal and hematopoietic necrosis virus (IHHNV) in shrimp. The 10th National Graduate Research Conference, Sukhothai Thammathirat Open University, Nonthaburi, Thailand, September 11-12, 2008.
57. Yasri P, Panyim S, Udomkit A. Silencing infectious hypodermal and hematopoietic necrosis virus (IHHNV) in shrimp by double-stranded RNA. World Aquaculture, Busan Exhibition and Convention Center, Busan, Korea, May 19-23, 2008.
58. Yasri P, Udomkit A. Inhibition of infectious hypodermal and hematopoietic necrosis virus replication in shrimp by double-stranded RNA. The Third Science and Technology Congress for Young Scientists, Bangkok International Trade & Exhibition Centre, Bangkok, Thailand, March 22-23, 2008.
59. Yasri P, Panyim S, Udomkit A. Double-stranded RNA mediated inhibition of infectious hypodermal and hematopoietic necrosis virus (IHHNV) replication in shrimp. The 8th TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 16-18, 2008.
60. Daochai S, Chuaychunu N, Lohakan M, Pintavirooj C. Analysis and comparison of a customize infant incubator chamber shape using finite element method. Proceeding of International Symposium on Communications and Information Technologies (ISCIT 2008), p.336-339, Lao PDR, October 21-23, 2008.
61. Theinkusol V, Daochai S, Thanawan S, Apaiwong T, Rattanakajornask R. Defibrillator analyzer : a study on the design and construction. Proceedings of the 3rd International Symposium on Biomedical Engineering (ISBME2008) in conjunction with 1st Biomedical Engineering International Conference (BME icon 2008) p.270-272., Bangkok, Thailand, November 11-12, 2008, organized by ThaiBME Societies of Thailand.
62. Suthat Fucharoen, Pranee Winichagoon, Orapan Sripichai, Wattanan Makarasara, Thongperrn Munkongdee, Saovaros Svasit, Johanna Whitacre, Vach Angkachatchai, Lindsay Farrer, Kenneth Abel, Andreas Braun, Duangmanee Sanmun, Bengt Fadeel. Genetic modifiers in beta-thalassemia. Joint 7th Human Genome Organization (HUGO)-Pacific Meeting and The 8th Asia-Pacific Conference on Human Genetics. Cebu, Philippines, April 2-5, 2008
64. Panutdaporn N, Svasit S, Fucharoen S, Winichagoon P. Study of TOSO gene in the thalassemic erythroid precursor cells. Joint 7th Human Genome Organization (HUGO)-Pacific Meeting and The 8th Asia-Pacific Conference on Human Genetics, Cebu, Philippines, April 2-5, 2008
65. Winichagoon P, Srinoun K, Svasti S, Vattanaviboon P, Fucharoen S. Study of apoptosis and ineffective erythropoiesis in thalassemia using transgenic mice as a model. Joint 7th Human Genome Organization (HUGO)-Pacific Meeting and The 8th Asia-Pacific Conference on Human Genetics, Cebu, Philippines, April 2-5, 2008
66. Makarasara W, Sripichi O, Ma Q, Munkongdee T, Svasit S, Winichagoon P, Whitacre J, Abel K, Braun A, Farrers LA, Kamatani N, Fucharoen S. Searching for disease modifier genes α^0 -thalassemia/Hb E disease. Joint 7th Human Genome Organization (HUGO)-Pacific Meeting and The 8th Asia-Pacific Conference on Human Genetics, Cebu, Philippines, April 2-5, 2008
67. Munkongdee T, Svasti S, Pandit R A, Sripichai O, Winichagoon P, Fucharoen S and Prerapitta yamongkol C. Haplotype effect of HBS1L gene in the region of chromosome 6q23 associated with hemoglobin concentration and fetal hemoglobin levels in β^0 -thalassemia/Hb E

patients. Joint 7th Human Genome Organization (HUGO)-Pacific Meeting and The 8 th Asia-Pacific Conference on Human Genetics, Cebu, Philippines, April 2-5, 2008

68. Sripichai O, Makarasara W, Munkongdee T, Svasti S, Winichagoon P, Fucharoen S. Genotype-phenotype interaction in beta-thalassemia/Hb E disease. Joint 7th Human Genome Organization (HUGO)-Pacific Meeting and The 8 th Asia-Pacific Conference on Human Genetics, Cebu, Philippines, April 2-5, 2008
69. Svasti S, Sripichai O, Munkongdee T, Boonchoy C, Winichagoon P, Fucharoen S. α -/non- α -globin mRNA ratio in thalassemia. Joint 7th Human Genome Organization (HUGO)-Pacific Meeting and The 8 th Asia-Pacific Conference on Human Genetics, Cebu, Philippines, April 2-5, 2008
70. Sae-ung K, Govitrapong P, Phansuwan-Pujito P. Effect of melatonin on amphetamine-induced structural change of nigrostriatal pathway in early postnatal rats. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
71. Mukda S, Kongsuphol P, Nopparat C, Villarroel A, Govitrapong P. Melatonin attenuates effect of methamphetamine on mammalian target of rapamycin (MTOR) signaling protein. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
72. Mukda S, Wongchitrat P, Phansuwan-Pujito P, Govitrapong P. The circadian rhythm of per1 gene expression in the rat striatum. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
73. Wisessmith W, Govitrapong P, Chetsawang B. Reduction of death signaling in methamphetamine human neuroblastoma SH-SY5Y cultured cells by melatonin. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
74. Boontem P, Vatanatunyakum S, Govitrapong P. Lipid peroxidation and antioxidant enzymes in blood of amphetamine abusers. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
75. Chetsawang B, Govitrapong P. Involvement of ras proteins in hydrogen peroxide and melatonin-treated SH-SY5Y cultured cells. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
76. Chetsawang J, Govitrapong P, Chetsawang B. Protection of cell death and sustained tyrosine hydroxylase phosphorylation in hydrogen peroxide treated human neuroblastoma SH-SY5Y cultured cells by melatonin. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
77. Wongchitrat P, Sae-Ung K, Govitrapong P, Phansuwan-Pujito P. Postnatal development of per1 and Aa-nat expressions in the rat pineal gland. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
78. Szeifoul, polaboon N, Phnsuwan-Pujito P, Jutapakdeegul N. Maternal restraint stress alters growth-associated protein-43 (GAP-43) in postnatal rat brain. The Eighth Biennial Meeting of the Asia-Pacific Society of Neurochemistry Shanghai, People's Republic of China, June 23-26 2008
79. Fucharoen S, Svasti S, Munkongdee T, Karasasara W, Sripichai O, Winichagoon P. Haemoglobin E/Beta-Thalassaemia. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008

80. Fucharoen S. Thalassaemia Services in Asia : The Asian Thalassaemia Network. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008
81. Fucharoen S. Iron Chelation Treatment under Economic Restrictions. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008
82. Thephinlap C, Phaisalaphong C, Fucharoen S, Srichairatanakool S. Effects of Curcuminoids on Iron Overload in Thalassaemic Mice. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008
83. Kumya P, Chaichompoon P, Kowawisaisut L, Siritanaratkul N, Fucharoen S, Pattanapanyasat K. Oxidative Stress in Microparticles and in Peripheral Blood Cells of Beta-Thalassaemia/ β E Patients. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008
84. Tankanitlert J, Fucharoen P, Fucharoen S, Chantharaksri U. UGT1A genotype-Related Pharmacokinetics of Paracetamol in Thai Beta-Thalassaemia Hb E Patients. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008
85. Svasti S, Tubsuwan A, Munkongdee T, Boonchoy C, Winichagoon P, Fucharoen S. Expression of Globin Genes in Different Thalassaemia Disorders. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008
86. Munkongdee T, Makarasara W, Svasti S, Sripichi O, Winichagoon P, Fucharoen S. The Candidate SNPs for β -Thalassaemia Severity. 11th International Conference on Thalassaemia & Haemoglobinopathies and the 13th International TIF Conference for Thalassaemia Patients & Parents (International Thalassaemia Conference 2008), Singapore, October 8-11 2008
87. Winichagoon P, Svasti S, Munkongdee T, Saenman D, Tang K, Fucharoen S. Recent Advances in the Thalassaemia Diagnosis. XXXII World Congress of the International Society of Hematology (ISH 2008) Convention Centre at Central World Bangkok, 19-23 October 2008
88. Tayapiwatana C, Kuntaruk S, Tatu T, Chiampanichayakul S, Munkongdee T, Winichagoon P, Fucharoen S, Kasinrerak W. Establishment of a Novel α -thalassaemia-1 Carrier Screening by Immunochromatographic Strip Test. XXXII World Congress of the International Society of Hematology (ISH 2008) Convention Centre at Central World Bangkok, 19-23 October 2008
89. Boonma S, Srinoun K, Munkongdee T, Fucharoen S. Detection of Platelet Activation by Automated Cell Analyzer : A Preliminary Study. XXXII World Congress of the International Society of Hematology (ISH 2008) Convention Centre at Central World Bangkok, 19-23 October 2008
90. Noulsri E, Lerdwana S, Fucharoen S, Pattanapanyasat K. Effect of Dp44mT Iron Chelator on Acute Leukemic Cells. XXXII World Congress of the International Society of Hematology (ISH 2008) Convention Centre at Central World Bangkok, 19-23 October 2008
91. Siripin D, Siwaponanan P, Sewewanlo P, Fucharoen S, Tonyong D. Effect of Nitric Oxide on Cytokine-Induced Apoptosis in Myeloid Leukemia. XXXII World Congress of the International

Society of Hematology (ISH 2008) Convention Centre at Central World Bangkok, 19-23 October 2008

92. Tipparat Penglong, saovaros svasti, Punnee Butthep, Suthat Fucharoen and Pranee Winichagoon. Effect of macrophage on erythroid precursor cell apoptosis. 32nd Annual Meeting of Association of Medical Technology, Ambassador City Jomtien, Pattaya Chonburi, 6-9 May 2008

93. Manit Nuinoon, Orapan Sripichai, Saovaros Svasit, Thongperm Munkongdee, Chutima Khumkhaek, Pranee winichagoon and Suthat Fucharoen. Coinheritance of the different copy numbers of α -globin gene modifiers disease severity in β -thalassemia/Hb E patients. 32nd Annual Meeting of Association of Medical Technology, Ambassador City Jomtien, Pattaya Chonburi, 6-9 May 2008

94. Nantika Panutdaporn, Saovaros Svasit, Suthat Fucharoen, and Pranee Winichagoon. TOSO expression in the thalassemic erythroid precursor cells. 32nd Annual Meeting of Association of Medical Technology, Ambassador City Jomtien, Pattaya Chonburi, 6-9 May 2008

95. Thongperm Munkongdee, Saovaros Svasti, Riyaz Ahmad Pandit, Orapan Sripichai, Pranee Winichagoon, Suthat Fucharoen, and Chayanon Preerapittayamongkol. The association of HBS1L gene haplotype with fetal hemoglobin and hemoglobin level in β -thalassemia/Hb E. 32nd Annual Meeting of Association of Medical Technology, Ambassador City Jomtien, Pattaya Chonburi, 6-9 May 2008

96. Thongperm Munkongdee, Wattanan Makarasara, Saovaros Svasit, Orapan Sripichi, Pranee Winichagoon, Suthat Fucharoen. The candidate SNPs biomarker for β -thalassemia severity. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008

97. Chonthida Thephinlap, Chada Phisalapong, Suthat Fucharoen, Somdet Srichiratanakool. Effect of curcuminoids on iron overload in thalassemic mice. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008

98. Noppawan Phumala Morales, Lie michael George Limenta, Praveena Yamanont, Totsapol Jirasomprasert, Prapin Wilairat, Udom Chantharaksri, Suthat Fucharoen. Pharmacokinetic study of deferiprone in β -thalassemia/Hemoglobin E patients. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008

99. Wasarut Rutjanaprom, Natniha Kanlop, Pimlak charoenkwan, Rekwan Sittiwangkul, Somdej Srichairatanakool, Suthat Fucharoen, Nipon Chattipakorn. Heart rate variability in children with thalassemia major. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008

100. Kanitta Srinoun, Saovaros Svasti, Phantip Vattanaviboon, Suthat Fucharoen, Pranee Winichagoon. The effect of globin chain imbalance on red blood cells properties in thalassemic mice. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008

101. Alisa Tubsuwan, Saovaros Svasit, Pranee Winichagoon, Suthat Fucharoen. Quantification of abnormal spliced β -globin mRNA by allele specific reverse transcription quantitative PCR. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008

102. Tipparst Penglong, Saovaros Svasit, punnee Butthep, Suthat Fucharoen, Pranee Winichagoon. Role of macrophages on the apoptosis of erythroid precursor cells: an in vitro study. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008

103. Sirinart Kumfu, Somdej Srichairatanakool, Nipon Chattipakorn, Sutht Fucharoen, Siriporn Chattipakorn. Iron-uptake in cultured thalassemic cardiomyocytes. 14th Annual Meeting Conference on Thalassemia, Miracle Grand Convention Hotel, Bangkok, 25-27 June 2008
104. Usanee Sotthiwat, Wichian Sittiprapaporn, Anak charanyananda, Caroline Koeppel, Naiphinich Kotchabhakdi. Spatial mental imagery in Thai Musician and non-musician: the behavioral study. First National Neuroscience Conference, Thailand Science Park convention Center, Pathumthani, 25-26 March 2008
105. Chanchai Songthaveesin, Naiphinich Kotchabhakdi. Characterization of neural stem cells from the brain of the buffalo. First National Neuroscience Conference, Thailand Science Park convention Center, Pathumthani, 25-26 March 2008
106. Sukonthar Ngampramuan, Mathias Baumert, Mirza Irfan Beig, Naiphinich Kotchabhakdi, Eugene Nalivaiko. Activation of 5-HT_{1A} Receptors Attenuates Tachycardia Induced by Restraint Stress in Rats. First National Neuroscience Conference, Thailand Science Park convention Center, Pathumthani, 25-26 March 2008



Conference Presentation in 2009

1. Angsuthanasombat C. Bacillus thuringiensis Cry toxins as promising protein-based bioinsecticides. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
2. Assavalapsakul W, Panyim S. Toll-like receptor in Penaeus monodon. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
3. Attasart P. Application of RNA interference to white spot syndrome virus inhibitor in black tiger shrimp Penaeus monodon. Intergrated Technologies for Advanced Shrimp Production, Honolulu, Hawaii, USA, October 13-15, 2009.

4. Attasart P, Kaewkhaw R, Nattavut N, Kongphom U, Chimwai C, Panyim S. Application of RNA interference to DNA virus inhibition in *Penaeus monodon*, Agricultural Biotechnology International Conference, Queen Sirikit National Convention Center, Bangkok, Thailand, September 22-25, 2009.
5. Attasart P, Kongphom U, Kaewkhaw R, Chimwai C, Namramoon O, Panyim S. Double-stranded RNA mediated suppression of WSSV replication in *Penaeus monodon*. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.
6. Boonchanawiwat A, Sraphet S, Tangphatsornruang S, Boonseng O, Smith D, Triwitayakorn K. SSR-based genetic linkage map of cassava (*Manihot esculenta* crantz). The Proceeding of 47th Kasetsart University Annual Conference, Kasetsart University, Bangkok, Thailand, March 17-20, 2009.
7. Boonserm P. Toxin mechanisms of *Bacillus thuringiensis* and *Bacillus sphaericus* mosquito-larvicidal proteins. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
8. Boonserm P, Sinkhamanan K, Limpanawat S, Tangsongcharoen C, Promdonkoy B. Structure and function of the binary toxin, a mosquito-larvicidal agent of *Bacillus sphaericus*. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
9. Chairri U, Moonsom S, Leetachewa S, wang P, Kasinrerak W, Angsuthanasombat C. Application of microscopic approaches for binding and functional characterizations of mosquito larvicidal cry4Ba toxin. The 26th Annual Conference of The Microscopy Society of Thailand, The Empress Hotel, Chiang Mai, Thailand, January 28-30, 2009.
10. Chalayut C, Katzenmeier G. Characterization of the two component NS2B(H)-NS3 protease of Japanese encephalitis virus. The 4th Annual Symposium of Protein Society of Thailand, Chulabhorn Research Institute Conference Center, Bangkok, Thailand, August 26-28, 2009.
11. Chalayut C, Katzenmeier G. Characterization and comparison of the NS2B(H)/NS3 protease from Japanese encephalitis virus with dengue virus. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
12. Chalayut C, Katzenmeier G. Characterization of two-component NS2B(H)-NS3 protease of Japanese encephalitis. The 2nd Biochemistry and Molecular Biology Conference, Khon Kaen University, Khon Kaen, Thailand, May 7-8, 2009.
13. Chantasingh D, Pootanakit K, Keybani N, Eurvilaichitr L. Gene expression analysis of *Beauveria bassiana* during infection of *Spodoptera exigua*. The 42nd Annual Meeting of the Society for Invertebrate Pathology. Park City, Utah, Utah, USA, August 16-20, 2009.
14. Chimnarong S. How to modify the structured RNA? Joint Symposium of JENESYS Program 2008, Hokkaido University, Sapporo, Japan, May 12-13, 2009.

15. Chimnaron S. Isolation of the intact membrane-integral dengue viral protease complex NS2B-NS3 from *Escherichia coli* for chemical and structural characterizations. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
16. Chimwai C, Kongphom U, Panyim S, Attasart P. Survey of potential *PmDENV* (HPV) natural carrier from aquatic animals. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.
17. Choksupmane O, Chimnaronk S. Overexpression and characterization of the intact membrane integral dengue viral protease complex. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.
18. Chomchay E, Panyim S, Ongvarrasopone C. Silencing of *Pmrab7* by dsrna inhibits lame-singh virus replication in black tiger shrimp. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.
19. Chungjatupornchai W, Kitraksa P, Udpuay N, Fa-aroonawat S. Improvement of heterologous gene expression in blue green alga using synthetic regulatory-sequence libraries. The 9th International Phycological Congress 2009, National Olympics Memorial Youth Center, Tokyo, Japan, August 2-8, 2009.
20. Chungjatupornchai W, Kitraksa P, Udpuay N, Fa-aroonawat S. Synthetic regulatory-libraries for improvement of heterologous gene expression in cyanobacteria. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
21. Dechklar M, Pootanakit K, Angsuthanasombat C. Expression and characterization of a GPI-linked alkaline phosphatase from *Aedes aegypti* midgut larva in Sf9 cells. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
22. Duangjit J, Yap Y. Expression of the *Bacillus thuringiensis* Cry4Ba mosquito larvicidal protein in Tobacco (*Nicotiana tabacum*). Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
23. Imtong C, Angsuthanasombat C. Structural integrity of the $\alpha 4$ - $\alpha 5$ loop is an requirement for larvicidal activity of the *Bacillus thuringiensis* Cry4Aa δ -endotoxin. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
24. Jearawiriyapaisarn N, Moulton H, Buckley B, Roberts J, Sazani P, Fucharoen S, Iversen, PL, Kole, R. Effective dystrophin induction in the muscles of *mdx* mice by a morpholino oligomer. RGJ-Ph.D. Congress X, Jomtien Palm Beach Resort, Pattaya, Conburi, Thailand, April 3-5, 2009.
25. Juntadech T, Yap Y, Yokthongwattana K, Tangphatsornruang S, Angsuthanasombat C. Expression of Cry4Ba toxin in algal chloroplast system. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.

26. Juntadach T, Yokthongwattana K, Tangphatsornruang S, Yap Y, Angsuthanasombat C. Characterisation of the *Bacillus thuringiensis* Cry4Ba mosquito-larvicidal protein expressed in the chloroplast of *Chlamydomonas reinhardtii*. RGJ-Ph.D. Congress X, Jomtien Palm Beach Resort, Pattaya, Conburi, Thailand, April 3-5, 2009.
27. Ketterman AJ, Saisawang C, Temviriyankul P, Lerksuthirat T, Wongsantichon J. A preliminary study of the GST proteome in the SL2 *Drosophila melanogaster* cell. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
28. Krittanai C, Taengchaiyaphum S, Pungtanom N, Sritunyalucksana K. Proteomics of shrimps and viral interaction. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
29. Kuadkitkan A, Smith DR. Identification of a dengue virus serotype 2 receptor in mosquito cells. RGJ-Ph.D. Congress X, Jomtien Palm Beach Resort, Pattaya, Conburi, Thailand. April 3-5, 2009.
30. Kullawong N, Tirasophon W. Establishment of sialic acid production system in *Pichia pastoris* using viral *C/S*-acting hydrolase element. Commission on Higher Education Congress II University Staff Development Consortium, Dusit Thani Pattaya Hotel, Pattaya, Chonburi, Thailand, August 27-29, 2009.
31. Kurehong C, Angsuthanasombat C. Targeted mutagenesis in putative $\alpha 3$ CyaA pore-forming fragment. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
32. Kurehong C, Powthongchin C, Angsuthanasombat C. Targeted mutagenesis of residues in the putative A3 cyaa pore-forming fragment. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.
33. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.
34. Leecharoenkiat A, Lithanatudom P, Wannatung T, Svasti S, Smith DR. Proteomics analysis of erythroid precursor cells in β -thalassemia/HbE patients. The 4th Annual Symposium of Protein Society of Thailand, Chulabhorn Research Institute Conference Center, Bangkok, Thailand, August 26-28, 2009.
35. Leetachewa S, Moonsom S, Chaisri U, Yoonim N, Angsuthanasombat C. Production and application of monospecific polyclonal antibodies for detection of *in vivo* processing of the *Bacillus thuringiensis* Cry4Ba mosquito-larvicidal protein. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
36. Limpanawat S, Boonserm P, Promdonkoy B. Identification of the BinB-binding domain of BinA from *Bacillus sphaericus*. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
37. Lithanatudom P, Leecharoenkiat A, Wannatung T, Svasti S, Fucharoen S, Smith D. Deficits in the activation of the stress induced upr pathway in erythroblasts from β -thalassaemia/HbE

patients. The 4th Annual Symposium of Protein Society of Thailand, Chulabhorn Research Institute Conference Center, Bangkok, Thailand, August 26-28, 2009.

38. Nuiplot N, Saengsawang P, Yenchitsomanus P, Akkarapatumwong V. Screening of protein interacting with KAE1 (Kidney isoform of anion exchanger 1) by yeast two-hybrid system. Commission on Higher Education Congress II University Staff Development Consortium, Dusit Thani Pattaya Hotel, Pattaya, Chonburi, Thailand, August 27-29, 2009.

39. Ongvarrasopone C, Homsup W, Panyim S. Identification of dicer and its involvement in RNAi in black tiger shrimp, Agricultural Biotechnology International Conference, Queen Sirikit National Convention Center, Bangkok, Thailand, September 22-25, 2009.

40. Ongvarrasopone C, Homsup W, Panyim S. Putative *Penaeus monodon* dicer and its function in RNAi pathway. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.

41. Panyasrivanit M, Khakpoor A, Wikan N, Smith DR. The Interaction between autophagy and the dengue virus. RGJ-Ph.D. Congress X, Jomtien Palm Beach Resort, Pattaya, Chonburi, Thailand, April 3-5, 2009.

42. Pathaichindachote W, Krittanai C, Audtho M, Promdonkoy B. Identification of amino acids in cyt1AA2 playing important role during membrane binding and oligomerization. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.

43. Phanaksri T, Panyim S, Tirasophon W. Expression of heterologous double stranded RNA in *Bacillus subtilis*. Commission on Higher Education Congress II University Staff Development Consortium, Dusit Thani Pattaya Hotel, Pattaya, Chonburi, Thailand, August 27-29, 2009.

44. Phanaksri T, Luxanianil L, Panyim S, Tirasophon W. Development of a novel system to produce double-stranded RNA in *Bacillus subtilis* for RNAi induction in shrimp. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.

45. Piboonpocanun S, Tipayanon T, Boonchoo S, Visitsunthorn N, Jirapongsananuruk O. Identification of novel cross-react allergens from shrimp *Penaeus monodon* and *Macrobrachium rosenbergii*. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.

46. Pojanapotha P, Powthongchin B, Angsuthanasombat C. Structural role of Ca²⁺ in *Bordetella pertussis* CyaA-RTX. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.

47. Posiri P, Ongvarrasopone C, Panyim S. Effectiveness of DSRNA on prevention of YHV infection in *Penaeus monodon*. The 2nd Biochemistry and Molecular Biology Conference, Khon Kaen University, Khon Kaen, Thailand, May 7-8, 2009.

48. Powthongchin B, Kurehong C, Angsuthanasombat C. Glu⁵⁷⁰ and Glu⁵⁸¹ of the putative transmembrane helix 3 play a crucial role in haemolytic activity of the *Bordetella pertussis* CyaA-PF

toxin. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.

49.

50. Rungrod A, Boonserm P, Audtho M, Promdonkoy B. Production and characterization of the c-terminal truncated binA from *Bacillus sphaericus*. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.

51. Singkhamanan K, Boonserm P, Promptmas C. Elucidation of the amino acid residues important for the receptor recognition and toxicity of the BinB binary toxin. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.

52. Smith DR, Panyasrivanit M, Khakpoor A, Wikan A, Suksanpaisan L, Susantad T, Upanan S, Kuadkitkan A, Cabrera-Hernandez A, Thepparit C, Ekkapongpisit M, Wannatong T. Defining interactions between dengue virus and host cells. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.

53. Sukati S, Svasti S, Fucharoen S, Katzenmeier G. Effect of calpain/calpastatin system on clinical severity of β -thalassemia/HB disease. The 2nd Biochemistry and Molecular Biology Conference, Khon Kaen University, Khon Kaen, Thailand, May 7-8, 2009.

54. Sukati S, Svasti S, Fucharoen S, Katzenmeier G. A functional role for calpain and proteolysis in the erythrocyte as modulators of disease severity in β -Thalassemia. RGJ-Ph.D. Congress X, Jomtien Palm Beach Resort, Pattaya, Chonburi, Thailand, April 3-5, 2009.

55. Sukthaworn S, Udomkit A. Cloning and expression of dopamine receptor from black tiger shrimp *Penaeus monodon*. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.

56. Suvarnapunya K, Angsuthanasombat C. Proposed sialyl lewis X binding sequence of CyaA toxin. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.

57. Taengchiyaphum S, Pungtanom N, Sritunyalucksana K, Krittanai C. Differential protein expression in specific cell type of *Penaeus monodon* hemocyte during viral infection. The 4th Annual Symposium of Protein Society of Thailand, Chulabhorn Research Institute Conference Center, Bangkok, Thailand, August 26-28, 2009.

58. Taengchiyaphum S, Pungtanom N, Sritunyalucksana K, Krittanai C. Characterization of protein expression in specific hemocyte *Penaeus monodon* upon viral infection. The 35th Congress on Science and Technology of Thailand, The Tide Resort (Bangsaen Beach), Chonburi, Thailand, October 15-17, 2009.

59. Tangsongcharoen C, Boonserm P, Promdonkoy B. Construction and characterization of truncated BinB toxin from *Bacillus sphaericus*. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.

60. Tangsongcharoen C, Boonserm Pa, Promdonkoy B. Production and characterization of truncated BinB toxin from *Bacillus sphaericus*. The 2nd Biochemistry and Molecular Biology Conference, Khon Kaen University, Khon Kaen, Thailand, May 7-8, 2009.
61. Tanyaratsrisakul S, Jirapongsananuruk O, Hales B, Thomas W, Piboonpocanun S. Allergenic cross-reactivity of house dust mite der P 2 variants: effect of amino acid polymorphisms. Commission on Higher Education Congress II University Staff Development Consortium, Dusit Thani Pattaya Hotel, Pattaya, Chonburi, Thailand, August 27-29, 2009.
62. Thamwiriyasati N, Kittiworakarn J, Katzenmeier G, Ketterman A, Angsuthanasombat C. Purified CyaC-acyltransferase cloned from *Bordetella pertussis* catalyzes the hydrolysis of synthetic substrates *in vitro*. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009
63. Tiewsir K, Fischer W, Angsuthanasombat C. Lipid-induced conformation and dynamics of Helix7 from the Pore-forming domain of the *Bacillus thuringiensis* Cry4Ba toxin: implications for the toxicity mechanism. RGJ-Ph.D. Congress X, Jomtien Palm Beach Resort, Pattaya, Chonburi, Thailand, April 3-5, 2009.
64. Treerattrakool S, Udomkit A. Expression and functional characterization of recombinant gonad-inhibiting hormone (rGIH) of *Penaeus monodon*, Agricultural Biotechnology International Conference, Queen Sirikit National Convention Center, Bangkok, Thailand, September 22-25, 2009.
65. Triwitayakorn K, Boonchanawiwat A, Sraphet S, Tangphatsornruang S, Boonseng O, Tabata S, Shirasawa K, Isobe S. Genetic linkage map construction of cassava (*Manihot esculenta* Crantz) based on SSR markers. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
66. Udomkit A. Application of RNA interference shrimp research. Agricultural Biotechnology International Conference, Queen Sirikit National Convention Center, Bangkok, Thailand, September 22-25, 2009.
67. Visitsattapongse S, Angsuthanasombat C. Charge-reversal mutagenesis of ASP⁴⁵⁴ in the β 10- β 11 loop enhanced toxicity of the *Bacillus thuringiensis* cry4BA toxin. Commission on Higher Education Congress II University Staff Development Consortium, Dusit Thani Pattaya Hotel, Pattaya, Chonburi, Thailand, August 27-29, 2009.
68. Visitsattapongse S, Kittiworakarn J, Angsuthanasombat C. Charge-reversal mutagenesis in the β 10- β 11 loop enhanced larvicidal activity of the *Bacillus thuringiensis* Cry4Ba toxin. Bacterial Protein Toxins From Basic Research to Applications, Institute of Science and Technology for Research and Development, Mahidol University, Thailand, March 23, 2009.
69. Yasri P, Ho T, Panyim S, Udomkit A. Development of dsRNA for the prevention of infectious hypodermal and hematopoietic necrosis virus (IHHNV) replication in shrimp. The Ninth TRF Junior and Senior Researchers Meeting, Holiday Inn Resort Regent Beach Cha Am, Phetchaburi, Thailand, October 15-17, 2009.
70. Preecha Kotphootorn, Sumethee Thanungkul, Sombat Thanawan, Kulnasun Saikhun, Suthee Yoksan, Somsri Daochai : A Design and Construction of Temperature control Device of Cardioplegia

Solution Set; P. 161-166. Proceeding of the 2nd Biomedical Engineering International Conference (BME icon 2009)

71. Sakuntala Kamthaworn, Sumethee Thanungkul, Jittima manomai, Sombat Thanawan, Kulnasan Saikhum, Suthee Yoksan, Somsri Daochai, Sirirat Sarit-Apirak : A Design and construction of a Pelvic Floor Muscle Strength Evaluation Device Analyzed, Displayed And Recorded by Storage Information in Laptop. Proceeding of the 2nd Biomedical Engineering International Conference (BME icon 2009) p.222-225.
72. Kajornpredanon Y. Daochai S, Apaiwong C. Rattanakajornsak R, Performance Test of The Prototype Defibrillator Anglyzer: Proceeding of the 2nd Biomedical Engineering International Conference (BME icon 2009) p.175-182.
73. Kajornpredanon Y. Daochai S, Apaiwong C. Rattanakajornsak R. Quality Assessments of the Infusion Pump Servicing Aspects. Proceeding of the 2nd Biomedical Engineering International Conference (BME icon 2009) p.231-225.
74. Chanchai Songthavessin, Naiphinich Kotchabhakdi. The neural stem cell of the hippocampus in postnatal rats. The 4th World Congress on Regenerative Medicine, Central World Bangkok, 12-14 March, 2009
75. Sotthipundhu A, Fox B, Underwood CM, Thangnipon W. Coulson EJ. Roles of p75 neurotrophin receptro in the Ab(1-42)- mediated neuronal death and neurogenesis. The 4th World Congress on Regenerative Medicine, Central World Bangkok, 12-14 March, 2009
76. Sotthipundhu A, Li QX, Thangnipon W, Coulson EJ. Amyloid-b peptide stimulates adult SVZ neurogenesis through the p75 neurotrophin receptor. The 4th World Congress on Regenerative Medicine, Central World Bangkok, 12-14 March, 2009
77. Naiphinich Kotchabhakdi, Chanchai Songthavessin, Warin Krityakiarana. Neural Stem Cells for the Treatment of Neurological Diseases. The 4th World Congress on Regenerative Medicine, Central World Bangkok, 12-14 March, 2009
78. Naiphinich Kotchabhakdi. Sleep Disordered Breathing in Thailand : 2009 Update. 9th World Congress on Sleep Apnea (WCSA 2009 Seoul), Seoul, Korea, 25-28 March 2009
79. Yoksan S. Live attenuated Tetravalent dengue vaccine programme at Mahidol University, Thailand. 8th Asia Pacific Congress of Medical Virology, Viral Disease: New Challenges-New Solutions, Hong Kong, China, 26-28 February 2009
80. Sotthibundhu A, Phansuwan-Pujito P, Govitrapong P. Melatonin increases the proliferation of neural stem cells in adult mouse subentricular zone. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
81. Boontem P, Phansuwan-Pujito P, Ueda K, Govitrapong P. Immunocytochemical study of methamphetamine induced alpha-synuclein in SK-N-SK cells. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
82. Mukda S, Govitrapong P. Melatonin attenuates amphetamine-induced decrease in vesicular momoamine transporter-2in postnatal rat striatum. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
83. Sae-ung K, Govitrapong P, Ueda K, Phansuwan-Pujito P. Immunohistochemical study on alpha-synuclein expression within nigrostriatal pathway in amphetamine-treated postnatal rats. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009

84. Tongjaroenbuangam W, Tuayjun A, Inpao D, Mungkung R, Govitrapong P. Okra (*Abelmoschus esculentus* Linn), uqercetin and rutin attenuate dex-induced increase in hippocampal NMDA receptor in mice. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
85. Thangnipon W, Buntup D, Chayasadam A, Surarit R, Jutapakdeegul N. Effects of amyloid-beta peptide on glutamine transporter mRNA expression and cell viability in cultured rat cortical cells. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
86. Ruksee N, Ruksee N, Govitrapong P. Amphetamine administration alters levels of BDNF in neonatal rat hippocampal region. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
87. Chetsawang J, Govitrapong P, Chetsawang B. Contribution of ras signaling in hydrogen peroxide-induced toxicity in human neuroblastoma SH-Sy5Y cultured cells. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
88. Thichanpiang P, Khanobdee K, Kitiyanant Y, Wongprasert K. Green tea polyphenol(-)-epigallocatechin-3-gallate (EGCG) protects against hydrogen peroxide-induced nuclear translocation of P53. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
89. Wisessmith W, Phansuwan-Pujito P, Govitrapong P, Chetsawang B. Melatonin abolishes cell death signaling cascade in methamphetamine-treated SH-Sy5Y cultured cells. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
90. Permpoonputtana, K, Govitrapong P, and Porter J.E. Calcitonin gene-related peptide mediates inflammation in a schwann cells line via the ERK signal cascade. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
91. Wongchitrat P, Govitrapong P, Phansuwan-Pujito P. Effect of amphetamine on Circadian clock gene expression in the rat pineal gland. The 22nd Biennial Meeting of the ISN/APSN, Busan, South Korea, 23-28 August 2009
92. Kotchabhakdi N, Tipyasang R, Khunwittaya S, Kotchabhakdi N.J. Enriched environment and physical activity reduce the effects of prenatal exposure to alcohol. Society for Neuroscience (SFN) 2009 (Neuroscience 2009), Chicago, USA, 17-21 October 2009
93. Govitrapong P, Mukda S, Kaewsuk S, Sae-Ung K, Chetsawang B, Phansuwan-Pujito P. Methamphetamine induced neurotoxicity in dopaminergic system of the neonatal rat brain. Society for Neuroscience (SFN) 2009 (Neuroscience 2009), Chicago, USA, 17-21 October 2009
94. Wongchitrat P, Simonneaux V, Govitrapong P, Phansuwan-Pujito P. An autonomous oscillation of clock genes in the rat pineal explants culture. Society for Neuroscience (SFN) 2009 (Neuroscience 2009), Chicago, USA, 17-21 October 2009
95. Fucharoen S. Hemoglobinopathies in Southeast Asia. XXII International Symposium on Technical Innovations in Laboratory Hematology, Las Vegas, USA, 11-14 May 2009
96. Lertkiatmongkol P, Pethuan S, Jirakanjanakit N, Rongnoparut R. Analysis of Candidate Genes Differentially Expressed in Parental and Deltamethrin-selected *Aedes aegypti* (L.). The 2nd Biochemistry and Molecular Biology for Regional Sustainable Development, Khon Kaen University, 7-8 May 2009
97. Kitiyanant N, McMillan E, Kitiyanant Y, Svendsen C, Thangnipon W. Genetically modified human neural stem cells for Alzheimer's disease. Commission of Higher Education Congress II,

University Staff Development Consortium (CHE-USDC Congress II), Dusit Thani Pattaya Hotel,
Chonburi, 27-29 August 2009

Education



Graduate Programmes

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1. Ph.D. and M.Sc. Courses in Molecular Genetics and Genetic Engineering

Required Courses

MBMG501 GENETIC ENGINEERING	3(3-0-6)
MBMG502 MOLECULAR GENETICS	3(3-0-6)
MBMG511 TECHNIQUES IN MOL GENET AND GENET ENG	3(0-9)
MBMG521 SEMINAR I	1(1-0)
MBMG522 SEMINAR II	1(1-0)
MBMG691 SEMINAR III	1(1-0)
MBMG692 SEMINAR IV	1(1-0)

Elective Courses

GRID612 CELL AND MOLECULAR BIOLOGY	3(3-0-6)
MBMG601 CURRENT TOPICS IN MOLECULAR BIOLOGY	2(2-0-4)
MBMG602 COMPUT APPLICATIONS IN MOLECULAR BIOLOGY	2(1-3)
MBMG603 INSTRUMENTATION IN MOLECULAR BIOLOGY	2(2-0)
MBMG604 MOLECULAR GENETIC TECHNIQUES FOR BIODIVERSITY	3(2-3)

Thesis

MBMG698 RESEARCH M.SC. THESIS	12(0-48)
MBMG699 RESEARCH PH.D. THESIS	36/48(0-144/192)

2. Ph.D. and M.Sc. Courses in Neurosciences

Required Courses

STNB600 INTRODUCTION TO NEURO AND BEHAVIOURAL SCIENCES	2(2-0)
STNB601 NEUROBIOLOGY	3(2-2)
STNB602 CELLULAR AND MOLECULAR NEUROBIOLOGY	3(3-0)
STNB603 ADVANCED AND CONTEMPORARY NEUROBIOLOGY	3(2-2)
STNB604 DEVELOPMENTAL NEUROBIOLOGY	3(2-2)
STNB606 NEUROCHEMISTRY	3(2-2)
STNB607 NEURO-, PSYCHO-AND BEHAVIOURAL PHARMACOLOGY	3(2-2)
STNB608 NEUROENDOCRINOLOGY	3(2-2)
STNB660 NEUROPATHOLOGY	3(3-0)
STNB663 INTEGRATED CLINICAL NEUROPSYCHIATRY	3(3-0)
STNB690 SEMINAR IN NEUROSCIENCES	2(2-0)

Elective Courses

<u>GRID612</u> Cell and Molecular Biology	3(3-0-6)
<u>STNB603</u> ADVANCED AND CONTEMPORARY NEUROBIOLOGY	3(2-2)
<u>STNB605</u> BIOPHYSICS OF NEURONAL MEMBRANES AND SYNAPSES	3(2-2)
<u>STNB608</u> NEUROENDOCRINOLOGY	3(2-2)
<u>STNB609</u> SENSORY PROCESSES AND PERCEPTION	3(2-2)
<u>STNB610</u> NEURAL CONTROLS OF MOVEMENTS	3(2-2)
<u>STNB611</u> CYBERNETICS	3(3-0)
<u>STNB612</u> COMPARATIVE NEUROBIOLOGY	3(2-2)
<u>STNB653</u> RESEARCH METHODS IN NEUROANATOMY	2(1-2)
<u>STNB654</u> RESEARCH METHODS IN NEUROPHYSIOLOGY	2(1-2)
<u>STNB655</u> RESEARCH METHODS IN NEUROCHEMISTRY	2(1-2)
<u>STNB656</u> RESEARCH METHODS IN NEURO-, PSYCHO-, AND BEHAVIOURAL PHARMACOLOGY	2(1-2)
<u>STNB657</u> COMPUTER TECHNOLOGY IN NEUROSCIENCES	3(2-2)
<u>STNB658</u> ADVANCED INSTRUMENTATION IN NEUROSCIENCES	3(2-2)
<u>STNB659</u> SELECTED TOPICS IN CONTEMPORARY NEUROSCIENCES	3(3-0)
<u>STNB660</u> NEUROPATHOLOGY	3(3-0)
<u>STNB661</u> EXPERIMENTAL NEUROLOGY	3(2-2)
<u>STNB662</u> EXPERIMENTAL NEUROSURGERY	3(2-2)
<u>STNB663</u> INTEGRATED CLINICAL NEUROPSYCHIATRY	3(3-0)
Thesis	
<u>STNB698</u> RESEARCH M.SC. THESIS	12(0-48)
<u>STNB699</u> RESEARCH PH.D. THESIS	36/48(0-144/192)

3. M.Sc. Courses in Biomedical Instrumentation

Required Courses

<u>STBM601</u> PHYSIOLOGY	3(2-3)
<u>STBM613</u> BASIC ELECTRONICS	3(2-3)
<u>STBM602</u> MEDICAL ELECTRONICS	3(2-3)
<u>STBM606</u> SEMINAR I	1(1-0)
<u>STBM607</u> SEMINAR II	1(1-0)
<u>STBM611</u> COMPUTER IN MEDICINE	3(2-3)
<u>STBM614</u> BIOMEDICAL INSTRUMENT MANAGEMENT	2(2-0)
<u>STBM615</u> SIGNAL PROCESSING IN MEDICINE	3(2-2)
<u>STBM619</u> MEDICAL INSTRUMENT	3(2-3)
<u>STBM620</u> SPECIALIZED MEDICAL INSTRUMENT	3(2-3)
<u>STBM622</u> INSTRUMENTAL CALIBRATION	2(2-0)

Elective Courses

<u>STBM605</u> INSTRUMENT DESIGN	2(2-0)
<u>STBM610</u> ARTIFICIAL ORGAN	2(2-0)
<u>STBM616</u> BIOPOLYMERS AND APPLICATIONS	2(2-0)
<u>STBM617</u> ADVANCE SIGNAL PROCESSING	2(2-0)
<u>STBM618</u> MEDICAL IMAGE PROCESSING	2(2-0)
<u>STBM621</u> BIOMATERIAL	2(2-0)

Thesis

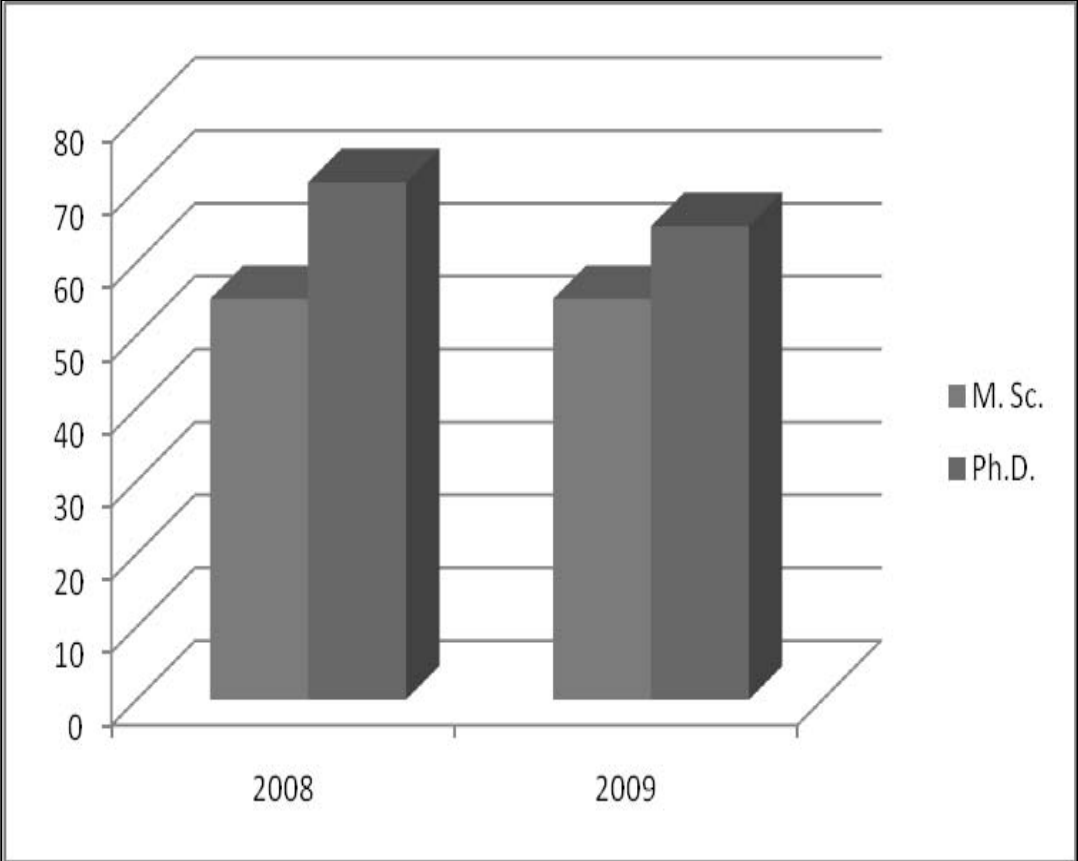
<u>STBM698</u> RESEARCH M.SC. THESIS	12(0-48)
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Student Enrollment and Graduates

Numbers of student enrollment and graduates in academic year of 2008-2009

Programme	Accumulated students in 2008	Graduated in 2008	Accumulated students in 2009	Graduated in 2009
M.Sc. (Mol. Genet. & Genet. Eng.)	43	15	33	4
Ph.D. (Mol. Genet. & Genet. Eng.)	37	4	33	4
M.Sc. (Neurosciences)	14	4	12	1
Ph.D. (Neurosciences)	18	3	22	7
M.Sc. (Biomedical Instrumentation)	14	1	20	2
Total	126	26	120	18

Number of graduate students enrolled in 2008-2009



Scholarship and Financial Support for Graduate Students

Source of Funding	Number of M.Sc. Students funded		Number of Ph.D. Students funded	
	2008	2009	2008	2009
1. The Development and Promotion of Science and Technology Talents Project (DPST)	4	2	3	4
2. The National Center for Genetic Engineering and Biotechnology (BIOTEC)	1	2	-	-
3. Thailand Graduate Institute of Science and Technology: TGIST	2	3	2	2
4. The Thailand Research Fund-Royal Golden Jubilee Scholarship (RGJ)	-	-	21	19
5. The Commission on Higher Education Staff Development Scholarships (CHE)	-	-	11	12
6. Ph.D.-M.D.Scholarship				
7. Research Assistantships, Graduate Studies, Mahidol University	-	-	3	2
8. IMBG Scholarship	-	-	-	-
9. Research Assistant Scholarship, Graduate Studies, Mahidol University	6	4	-	-
10. Partial Thesis Scholarships, Graduate Studies, Mahidol University	1	2	-	-
11. The 60 th Year Supreme Reign of His Majesty King Bhumibol Adulyadej	3	1	1	-
	3	2	-	1
Total	20	16	41	40



Awards

Outstanding Staff

**2008 Royal Dusdhi Mala Medal Awards
For outstanding achievements in Sciences**



Professor Emeritus Sakol Panyim and Professor Suthat Fucharoen

**2009 APSMV Excellence Award
8th Congress Asia-Pacific Society of Medical Virology, China**



Associate Professor Sutee Yoksan

NRCT Outstanding Researcher Award



Professor Suthat Fucharoen

MU Faculty Senate's Outstanding Lecturer Award 2009



Associate Professor Apinunt Udomkit

Outstanding Alumni of MU Graduate Studies Award 2008



Professor Piyarat Govitrapong

Student Awards

Name	Award	Organization
Ms. Benjamaporn Wonganu	Distinguished Thesis Award 2008	Faculty of Graduate Studies
Ms. Sirirat Klongpanichapak	Distinguished Thesis Award 2008	Faculty of Graduate Studies
Mr.Nopporn Jongkamolwivat	Distinguished Thesis Award 2008	Faculty of Graduate Studies
Ms.Wilaiwan Wisessamith	Thesis Publication Awards 2008	Faculty of Graduate Studies
Ms. Thitima Keskanokwong	Thesis Publication Awards 2008	Faculty of Graduate Studies
Ms. Areechun Sotthibundhu	Thesis Publication Awards 2008	Faculty of Graduate Studies
Ms. Phattara-orn Chongsatja	Thesis Publication Awards 2008	Faculty of Graduate Studies
Ms. Thitima Keskanokwong	Dean's List Award	Faculty of Graduate Studies
Ms. Thanatsorn Susantad	Dean's List Award	Faculty of Graduate Studies
Mr. Ponsit Sathaporndecha	Oral Presentation Award	Graduate Conference X
Mr. Anusorn Fugthong	Oral Presentation Award	Graduate Conference XI
Ms. Mingkwan Panyasrivanit	Poster Presentation Award	RGJ Congress X
Ms. Kasorn Tiewisiri	Poster Presentation Award	RGJ Congress X
Mr. Atichart Kuadkitkan	Oral Presentation Award	RGJ Congress X
Mr. Teva Phanaksri	Oral Presentation Award	CHE Conference II
Ms. Benyapat Puripunpinya	Oral Presentation Award	Thai Society for Biotechnology
Ms. Chonticha Saisawang	Poster Presentation Award	Protein Society of Thailand
Mr. Tawin Iempridee	Taguchi's Distinguished Thesis Award	Taguchi Ajinomoto Foundation
Mr. Suriyan Sukati	Poster Presentation Award	The 2 nd Biochemistry and Molecular Biology Conference

Academic Services



Researcher Training

Organization	MB Staff	Period	No.
Bureau of Biotechnology in Livestock Production, Dept. of Livestock	Assoc. Prof. Varaporn Akkarapatumwong	Jan 09 - Jun 09	2
Niigata University	Assoc. Prof. Chanan Angsuthanasombat	May 09 - Nov 09	1
Dept. Biochemistry, Faculty of Science, Chulalongkorn University	Assoc. Prof. Apinunt Udomkit	Apr 09 - May 09	1
Dept. of Botany, Faculty of Science, Chulalongkorn University	Assoc. Prof. Varaporn Akkarapatumwong	Mar 09 - Apr 09	2
	Assoc. Prof. Wipa Chungjatupornchai		1
	Asst. Prof. Surapon Piboonpocanun		2
	Asst. Prof. Kanokporn Triwitayakorn		2
	Asst. Prof. Kusol Pootanakit		2
	Asst. Prof. Panadda Boonserm		1
Dr. Yunkiam Yap	2		
Faculty of Science, Burapha University	Assoc. Prof. Chartchai Krittanaï	Mar 09 - May 09	2
Faculty of Science, Srinakarinwirote University	Asst. Prof. Chalernporn Ongvarrasopone	Mar 09 - May 09	1
Dept. of Biotechnolgy, Faculty of Science, King Mongkut University of Technology, Ladkrakung	Asst. Prof. Kanokporn Triwitayakorn	Mar 09 - Apr 09	1
Dept. of Biotechnolgy, Faculty of Science, King Mongkut University of Technology, North Bangkok	Asst. Prof. Kusol Pootanakit	Mar 09 - May 09	4
	Asst. Prof. Panadda Boonserm		
Mahidol Wittayanusorn School	Asst. Prof. Panadda Boonserm	Oct 08 - Feb 09	7

Organization	MB Staff	Period	No.
Dept. of Biology (Genetics), Faculty of Science, Mahasarakham University	Dr. Yunkiam Yap	Apr 08 - May 08	4
Dept. of General Science, Faculty of Science, Prince of Songkha University	Asst. Prof. Kusol Pootanakit Asst. Prof. Surapon Piboonpocanun	Mar 08 - May 08	2 1
Dept. of Biology, Faculty of Science, Chulalongkorn University	Assoc. Prof. Apinunt Udomkit	Mar 08- Apr 08	2
Dept. Biological Science, International College, Mahidol University	Asst. Prof. Panadda Boonserm	Apr 07- Apr 08	1
Dept. of Botany, Faculty of Science, Chulalongkorn University	Asst. Prof. Surapon Piboonpocanun Assoc. Prof. Wipa Chungjatupornchai Asst. Prof. Kusol Pootanakit	Mar 08 - Apr 08	2 1 1
Faculty of Science, Srinakarinwirote University	Dr. Pongsoppee Attasart	Mar 08 - Apr 08	2
Allergy and Immunology Unit, Dept of Pediatrics, Faculty of Medicine, Siriraj Hospital, Mahidol University	Asst. Prof. Surapon Piboonpocanun	Jun 07 - Mar 08	1
Faculty of Medical Technology, Mahidol University	Assoc. Prof. Chanan Angsuthanasombat Assoc. Prof. Apinunt Udomkit	July 09 - Aug 09	1 2
National Center For Genetic Engineering and Biotechnology (BIOTEC)	Asst. Prof. Kanokporn Triwitayakorn	Feb 07 - Feb 08	1
		Total	52

Workshop and Conferences

Workshop	Period	No. of Participant
Development of RNAi Technology for Viral Disease Protection in Shrimp	27-30 April 2009	90
Bacterial Toxin: From Basic Research to Applications	March 23, 2009	80
Assisted Technologies on Embryo Production	February 23-27, 2009	50
The 17 th Medical Instrumentation for ICU Nurses	May 20 - 30, 2008	165
The 21 st Biomedical Engineering Conference	July 31 - August 1, 2008	288
The 18 th Medical Instrumentation for ICU Nurses	October 6 - 17, 2008	168
Intensive Medical Instrument Course for Technician	February 16 - 27, 2009	93
Ventilators: Intensive Course for Technician	March 23 - April 3, 2009	71
The 19 th Medical Instrumentation for ICU Nurses	May 18 - 29, 2009	170
	Total	1,175



Activity



Mahidol Day
24 September 2009



Performance Agreement
Signing with MU President
23 July 2009



MOU Signing Ceremony with
Science, Rajabhat University
Bansomdejchaopraya
17 September 2009



Research Visit by Cerebos Faculty of
23 September 2009



MOU Signing Ceremony with Da An Gene
Co. Ltd. of Sun Yut-Sen University
17 September 2009



NSDTA Visit at Thalassemia
Research Center
17 July 2009



Research Conference on "Bacterial Toxin: Basic Research to Applications"
23 March 2009



Molecular Biology Workshop for From Satrinonthaburi School
22 June 2009



Research Conference and Workshop on of RNAi Technology Workshop for ICU Nurses for Viral Disease Protection in Shrimp"
27-30 April 2009



Medical Instrumentation "Development"
18-29 May 2009



Workshop on Assisted Technologies for Embryo Production
23 March - 3 April 2009



Intensive Medical Instrument Course for Technician
23-27 February 2009



Retirement Ceremony
25 Sept 2009



Graduate Student's Annual
Retreat and Seminar
17 July 2009



Graduate Student's Wai Kru
16 July 2009



Songkran Festival
April 2009



Christmas & New Year Party 2009



Khao Pansa Buddhist Lent
Ceremony, 3 July 2009



Commencement Ceremony & Graduation Party
3 July 2009



Administrative Staff Annual
Retreat & Seminar at Nakhon Nayok
25 July 2009

Academic and Research Seminar
"MB Structure and Direction"
10 June 2009



International Collaboration

International Collaboration

The Institute of Molecular Biosciences has established collaboration and networks with a number of universities and institutions in several countries. This international collaboration promotes research cooperation in numerous areas and provides opportunities for faculty and student exchanges.

Collaborative Institutes in Asia

- Nanyang Technological University, Singapore
- National University of Singapore, Singapore
- Division of Medical Technology, Department of Health Sciences, Graduate School of Medical Sciences, Kyushu University
- Laboratory of Molecular Medicine, Institute of Medical Science, The University of Tokyo, Japan
- Department of Neurology and Psychiatry, Faculty of Medicine, Seoul National University, Korea
- Departments of Anatomy, Physiology and Neuroscience, All India Institutes of Medical Sciences, New Delhi, India
- WHO/SEARO Regional Office for South-East Asia, World Health House New Delhi, India
- Institute Pasteur in Cambodia Phnom Penh, Cambodia
- Hospital for Tropical Diseases (Cho Quan Hospital), Ho Chi Minh City, Vietnam

Collaborative Institutes in Australia and New Zealand

- Australian National University, Australia
- University of Western Australia, Australia
- **Cell and Gene Therapy Group, Murdoch Children's Research Institute**, Monash University, Australia
- Queensland Institute of Brain Research, University of Queensland, Australia
- Neuroscience Research Program, Department of Human Physiology, Flinders University, Adelaide, Australia
- Department of Psychological Medicine, Faculty of Medical and Health Sciences, University of Auckland, New Zealand

Collaborative Institutes in Europe

- Weatherall Institute of Molecular Medicine, John Radcliffe Hospital, Oxford University, UK
- University of Cambridge, UK
- University of Nottingham, UK
- College de France, and CNRS, Paris, France

- University of Pasteur at Strasbourg and Lyon, France
- Institute of Medical Anatomy, Panum Institute, University of Copenhagen, Denmark
- Center of Excellence for Molecular Biology and Neuroscience, and the Department of Basic Medical Science, School of Medicine, University of Oslo, Norway
- HARLOS, University of Bergen, Norway
- Department of Neuroscience and Center for Stem Cell Research, Karolinska Institute, Stockholm, Sweden
- WHO/TDR World Health Organization, Geneva, Switzerland

Collaborative Institutes in the United States of America

- Yale University, Connecticut
- Brown University, Rhode Island
- University of Michigan, Michigan
- Lineberger Comprehensive Cancer Center, University of North Carolina, North Carolina
- National Institute of Diabetes, Digestive and Kidney Disease, National Institutes of Health, University of California, California
- University of California at Irvine, California
- University of Miami, Centers for Diseases Control, Florida
- Neuroscience Program, Beckmann Institute, University of Illinois, Urbana-Champaign, Illinois
- University of North Dakota School of Medicine and Health Sciences, North Dakota
- Albert Einstein College of Medicine, Yeshiva University, New York
- Department of Physiology and Bio-physics, Georgetown School of Medicine, Washington D.C
- UCLA Neuroscience Research Institute, University of California at Los Angeles, Los Angeles, California
- Institute of Imaging Science, Vanderbilt University, Nashville, Tennessee
- Behavioral Medicine Research Center, Division of Health Psychology, Department of Psychology, University of Miami, Miami, Florida
- Positron Emission Tomography (PET) Center, Departments of Pediatrics, Neurology, and Radiology, Wayne State University, Detroit, Michigan USA



Researcher Profiles

Associate Professor Albert J. Ketterman

Ph.D. (Biochemistry), University of Queensland, Australia, 1989

Email: frakt@mahidol.ac.th; albertketterman@yahoo.com

Research Interests: Molecular Enzymology and Cell Biology



Glutathione transferases (GSTs) are ubiquitous proteins being observed in every organism studied to date. GSTs are also very polymorphic with at least six different classes of the enzyme found in any metazoan organism suggesting various biological roles for the different isoforms. In mammals, several classes of GSTs have been shown to regulate different signaling pathways. These signaling pathways have been shown to be involved in several disease types including cancer, cardiovascular, diabetes, inflammation, obesity, virology and autoimmunity. One signaling pathway, MAP kinase pathway, is known to be involved with cell growth, differentiation, development and stress response including apoptosis. As a model system, we are investigating the *Drosophila* GSTs for physiological functions and their interactions with other cellular proteins such as MAP kinases. The use of the *drosophila* embryonic system as a paradigm is to limit the tissue/cell type variation known to occur in mammalian systems so that we can elucidate general concepts applicable across eukaryotic systems. In the *Drosophila* SL2 cell line, we have observed the expression of 40 different GST isoforms from 6 different classes. Our current results suggest that the GSTs have significant interactions with protein kinases and the different GST isoforms appear to possess different regulatory mechanisms in the stress response pathway. These cellular processes not only are important for normal cell function but also are invariably involved in the changed conditions that occur in disease states. Thus, the understanding of the role of GSTs in these processes may provide important clues to help control the disease response.

Current Research staff and graduate students:

1. Dr. Jantana Wongsantichon (Post-doctoral fellow)
2. Ms Chonticha Saisawang (Ph.D. student)
3. Mr. Htut Htut Htoo (MSc. student)
4. Ms Suthathip Maknoi (Research Assistant)

Selected Publications:

1. Wongtrakul, J., Wongsantichon, J., Vararattanavech, A., Leelapat, P., Prapanthadara, L. and Ketterman, A.J. (2009) Molecular cloning and expression of several new *Anopheles cracens* Epsilon class glutathione transferases. *Protein and Peptide Lett.* 16, 75-81.
2. Lerksuthirat, T. and Ketterman, A.J. (2008) Characterization of putative hydrophobic substrate binding site residues of a Delta class glutathione transferase from *Anopheles dirus*. *Arch. Biochem. Biophys.* 479, 97-103.
3. Vararattanavech, A. and Ketterman, A.J. (2007) A functionally conserved basic residue in glutathione transferases interacts with the glycine moiety of glutathione and is pivotal for enzyme catalysis. *Biochem. J.* 406, 247-256.
4. Winayanuwattikun, P. and Ketterman, A.J. (2007) Glutamate 64, a newly identified residue of the functionally conserved electron-sharing network contributes to catalysis and structural integrity of glutathione transferases. *Biochem. J.* 402, 339-348.

Associate Professor Apinunt Udomkit

Ph.D. (Molecular Biology), University of Edinburgh, UK. 1996

Email: staud@mahidol.ac.th

Research Interest: Shrimp Molecular Biology



Our research has been focusing on peptide hormones that regulate growth and reproduction in the black tiger shrimp (*Penaeus monodon*). One of the hormones of our current interest is gonad-inhibiting hormone (GIH) that controls ovarian maturation in female broodstock. GIH is synthesized in the optic ganglia of the eyestalk. Nowadays, ovarian maturation in female *P. monodon* is induced by eyestalk ablation. However, this technique also affects several hormones of significant physiological functions, and thus causes deteriorated effect to the shrimp. Recently, a cDNA encoding putative GIH has been cloned and characterized in our laboratory. We are investigating the function of this cDNA in female reproduction by using a new technology called RNA interference or RNAi. This technology utilizes double-stranded RNA (dsRNA) to cleave cognate mRNA target. GIH-specific dsRNA has been synthesized and introduced into shrimp in order to trigger silencing of GIH expression. Our result showed that shrimps in which GIH has been knocked down by dsRNA has increased level of vitellogenin expression. Vitellogenin is a precursor of yolk protein and is required for ovarian maturation. Accordingly, the use of GIH-dsRNA has potential to be developed as a powerful alternative to induce ovarian maturation in female *P. monodon* broodstock instead of eyestalk ablation. We are currently exploring the effect of GIH silencing by dsRNA on ovarian maturation in female broodstock. Another aspect of research in our laboratory is to investigate the role of Argonaute protein in RNAi pathway in *P. monodon*. Argonaute is known as a protein that contributes mRNA cleavage activity for RNAi. Recombinant Argonaute protein is presently expressed in bacterial expression system. Functional characterization of this protein will be performed in order to examine its role in dsRNA-mediated gene silencing by RNAi pathway in shrimp.

Current Research staff and graduate students:

1. Ms. Kitiya Rujimongkon (M.Sc. student)
2. Ms. Suchitraporn Sukthaworn (M.Sc. student)
3. Mr. Sithichai Urtgam (Ph.D. student)
4. Ms. Wantana Leebonoi (Ph.D. student)
5. Mr. Ponsit Sathapondecha (Research assistant)

Selected Publications:

1. Treerattrakool, S., Panyim, S., Chan, S-M., Withyachumnarnkul, B. and Udomkit, A. (2008) Molecular characterization of gonad-inhibiting hormone of *Penaeus monodon* and elucidation of its inhibitory role in vitellogenin expression by RNA interference. *FEBS J.* 275(5), 970-980.
2. Dechklar, M., Udomkit, A. and Panyim, S. (2008) Characterization of Argonaute cDNA from *Penaeus monodon* and implication of its role in RNA interference. *Biochem. Biophys. Res. Commun.* 367, 768-774.
3. Tassanakajon, A., Klinbunga, S., Paunglarp, N., Rimphanitchayakit, V., Udomkit, A., Jitrapakdee, S., Sritunyalucksana, K., Phongdara, A., Pongsomboon, S., Supungul, P., Tang, S., Kuphanamart, K., Pichyangkura, R. and Lursinsap, C. (2006) *Penaeus*

Associate Professor Banthit Chetsawang

Ph.D. (Neurosciences), Mahidol University, 1998

Email: grbcs@mahidol.ac.th

Research Interests: NeuroBehavioural Biology Center



The main area of my research interests is focusing on neurodegeneration, neuroprotection and neurorestoration especially the death and survival signaling in neuronal cell and the protective roles of melatonin on the neurodegeneration.

Current Research staff and graduate students:

1. Ms Wilaiwan Wissesmith (Ph.D. student)
2. Ms Wilasinee Suwanjang (Ph.D. student)
3. Ms Arisa Parameeyong (Ph.D. student)
4. Ms. Duangthip Chatchaisak (Ph.D. student)
5. Ms. Nipawan Pirompul (M.Sc. student)

Selected Publications:

1. Wisessmith, W., Phansuwan-Pujito, P., Govitrapong, P. and Chetsawang, B. (2009) Melatonin reduces induction of Bax, caspase and cell death in methamphetamine-treated human neuroblastoma SH-SY5Y cells. *J Pineal Res.* 46, 433-440.
2. Chetsawang, B., Chetsawang, J. and Govitrapong, P. (2009) Protection against cell death and sustained tyrosine hydroxylase phosphorylation in hydrogen peroxide- and MPP⁺-treated human neuroblastoma cells with melatonin. *J. Pineal Res.* 46, 36-42.
3. Chetsawang, B., Kooncumchoo, P., Govitrapong, P. and Ebadi, M. (2008) 1-methyl-4-phenylpyridinium ion-induced oxidative stress, c-Jun phosphorylation and DNA fragmentation factor-45 cleavage in SK-N-SH cells are averted by selegiline. *Neurochem Int.* 53, 283-288.
4. Chetsawang, J., Govitrapong, P. and Chetsawang, B. (2007) Melatonin inhibits MPP⁺-induced caspase-mediated death pathway and DNA fragmentation factor-45 cleavage in SK-N-SH cultured cells. *J. Pineal Res.* 43, 115-120.
5. Chucharoen, P., Chetsawang, B., Putthaprasart, C., Srikiatkachorn, A. and Govitrapong, P. (2007) The presence of melatonin receptors and inhibitory effect of melatonin on hydrogen peroxide-induced endothelial nitric oxide synthase expression in bovine cerebral blood vessels. *J. Pineal Res.* 43, 35-41.
6. Chetsawang, B., Putthaprasart, C., Phansuwan-Pujito, P. and Govitrapong, P. (2006) Melatonin protects against hydrogen peroxide-induced cell death signaling in SH-SY5Y cultured cells: involvement of nuclear factor kappa B, Bax and Bcl-2. *J. Pineal Res.* 41, 116-123.
7. Phansuwan-Pujito, P., Boontem, P., Chetsawang, B. and Ebadi M. (2006) Govitrapong P. Dopamine transporter immunoreactive terminals in the bovine pineal gland. *Neurosci. Lett.* 403, 78-83.
8. Chetsawang, B. and Govitrapong, P. (2005) Stimulatory effect of morphine on rat pineal melatonin synthesis via a cyclic AMP-dependent transcription pathway. *Neurosci. Lett.* 389, 57-60.

Assistant Professor Chalernporn Ongvarrasopone

Ph.D. (Physiology), University of Illinois, USA. 1999

Email: mbcov@mahidol.ac.th

Research Interest: Shrimp Molecular Biology



Black tiger shrimp culture in Thailand and worldwide have encountered with several problems such as diseases and growth. To date, there is no effective treatment to prevent or cure viral infection in shrimp. Therefore, our research goal is to use RNA interference technology that targeting both viral genes and an endogenous gene to combat viral diseases. In addition, we are also interested in understanding the RNAi machineries in shrimp by identification of the Dicer and the proteins involved in RNAi pathway.

Research staff and graduate students:

1. Dr. Somjai Apisawetakan (Post-doctoral fellow)
2. Mr. Amnat Phetrungnapha (Ph. D. student)
3. Mr. Ekapol Chomchay (M. Sc. student)
4. Ms. Kwanruean Benjawan (M. Sc. student)
5. Mr. Pipop Jie (M. Sc. student)
6. Ms. Pratsaneeyaporn Posiri (Research assistant)
7. Ms. Jiraporn Rengkhuankhwai (Research assistant)

Selected Publications:

1. Ongvarrasopone C, Chanasakulniyom, M, Sritunyalucksana, K, and Panyim, S. (2008) Suppression of PmRab7 by dsRNA inhibits WSSV or YHV infection in shrimp. *Mar Biotechnol* (NY). 2008 Jul-Aug;10(4):374-81.
2. Ongvarrasopone, C., Roshorm, Y., and Panyim, S. (2007) A simple and cost effective method to generate dsRNA for RNAi study in invertebrates. *ScienceAsia* 33(1):35-39.
3. Ongvarrasopone C, Roshorm Y, Somyong S, Pothiratana C, Petchdee S, Tangkhabuanbutra J, Sophasan, S. and Panyim, S. Molecular cloning and functional expression of the *Penaeus monodon* 5-HT receptor. (2006) *Biochim Biophys Acta*. 1759(7):328-39.
4. Eklund, L., Puihola, J., Komulainen, J., Ongvarrasopone, C., Fassler, R, Muona, A., Ilves, M., Ruskoaho, H., Takala, T., and Pihlajaniemi, T. (2001) Lack of type XV collagen causes a skeletal myopathy and cardiovascular defects in mice. *Proc. Natl. Acad. Sci., USA*. 98(3): 1194-1199.
5. Chentanez, T., Ongvarrasopone, C., Sruthaboon, V., Kaimuk, P., and Glinsukon, T. Distance, time, and average velocity of horizontal jumping performance in various directions of sedentary subjects and athletes. (2000) *Bull. Health Sci & tech*. 3(1), 23-36.
6. Ongvarrasopone, C. and Kennedy, J. M. (1998) Developmentally regulated expression of cytochrome c oxidase isoforms in regenerating rat skeletal muscles. *J. Appl. Physiol*. 85 (1): 246-253.

Associate Professor Chanan Angsuthanasombat

Ph.D. (Biochemistry), University of Cambridge, UK.

Email: stcas@mahidol.ac.th

Research Interest: Bacterial Protein Toxins



The conserved Asn¹⁸³ in $\alpha 5$ was found to be important for the function of the *Bacillus thuringiensis* Cry4Ba toxin, essentially involved in toxin oligomerisation. Purified Cry4Ba $\alpha 4$ - $\alpha 5$ hairpins were shown to be highly capable of inducing liposome permeability, constituting the region responsible for pore formation within the toxin molecule. We have identified functional elements by demonstrating that two highly conserved aromatic residues, Tyr²⁴⁹ and Phe²⁶⁴, which are oriented on the same side of $\alpha 7$, play an important role in larvicidal activity of this mosquito-active toxin. We have also demonstrated that the 21-kDa Cry4Ba-domain III, which can be isolated as a native folded monomer, conceivably participates in toxin-receptor recognition. We have additionally shown that the 43-kDa Cry4Ba fragment comprising domains II and III that was produced in isolation was able to retain its receptor-binding characteristics to the target larval midgut proteins. More recently, we have provided pivotal evidence for the first time that the activated Cry4Ba toxin in association with DMPC lipid membranes could exist in at least two different trimeric conformations, conceivably implying the closed and open states of the pore. For the *Bordetella pertussis* adenylate cyclase-haemolysin toxin (CyaA), the 126-kDa truncated CyaA-pore forming fragment (CyaA-PF) was shown for the first time to be highly expressed as a soluble protein in *E. coli*. In addition, the recombinant CyaA-PF toxin was proved to be palmitoylated at Lys⁹⁸³ via co-expression with CyaC acyltransferase that is necessary for haemolytic activity.

Research staff and graduate students:

Somphob Leetachewa, Manasave Decklar, Somsri Sakdee, Niramorn Thamwiriyasati, Pichaya Pojanapotha, Kasorn Tiewisiri, Seangdeun Moonsom, Thanate Juntadach, Benyapat Puripunpinyo, Autaiporn Kaikaew

Selected publications

1. Likitvivatanavong, S., Katzenmeier, G. & Angsuthanasombat, C. (2006) Asn183 in $\alpha 5$ is essential for oligomerisation and toxicity of the *Bacillus thuringiensis* Cry4Ba toxin. *Arch. Biochem. Biophys.* 445: 46-55.
2. Leetachewa, S., Katzenmeier, G. & Angsuthanasombat, C. (2006) Novel preparation and characterization of the $\alpha 4$ -loop- $\alpha 5$ membrane perturbing peptide from the *Bacillus thuringiensis* Cry4Ba toxin. *J. Biochem. Mol. Biol.* 39: 270-277.
3. Tiewisiri, K. & Angsuthanasombat, C. (2007) Structurally conserved aromaticity of Tyr²⁴⁹ and Phe²⁶⁴ in helix 7 is important for toxicity of the *Bacillus thuringiensis* Cry4Ba toxin. *J. Biochem. Mol. Biol.* 40: 163-171.
4. Chayaratanasin, P., Moonsom, S., Sakdee, S., Chaisri, U., Katzenmeier, G. & Angsuthanasombat, C. (2007) High Level of soluble expression in *Escherichia coli* and characterisation of the cloned *Bacillus thuringiensis* Cry4Ba domain III fragment. *J. Biochem. Mol. Biol.* 40: 58-64.
5. Moonsom, S., Chaisri, U., Kasinrerak, W. & Angsuthanasombat, C. (2007) Binding characteristics to mosquito-larval midgut proteins of the cloned domain II-III fragment from the *Bacillus thuringiensis* Cry4Ba toxin. *J. Biochem. Mol. Biol.* 40: 283-290.

Associate Professor Chartchai Krittanai

Ph.D. (Biochemistry & Biophysics), Oregon State Univ., 1997

Email: stckt@mahidol.ac.th

Research Interest: Protein Engineering and Proteomics



Our laboratory has a long interest in structure and function of insect larvicidal proteins from *Bacillus thuringiensis*. We have employed biophysical and spectroscopic methods to study an unfolding/refolding pathway of the mosquitocidal Cry4Ba and Cyt2Aa proteins. A constructed energy map of these proteins along with the PCR-based site directed mutagenesis were then being used to design and engineer the conformation of the mutant proteins for stability and activity enhancement. We are also working on a Proteomic project to identify protein markers and investigate several proteins involved in viral infection of aquatic shrimps. The project involves with protein separation by two-dimensional electrophoresis and molecular characterization by mass spectrometry.

Research staff and graduate students:

1. Somruathai Kidsangua (Research Assistant)
2. Nounwan Pungtanom (Research Assistant)
3. Sekson Mukkaranun (Ph.D. student)
4. Suprarat Tangchaiyaphum (Ph.D. student)
5. Sิริya Thammachat (Ph.D. student)

Selected Publications:

1. Havanapan, P., Kanlaya, R., Bourchookarn, A., Krittanai, C. and Thongboonkerd, V. C-terminal hemocyanin from hemocytes of *Penaeus vannamei* interacts with ERK1/2 and undergoes serine phosphorylation. *Journal of Proteome Research* (2009) 8(5):2476-83.
2. Sangcharoen, A., Tepanant, W., Kidsangaun, S., Promdonkoy, B. and Krittanai, C. Investigation of the Unfolding Pathway of *Bacillus thuringiensis* Cyt2Aa2 Toxin Reveals an Unfolding Intermediate. *Journal of Biotechnology* (2009) 141(3-4):137-41.
3. Sriyaba, S., Yojina, J., Ngamsaad, W., Kangthang, P., Modchang, C., Nuttavut, N., Lenbury, Y., Krittanai, C. and Triampo, W. Mesoscale modeling technique for studying the dynamics oscillation of min protein: Pattern formation analysis with lattice Boltzmann method. *Computers in Biology and Medicine* (2009) 39(5):412-24.
4. Bourchookarn A., Chongsatja P., Thongboonkerd V. and Krittanai C. Proteomic Analysis of Altered Proteins in Lymphoid Organ of Yellow Head Virus Infected *Penaeus monodon*. *BBA Protein and Proteomics* 2008; 1784(3): 504-11
5. Thammachat, S., Pathaichindachote, W., Krittanai, C. and Promdonkoy, B. **Amino acids at N- and C-termini are required for efficient production and folding of a cytolytic δ -endotoxin from *Bacillus thuringiensis*.** *BMB Reports*; (2008) 41:820-5.
6. Chongsatja, P. Bourchookarn, A. Lo, CF. Thongboonkerd, V. Krittanai, C. Proteomic analysis of differentially expressed proteins in *Penaeus vannamei* hemocytes upon Taura Syndrome Virus infection *Proteomics* (2007)7(19): 3592-601
7. Kositanont, U. Saetun, P. Krittanai, C. Doungchawee, G. Tribuddharat, C, Thongboonkerd, V. (2007) Application of immunoproteomics to leptospirosis: towards clinical diagnostics and vaccine discovery. *Proteomics* 1(4): 348-439.

Dr. Chudej Deeprasertkul

Ph.D. (Materials), College University of London. 2000

Email: stcds@mahidol.ac.th

Research Interests: Rubber Technology,

Polymer Science and Technology



- Filler-Elastomer Interaction
- Relaxation and Dynamic behaviour of Elastomer
- Oil-swollen and Extended Elastomer
- Reinforcement of Natural and Synthetic Latexes by Nano-Filler
- Rubber Compounding Technology
- Tire Mechanics and relationship between tire rolling loss and endurance test

Current Research staff and graduate students:

Miss. Orawan Supappornchai (MSc. student)

Selected Publications:

1. Rattanasom, N., Saowapark, T. and Deeprasertkul, C. (2007) Reinforcement of natural rubber with silica/carbon black hybrid filler. *Polymer Testing*, 26(3), 369 - 377.
2. Busfield, J.J.C., Deeprasertkul, C. and Thomas, A.G.(2001) *Polymer*, 49(2)
3. Yamauchi, K., Akasaka, S., Hasegawa, H. Koizumi, S., Deeprasertkul, C. Laokijcharoen, P. Chamchang, J. and Kornduangkaeo, A. (2005) Structural study of natural rubber thermoplastic elastomers and their composites with carbon black by small-angle neutron scattering and transmission electron microscopy. *Composite Part A*. 36(4), 423-429.

Professor Duncan R. Smith

Ph.D. (Biophysics), Portsmouth University, UK 1987

Email: duncan_r_smith@hotmail.com, frdrs@mahidol.ac.th

Research Interests: Virology



The Laboratory of Molecular Pathology was established to investigate, using modern molecular biology techniques, diseases of particular significance to the people of Thailand. Dengue fever is the leading cause of hospitalizations amongst children in Southeast Asia, and a leading cause of childhood mortality. The laboratory investigates how the dengue virus enters into cells, how the virus is propagated within cells as well as the cellular consequences of virus infection. It is hoped that these studies will lead to novel therapeutic treatments. In parallel, work on other arboviruses is also being undertaken. Thalassemia is a significant and wide spread inherited genetic disease in Thailand. Our work seeks to understand the pathophysiology of thalassemia, and in particular how the generation of mature erythrocytes from precursor hematopoietic progenitor cells is affected by the underlying genetic defect in the globin genes.

Current Research staff and graduate students:

1. Dr. Atefeh Khakpoor (Foreign expert researcher)
2. Dr. Vorapol Ratanachuen (Post-doctoral fellow)
3. Dr Tirawat Wannatung (Post-doctoral fellow)
4. Ms Mingkwan Panyasrivanit (Ph.D. student)
5. Mr. Atichat Kuadkitkan (Ph.D. student)
6. Mr. Pathrapol Lathanatudom (Ph.D. student)
7. Ms Amporn Leecharoenkiat (Ph.D. student)
8. Ms Nitwara Wikan (Ph.D. student)
9. Ms Pathama Klomporn (MSc. student)

Selected Publications

1. Lathanatudom, P., Leecharoenkiat, A., Wannatung, T., Svasti, S., Winichagoon, P., Fucharoen, S. and Smith, D.R. Mechanism of ineffective erythropoiesis in β -Thalassemia/HbE disease. *Haematologica*. In press.
2. Thongtan, T., Cheepsunthorn, P., Chaiworakul, V., Rattananungsan, C., Wikan, N. and Smith, D.R. (2009) Highly permissive infection of microglial cells by Japanese encephalitis virus: a possible role as a viral reservoir. *Microbes and Infection*. Published Online: Doi:10.1016/j.micinf.2009.09.013.
3. Kunkeaw, S., Tangphatsornruang, S., Smith, D.R. and Triwitayakorn, K. (2009) Genetic linkage map of cassava (*Manihot esculenta Crantz*) based on AFLP and SSR markers. *Plant Breeding*. Published Online: Doi: 10.1111/j.1439-0523.2009.01623.x
4. Suksanpaisan, L., Susantad, T. and Smith, D.R. (2009) Characterization of entry of the dengue virus into HepG2 cells. *Journal of Biomedical Science*. Published Online: doi:10.1186/1423-0127-16-17.
5. Wannatung, T., Lathanatudom, P., Leecharoenkiat, A., Svasti, S., Fucharoen, S. and Smith, D.R. (2009) Increased erythropoiesis of β -thalassaemia/Hb E proerythroblasts is mediated by high basal levels of ERK1/2 activation. *British Journal of Haematology*. 146, 557-568.

Assistant Professor Gerd Katzenmeier

Ph.D. (Biochemistry), Technical University of Munich, 1991

Email: frkgz@mahidol.ac.th

Research Interests: Molecular & Cellular Microbiology



Our research is directed towards enhancing our understanding of structure-function relationships within the dengue virus multifunctional protein NS3 (serine protease, NTPase and RNA helicase) with the long-term objective of developing novel inhibitors against these important biomedical targets. In addition to the results obtained for dengue virus, the data generated within this project will be directly useful for inhibitor development against related flaviviral pathogens such as Japanese encephalitis virus, yellow fever virus and West Nile virus. The dengue virus NS2B-NS3 serine protease catalyzes the processing of the viral polyprotein precursor and is an indispensable component of the viral replication machinery. Cleavage activity of the protease at various sites is enhanced in the presence of the small cofactor peptide NS2B. Although the 3-dimensional structure of the NS3 protease domain is known, the molecular activation of the protease as well as structural determinants of cleavage specificity and substrate recognition have not been well characterized. As a prerequisite for the rationale-based design of antiviral compounds, the enzyme is studied within our project by using molecular biological, biochemical and biophysical methods. Currently we perform a number of structural and mechanistic studies including NS2B cofactor-dependent activation, substrate requirements and evaluation of compound libraries for the identification of potential, first-generation, "lead"-structures using 3D protein modelling, ligand docking and QSAR. In addition, we have initiated molecular functional studies on the NS3 RNA helicase which represents a mechanistically more complex drug target.

We are also working on a BIOTEC-supported project aimed at exploring the role of calpain proteases in the erythrocyte as modulators of disease severity in thalassemia. In the near future we plan to establish a basic research project aimed at the elucidation of structure-activity relations of microbial toxins in pathogens of relevance to human health such as *Helicobacter pylori* and *Bordetella pertussis*.

urrent Research staff and graduate students:

Suriyan Sukati (Ph.D. student)

Selected Publications:

1. Prusis, P., Lapins, M., Yahorava, S., Petrovska, R., Niyomrattanakit, P., Katzenmeier, G. and Wikberg, J. E. S. (2008). Proteochemometrics analysis of substrate interactions with dengue virus NS3 proteases. *Bioorg. Med. Chem.* 16(20), 9369-77.
2. Iempridee, T., Thongphung, R., Angsuthanasombat, C. and Katzenmeier, G. (2008). A comparative biochemical analysis of the NS2B(H)-NS3pro protease complex from four dengue virus serotypes. *Biochim. Biophys. Acta*, 1780, 989-994.
3. Chayaratansin, P., Moonsom, S., Sakdee, S., Chaisri, U., Katzenmeier, G. and Angsuthanasombat, C. (2007). High level of soluble expression in *Escherichia coli* and characterization of the cloned *Bacillus thuringiensis* Cry4Ba domain III fragment. *J. Biochem. Mol. Biol.* 40, 58-64.

Assist Professor Kanokporn Triwitayakorn

Ph.D.(Plant Biology), University of Washington, USA. 1995

Email: mbktw@mahidol.ac.th

Research Interest: Genomics



The main goal of our research group is the genetic mapping and molecular isolation of economically important traits in cassava (*Manihot esculenta* Crantz) using molecular markers and associated techniques. Our area of research focuses on the identification and mapping of all the genes involved in starch content, yield, HCN content, as well as others agronomically important traits of cassava. This research will lead to a better understanding of the genetic basis of biological diversity and will improve the breeding program of cassava in Thailand. The major technique used to achieve our goal is Simple Sequence Repeats (SSR) and Expressed Sequence Tag-SSR (EST-SSR). In addition, other molecular marker techniques such as, Amplified Fragment Length Polymorphism (AFLP), Sequence Characterized Amplified Region (SCAR), and Single Nucleotide Polymorphism (SNP) are also exploited to generate our genetic maps. Our group will continue to develop new mapping tools to further refine the genetic map of cassava in order to obtain a more detailed picture of the genome and chromosome structure of this economically important crop. The long-term goal is to provide breeders with a fast and automated system for the analysis of qualitative and quantitative traits in their breeding program, also known as Marker Assisted Selection (MAS).

Current Research staff and graduate students:

1. Dr. Opas Boonseng, Rayong Agronomical Research Center
2. Dr. Sithichoke Tangphatsornruang, BIOTEC
3. Dr. Chalernpol Kirdmanee, BIOTEC
4. Dr. Satoshi Tabata, Kazusa DNA Research Institute, Chiba, Japan

Selected Publications:

1. Kunkeaw S, Tangphatsornruang S, Smith DR and Triwitayakorn K (2009) Genetic linkage map of cassava (*Manihot esculenta* Crantz) based on AFLP and SSR markers. Plant Breeding (in press)
2. Riyaz A. Pandit, Saovaras Svasti, Orapan Sripichai, Thongperm Munkongdee, Kanokporn Triwitayakorn, Pranee Winichagoon, Suthat Fucharoen and Chayanon Peerapittayamongkol. (2008) Association of SNP in exon 1 of HBS1L with hemoglobin F level in β^0 -thalassemia/hemoglobin E. International Journal of Hematology. 88:357–361.
3. Sukhuman Whankaew, Sithichoke Tangphatsornruang and Kanokporn Triwitayakorn. (2008) Development of simple sequence repeat (SSR) markers from expressed sequence tags (ESTs) of the black tiger shrimp (*Penaeus monodon*). Molecular Ecology Resources. 8, 1494-1496.
4. En-Min You, Tai-Sheng Chiu, Kuan-Fu Liu, Anchalee Tassanakajon, Sirawut Klinbunga, Kanokporn Triwitayakorn, Leobert D. de la Peña, Yutao Li, Hon-Tsen Yu. (2008) Microsatellite and mitochondrial haplotype diversity reveal population differentiation in the tiger shrimp (*Penaeus monodon*) in the Indo-Pacific region. Animal Genetics Animal Genetics. 39(3): 267-277.

Assistant Professor Kusol Pootanakit

Ph.D. (Biology), Boston College, USA. 1999

Email: mbkpn@mahidol.ac.th

Research Interest: Molecular Biology

***Interactions between mosquito larvicidal toxins and their receptor(s).***

These larvicidal toxins or Cry toxins are produced by a Gram (+) bacterium, *Bacillus thuringiensis*. Thus, they are also known as *Bt* delta-endotoxins. They are the most widely used bioinsecticides against mosquitoes and other insect pests. It is thought that upon ingestion and activation, these toxins bind to specific receptors on the gut cells of insect larvae apical brush border membrane, causing cell lysis. Hundreds of *Bt* delta-endotoxins have been identified and cloned; however, so far, only two receptors for only a few lepidopteran-specific *Bt* delta-endotoxins have been positively identified and cloned. They are aminopeptidase N (APN), membrane-bound alkaline phosphatase (mALP) and cadherin-like proteins (CadLP). In Thailand, *Aedes aegypti* mosquito is a vector for dengue fever. However, we do not know if this mosquito larva also uses either APN, mALP or CadLP as receptor for *Bt* delta-endotoxins. Thus, one of our aims is to determine if *A. aegypti* mosquito larva also expresses any of these three putative receptors. And, if so, do they also act as a receptor for dipteran-specific *Bt* delta-endotoxins.

Heterologous expression of genes encoding valuable enzymes from microbial organisms.

Since Thailand lies in the tropical region, a vast number of microbial organisms are found within her border. Our preliminary study on the Bor Khlueng hot spring suggested that most of the microbial organisms found there are novel, i.e. most of these have never been previously characterized or studied. Our laboratory, in close collaboration with Drs Lily Eurwilaichitr and Sutipa Tanapongpipat of BIOTEC, are interested in obtaining various industrially useful enzymes via molecular approach. For instance, we have successfully cloned and expressed a xylanase enzyme from a wood fungus that was found in Phuket in *Pichia pastoris* system. Moreover, we are also using metagenomic approach on those "unculturable" microbes – those microbial organisms that are not amenable to grow in the standard laboratory condition. This is because they may contain valuable enzymes or biological compounds – potential untapped natural resources.

Current Research staff and graduate students:

1. Katewadee Boonyapakron, M.Sc. (research assistant)
2. Suchada Saengwiman (Ph.D. student)
3. Duriya Chantasingh (Ph.D. student)
4. Siwaporn Weerachawangkul (M.Sc. student)

Selected Publications:

1. Fugthong, A., Boonyapakron, K., Sornlek, W., Tanapongpipat, S., Eurwilaichitr, L. and Pootanakit, K. (2009) Biochemical characterization and in vitro digestibility assay of *Eupenicillium parvum* (BCC17694) phytase expressed in *Pichia pastoris*. Protein Expression and Purification (in press)
2. Kanokratana, P., Chantasingh, D., Champreda, V., Tanapongpipat, S., Pootanakit, K. and Eurwilaichitr, L. (2008) Identification and expression of cellobiohydrolase (CBHI) gene from an endophytic fungus, *Fusicoccum* sp. (BCC4124) in *Pichia pastoris*. Protein Expression and Purification 58, 148-153.

Dr. Narong Nitatpattana

Ph.D.(Tropical Medicine), Mahidol University. 2006

Email: stnk@mahidol.ac.th

Research Interests: Vaccine Development



- Live Attenuated Dengue vaccine
- Chimeric Dengue vaccine
- Inactivated Japanese Encephalitis Vaccine
- Chimeric Japanese Encephalitis Vaccine
- Inactivated Chikungunya Vaccine
- Live Attenuated Chikungunya Vaccine
- Emerging and Reemerging Viral Diseases

Selected Publications:

1. Barbazan, P., Palabodeewat, S., Nitatpattana, N. and Gonzalez, J.P. (2009) Detection of Host Virus-Reactive Antibodies in Blood Meals of Naturally Engorged Mosquitoes. *Vector Borne Zoonotic Dis.* 9(1), 103-107.
2. Nitatpattana, N., Dubot-Pérès, A., Gouilh, M.A., Souris, M., Barbazan, P., Yoksan, S., de Lamballerie, X. and Gonzalez, J.P. (2008) Change in Japanese encephalitis virus distribution, Thailand. *Emerg Infect Dis.* 14(11), 1762-5.
3. Barbazan, P., Tuntaprasart, W., Souris, M., Demoraes, F., Nitatpattana, N., Boonyuan, W. and Gonzalez, J.P. (2008) Assessment of a new strategy, based on *Aedes aegypti* (L.) pupal productivity, for the surveillance and control of dengue transmission in Thailand. *Ann Trop Med Parasitol.* 102(2), 161-71.
4. Nitatpattana, N., Singhasivanon, P., Kiyoshi, H., Andrianasolo, H., Yoksan, S., Gonzalez, J.P. and Barbazan, P. (2007) Potential Association of Dengue Hemorrhagic Fever Incidence and Remote sensed Land Surface Temperature, Thailand, 1998. *Southeast Asian J Trop Med Public Health.* 38(3), 1-7.
5. Poblap, T., Nitatpattana, N., Chaimarin, A., Barbazan, P., Chauvancy, G., Yoksan, S. and Gonzalez, J.P. (2006) Virus Silent Transmission during a Dengue Epidemic, Nakhon Pathom Province, Thailand 2001. *Southeast Asian J Trop Med Public Health.* 37(5), 899-903.
6. Laurent, D., Baumann, F., Benoit, A.G., Mortelecq, A., Nitatpattana, N., Desvignes, I., Debitus, C., Laille, M. and Gonzalez, J.P. (2005) Chungue E. Structure-activity relationships of dengue antiviral polycyclic quinones. *Southeast Asian J Trop Med Public Health.* 36(4), 901-5.
7. Nitatpattana, N., Apiwathnasorn, C., Barbazan, P., Leemingsawat, S., Yoksan, S. and Gonzalez, J.P. (2005) First isolation of Japanese encephalitis from *Culex quinquefasciatus* in Thailand. *Southeast Asian J Trop Med Public Health.* 36(4), 875-8.
8. Suputthamongkol, Y., Nitatpattana, N., Chayakulkeeree, M., Palabodeewat, S. and Yoksan, S. (2005) Gonzalez JP. Hantavirus infection in Thailand: first clinical case report. *Southeast Asian J Trop Med Public Health.* 36(1), 217-20.

Assistant Professor Nittaya Rattanasom

Ph.D. (Polymer Science), University of Akron, USA. 1999

Email: stnrt@mahidol.ac.th

Research Interests: Rubber Technology,
Rubber Compounding



Current Research staff and graduate students:

1. Mr. Sarawut Prasertsri (Ph.D. student)
2. Mr. Pattana Kueseng (Ph.D. student)

Selected Publications:

1. Rattanasom, N. and Prasertsri, S. (2009) Mechanical properties, thermal stability, gas permeability and phase morphology in natural rubber/bromobutyl rubber blends. *J. Appl. Polym. Sci.* 133, 3985 - 3992.
2. Rattanasom, N. and Prasertsri, S. (2009) Relationship among mechanical properties, heat ageing resistance, cut growth behaviour and morphology in natural rubber: Partial replacement of clay with various types of carbon black at similar hardness level. *Polym. Testing.* 28, 270-276.
3. Rattanasom, N., Prasertsri, S. and Ruangritnumchai, T. (2009) Comparison of the mechanical properties at similar hardness level of natural rubber filled with various reinforcing-fillers, Polymer Testing. *Polym. Testing.* 28, 8-12.

Dr. Nuananong Jirakanjanakit

Ph.D. (Tropical Medicine), Mahidol University

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Research Interests: Vaccine Development



Our researches cover with vaccine sciences, immunology, cell culture technology and medical entomology of emerging and re-emerging diseases such as dengue, Japanese encephalitis and Chikungunya viruses. Current research activity involves:

- New vaccine candidates and biological markers.
- Immune responses in vaccine trials and natural infections.
- Viral interference.
- Disease severity and case fatality i.e., predictive value of prognostic markers, impact of co-morbidities, viral-load, host factor etc.
- Immunological correlation of protection and/or pathologic immune responses
- Identification of risk factors for dengue epidemics i.e., climate change, macro-factors influence dengue transmission, longitudinal studies on virus change and associated virulence
- Meta-analysis of surveys looking into the share of asymptomatic versus symptomatic dengue infection.
- Vector factors influencing virus transmission.

Current Research staff and graduate students:

1. Mr. Kamolchanok Tubthong
2. Mr. Wanchai Kanitwithayanun
3. Mrs. Surat Warasumpati
4. Mr. Pattanapol Thongchai

Selected Publications:

1. Yoksan, S., Tubthong, K., Palabodeewat, S., Rajakam, Thongchai S., Chanthavanich P. and Jirakanjanakit N. A hidden threat of dengue infection in Ratchaburi province, Thailand. *Preparation*.
2. Jirasripongpun, K., Ngampeerapong, N., Sukwijit S. and Jirakanjanakit, N. Cytotoxicity and genotoxicity of CI Reactive red 195 and its metabolite via Fenton oxidation in a kidney cell line Vero. (*Submitted*).
3. Yoksan, S., Tubthong, K., Kanitwithayanun, W. and Jirakanjanakit, N. (2009) Laboratory assays and field dengue vaccine evaluation at Ratchaburi Province, Thailand; A preliminary result. *J Clin Virol.* 46, S13-S15.
4. Sukonthabhirom, S., Saengtharatip, S., Jirakanjanakit, N., Rongnoparut, P., Yoksan, S., Daorai, A. and Chareonviriyaphap, T. (2009) Genetic structure among Thai populations of *Aedes aegypti* mosquitoes. *J Vector Ecol.* 34, 43-49.
5. Jirakanjanakit, N., Leemingsawat, S. and Dujardin, J.P. (2008) The geometry of the wing of *Aedes (Stegomyia) aegypti* in isofemale lines through successive generations. *Infect Gene Evol.* 8, 414-421.
6. Pethuan, S., Jirakanjanakit, N., Saengtharatip, S., Chareonviriyaphap, T., Kaewpa, D., Rongnoparut, P. (2007) Biochemical studies of insecticide resistance in *Aedes (Stegomyia) aegypti* and *Aedes (Stegomyia) albopictus* (Diptera: Culicidae) in Thailand. *Tropical Biomedicine*; 24(1): 7-15.

Assistant Professor Nuanchan Jutapakdeegul

Ph.D. (Neurosciences), Mahidol University, Thailand.

Email: grnjg@mahidol.ac.th

Research Interests: Neuro-Behavioural Biology



The intra-uterine environment is now believed to play a major role in the origin of many adult diseases. **Illnesses in which there is significant 'programming' before the times of birth** that can be observed in later life include; various metabolic diseases, learning, behavioral and emotional alterations. Prenatal stress has been linked to the development of adult psychopathology such as anxiety, depression and schizophrenia but the mechanisms underlying these effects are not fully understood. Our group has been interested in the molecular mechanisms of prenatal stress and the development of learning and memory deficit as adult. We are currently focused on study of effects of prenatal stress on the development of glutamate receptors in the brain of rat pups in an attempt to understand the relationship between prenatal stress and learning and memory deficit in the offspring as adult. Various prevention paradigms such as maternal exercise, enrich environment are also our concerns in an attempt to reverse the prenatal stress effects.

Current Research staff and graduate students:

1. Mr. Szeifoul Afadlal (M.Sc. student)
2. Mrs. Pornprom Surakul (M.Sc. student)
3. Mr. Bovorn Weerawattananon (M.Sc. student)
4. Miss Ratirat Kolaka (Ph.D. student)

Selected Publications:

1. Afadlal, S., Polaboon, N., Surakul, P., Govitrapong, P. and Jutapakdeegul, N. (2009) Prenatal stress alters presynaptic marker proteins in the hippocampus of rat pups. *Neuroscience Letters*. (inpress).
2. Jutapakdeegul, N., Afadlal, S., Polaboon, N., Phansuwan-Pujito, P. and Govitrapong, P. (2009) Repeated restraint stress and corticosterone injections during late pregnancy alter GAP-43 expression in the hippocampus and prefrontal cortex of rat pups. *Int J Dev Neurosci*. [Epub ahead of print].
3. Buntup, D., Chayasadam, A., Surarit, R., Jutapakdeegul, N. and Thangnipon, W. (2008) Effects of amyloid- β peptide on glutamine transporter mRNA expression and cell viability in cultured rat cortical cells. *Science Asia*. 35(2), 156-160.
4. Szeifoul, Polaboon, N., Phansuwan-Pujito, P., Govitrapong, P., Jutapakdeegul, N. (2008) Maternal Restraint Stress Alters Growth-Associated Protein-43 (GAP-43) in Postnatal Rat Brain. *Journal of Neurochemistry*. 106(1), 45.
5. Jutapakdeegul, N., Boonchareon, M. and Phansuwan-Pujito, P. (2005) Maternal Stress alters the developmental pattern of Calbindin expression and adult neurogenesis in dentate gyrus of the offsprings. *Journal of Neurochemistry*. 94(2), 234-235.

Assistant Professor Panadda Boonserm

Ph.D. (Biochemistry), University of Cambridge, UK.

Email: Email: mbpbs@mahidol.ac.th

Research Interest: Structural Biology



Our current research activity involves the structural and functional characterisation of mosquito-larvicidal toxins produced from bacteria. *Bacillus thuringiensis* subsp. *israelensis* (Bti) and *Bacillus sphaericus* (Bs) produce a variety of insecticidal proteins which are toxic against mosquito larvae such as *Aedes*, *Anopheles*, and *Culex*. These bacteria are now used as bio-insecticides in the field as part of the vector control programme. Our studies are aimed at understanding the structural detail of the mosquitocidal toxins to help explain the molecular mechanisms of their toxicity. Recent studies of the X-ray crystal structures of Cry4Ba and Cry4Aa Bti mosquitocidal toxins have given invaluable information of the structural basis of toxins in this family. Our current work is also focussing on structural investigation of the binary toxin, BinA and BinB, from Bs by using X-ray crystallography, FTIR, and other related techniques. Furthermore, genetic and biophysical analyses have been undertaken to provide considerable insight into the insecticidal function, synergistic interaction and also facilitate the improvements of toxin activity.

Current Research staff and graduate students:

1. Ms. Chanikarn Boonchoy (Researcher)
2. Ms. Suweeraya Limpanawat (Researcher)
3. Ms. Monruedee Srisaisup (Research Assistant)
4. Ms. Kamonnut Singkhamanan (Ph.D. student)
5. Ms. Kanokporn Srisucharitpanit (Ph.D. student)
6. Ms. Chontida Tangsongcharoen (MSc. student)
7. Ms. Thittaya Kunthic (MSc. student)

Selected Publications:

1. Limpanawat, S., Promdonkoy, B. and Boonserm, P. (2009). The C-terminal domain of BinA is responsible for *Bacillus sphaericus* binary toxin BinA-BinB interaction. *Curr. Microbiol.* 59, 509-513.
2. Boonyos, P. Soonsanga, S., Boonserm, P. and Promdonkoy, B. (2009) Role of cysteine at positions 67, 161 and 241 of a *Bacillus sphaericus* binary toxin BinB. BMB reports (in press).
3. Sanitt, P., Promdonkoy, B., Boonserm, P. (2008). Targeted mutagenesis at charged residues in *Bacillus sphaericus* BinA toxin affects mosquito-larvicidal activity. *Curr. Microbiol.*, 57, 230-234.
4. Promdonkoy, B., Promdonkoy, P. Wongtawan, B., Boonserm, P. and Panyim, S. (2008). Cys31, Cys47, and Cys195 in BinA are essential for toxicity of a binary toxin from *Bacillus sphaericus*. *Curr. Microbiol.* 56, 334-338.
5. Torres, J., Xin, L. and Boonserm, P. (2008) A trimeric building block model for Crytoxins in vitro ion channel formation. *Biochimica et Biophysica Acta* 1778, 392-397.

Professor Piyarat Govitrapong, Ph.D.

Ph.D.(Neuropharmacology), University of Nebraska, 1986.

Email: grpkk@mahidol.ac.th

Research Interests: Neuro, Behavioural Biology



While the level of neurogenesis can be modulated by factors such as diet, environmental stimuli and neurotrophic factors, there is little information to date regarding the intrinsic mechanisms underlying the age-related decline in neural stem function. Many of mechanisms that regulate neural development are believed to play a role in the aging of the nervous system. How might development mechanisms contribute to the pathogenesis of neurodegenerative disorders? More people are hospitalized with neurological and mental disorders than any other major disease group. There is increasing evidence suggesting that the brain plays major role in regulating lifespan as well as health status during the aging process. The nervous system contains several signaling pathways that influence and regulate lifespan in individuals. Cells in the brain die following stroke, trauma and chronic neurodegenerative disease. A detailed understanding of the factors governing fetal and adult neural stem cells *in vivo* may ultimately lead to elegant cell therapies for neurodegenerative disorders. Thus, studies are encouraged and needed to identify, characterize and elucidate mechanisms of certain factors that are both positive and negative, influencing the neurogenesis (brain development) throughout life-span, including prenatal, postnatal, adult and aging periods.

Current Research staff and graduate students:

1. Dr Krisanapol Boon-Unge (Ph.D. student)
2. Dr Areechun Sotthibundhu (Post-doctoral fellow)
3. Mr Chutikorn Nopparat (Ph.D. student)
4. Ms Kannika Permpoonputtana (Ph.D. student)
5. Ms Nootchanart Ruksee (Ph.D. student)
6. Mr Rachain Singhakumal (Ph.D. student)
7. Ms. Mayuri Shukla (M.Sc. student)
8. Ms. Oranich Vimolratanon (M.Sc. student)
9. Ms. Nuttaya Mahasawat (M.Sc. student)
10. Ms. Jatuporn Namyen (M.Sc. student)

Selected Publications:

1. Chetsawang B, Chetsawang J, Govitrapong P. Protection against cell death and sustained tyrosine hydroxylase phosphorylation in hydrogen peroxide- and MPP(+)-treated human neuroblastoma cells with melatonin. *J Pineal Res.*;46;(2009):36-42.
2. Kongsuphol P, Mukda S, Villarroel A, Govitrapong P. Melatonin attenuates methamphetamine-induced autophagy via the mammalian target of rapamycin (mTOR) signaling pathway. *J Pineal Res.* 46;(2009):199-206.
3. Kaewsuk S, Tannenber RK, Kuo S-W, Bjorkman DT, Govitrapong P., Stadlin A, Dodd PR*. Regional expression of dopamine D1 and D2 receptor proteins in the cerebral cortex of Asphyxic newborn infants. *J. Child Neurology* 24;(2009):183-193.
4. Mukda S, Kaewsuk S, Govitrapong P. Amphetamine-induced alteration of dopaminergic system in early postnatal rat brain. *Dev. Neurosci*, 31;(2009):193-201.

Dr. Pongsoppee Attasart

Ph.D. Mahidol University, 2003

Email: mbpas@mahidol.ac.th, attasart_aung@hotmail.com

Research Interests: Shrimp Molecular Biology



Research in our group is focusing on an antiviral infection in shrimps based on RNA interference mechanism. Two of shrimp's pathogen that we are interested in are hepatopancreatic parvovirus (HPV) and white spot syndrome virus (WSSV). HPV is a single-stranded DNA virus that causes slowly growth and stunting in shrimp. While WSSV containing double-stranded DNA genome causes a major shrimp disease worldwide, this can lead to 100% cumulative mortality within 2-10 days in farmed shrimp. In our laboratory, we aim to investigate the protection as well as therapeutic effect on HPV and WSSV infection of shrimp by specific dsRNA. Double-stranded RNAs correspond to non-structural and structural protein genes of the individual virus have been generated. The inhibitory effect of each viral specific dsRNAs was evaluated in *Penaeus monodon*. The conditions for efficient viral inhibition and for dsRNA delivery into shrimp which could be used practically in the farm have to be established and optimized. Moreover, to control the virus spread, we are also screening for the possible carrier of HPV from various aquatic animals living in the shrimp pond.

Current Research staff and graduate students:

1. Miss Chaweewan Chimwai (Research Scientist)
2. Mr. Ukrit Kongphom (Research Assistance)

Selected Publications:

1. Sukhumsirichart, W., Attasart, P., Boonsaeng, V. and Panyim, S. 2006. Complete nucleotide sequence and genomic organization of hepatopancreatic parvovirus (HPV) of *Penaeus monodon*. *Virology* 346:266-277.
2. Sriwilaijaroen N., Boonma S., Attasart P., Pothikasikorn J., Panyim S., Noonpakdee W. 2009. Inhibition of *Plasmodium falciparum* proliferation in vitro by double-stranded RNA directed against malaria histone deacetylase. *Biochem Biophys Res Commun.* 381(2):144-7.
3. Attasart P., Kaewkhaw R., Chimwai C., Kongphom U., Namramoon O., Panyim S. 2009. Inhibition of white spot syndrome virus replication in *Penaeus monodon* by combined silencing of viral rr2 and shrimp PmRab7

Dr. Pranee Fucharoen

Ph.D. (Medical Science), Kobe University, Japan

Email: stpfc@mahidol.ac.th

Research Interests: Thalassemia Research



Thalassemia is the most common genetic disorders in Thailand and worldwide. In the past several years, works from Thalassemia Research Center have defined the frequencies of different thalassemia genes, their molecular genetic nature, disease burdens, clinical manifestation and management. Thalassemia research covers the study from the clinical to the molecular levels, which is expanded in depth and scope. This information, including results of pathophysiologic studies, has been applied for better management of the patients and establishment of the prevention and control program of the disease. However, some clinical presentations still required more research for clarification. Therefore our research goal is

1. To understand the genotype-phenotype interaction in β -thalassemia/HbE. Substantial evidence suggests the involvement of additional factors that can modify clinical presentation amongst patients with similar β -thalassemia genotypes. A genome-wide search for genetic polymorphisms associated with disease severity revealed significant single nucleotide polymorphisms (SNPs) that may involve in disease heterogeneity. Functional studies for candidate genes are being explored including those involve in Hb F regulation, proteolysis and molecular mechanism of erythropoiesis and apoptosis.

2. To study the molecular mechanism of erythropoiesis and apoptosis in thalassemia. The thalassemias are characterized by the absence or reduced synthesis of one of the globin subunit of hemoglobin molecule. Thus the main pathophysiologic feature of thalassemia is the accumulation of unpaired globin chains in erythrocyte precursors and red blood cells. This accumulation alters cell membrane function and results in early cell destruction and ineffective erythropoiesis, leading to chronic anemia. A number of experiments including thalassemic mouse model, cultures of erythroid progenitors, and the role of microRNA have been established to understand molecular mechanisms of erythropoiesis and apoptosis.

Current Research staff and graduate students:

1. Dr. Nantika Panuddaporn (Researcher)
2. Dr. Ramaneeya Nithipongvanitch (Post-doctoral fellow)
3. Dr. Kanitha Srinuan (Post-doctoral fellow)
4. Ms. Thongperm Munkongdee (M.Sc.)
5. Mr. Manit Nuinoon (Ph.D. student)
6. Mr. Natee Jearawiriyapaisarn (Ph.D. student)
7. Mrs. Dalad Pichanun (M.Sc. student)
8. Ms. Nitirat Suksutti (M.Sc student.)

Selected Publications:

1. Srinoun K, Svasti S, Chumworathayee W, Vadolas J, Vattanaviboon P, Fucharoen S, Winichagoon P. Imbalanced globin chain synthesis determines erythroid cell pathology in thalassemic mice. *Haematologica* 2009; 94: 1211-1219.
2. Tayapiwatana C, Kuntaruk S, Tatu T, Chiampanichayakul S, Munkongdee T, Winichagoon P, Fucharoen S, Kasinrerak W. Simple method for screening of β -thalassemia 1 carriers. *Int J Hematol* 2009; 89: 559-567.
3. Winichagoon P, Svasti S, Munkongdee T, Chaiya W, Noonmongkol P, Chantrakul N, Fucharoen S. Rapid diagnosis of thalassemias and other hemoglobinopathies by capillary electrophoresis system. *Translational Research* 2008; 152: 178-184.

Professor Emeritus Sakol Panyim

Ph.D. (Biochemistry), University of Iowa, 1971

Email: scspy@mahidol.ac.th

Research Interest: Shrimp Molecular Biology



Shrimp culture industry (approximately 80 billion Baht value) is greatly affected by loss (as much as 25%) due to viral diseases. Raising protective immunity in cultured shrimp is a strategic research to find a means to prevent the economic loss of the shrimp industry. However, the protective immunity in shrimp is different from that in human and is largely unknown. A new approach to raise protective immunity in shrimp is desirable. A method to prevent pathogenic virus to replicate inside shrimp cells is a promising alternative to protect shrimps from viral diseases. Gene silencing by small interference RNA (siRNA) has been demonstrated to inhibit viral replication in a few invertebrate cells such as those of *Drosophila*. Thus, it is envisaged that if gene silencing by siRNA was functional in shrimp cells it should lead to a devise of siRNA which could inactivate the viral mRNA and consequently inhibit the viral replication. A failure of the viruses to replicate in shrimp should give rise to a new means of protective immunity. Specific siRNA may be designed to synthesize inside shrimp cells. One method is to use a "friendly virus" of shrimp as a vector to deliver siRNA. This engineered viral vector may be further developed to create a new type of vaccine in shrimp and other animals.

Research staff and graduate students:

1. Pongsoppee Attasart,
2. Wanchai Assavalapsakul
3. Rossukon Kaewkhaw

Selected Publications

1. Plongthongkum, N., Kullawong, N., Panyim, S. and Tirasophon, W. (2007) Ire1 regulated *XBP1* mRNA splicing is essential for the unfolded protein response (UPR) in *Drosophila melanogaster*. *Biochem. Biophys. Res. Comm.* 354:789-794.
2. Tirasophon W, Yodmuang S, Chinnirunwong W, Plongthongkum N, Panyim, S. (2007) Therapeutic inhibition of yellow head virus multiplication in infected shrimps by YHV-protease dsRNA. *Antiviral Research* 74(2):150-155.
3. Yodmuang, S., Tirasophon, W., Roshorm, Y., Chinnirunwong, W. and Panyim, S. (2006) YHV-protease dsRNA inhibits YHV replication in *Penaeus monodon* and prevents mortality. *Biochem. Biophys. Res. Comm.* 341:351-356.
4. Treerattrakool S., Udomkit A. and Panyim S. (2006) Anti-CHH antibody causes impaired hyperglycemia in *Penaeus monodon*. *J. Biochem. Mol. Biol.* 39, 371-376.
5. Sukhumsirichart, W. Attasart, P. Boonsaeng, V. Panyim, S. (2006) Complete nucleotide sequence and genomic organization of hepatopancreatic parvovirus (HPV) of *Penaeus monodon*. *Virology* 346(2):266-77.

Dr.M.L. Saovaros Svasti

Ph.D. (Biochemistry) Faculty of Science, Mahidol University

Email: stssv@yahoo.com

Research Interests: Thalassemia Research



Thalassemia is the most common genetic disorders in Thailand and worldwide. In the past several years, works from Thalassemia Research Center have defined the frequencies of different thalassemia genes, their molecular genetic nature, disease burdens, clinical manifestation and management. Thalassemia research covers the study from the clinical to the molecular levels, which is expanded in depth and scope. This information, including results of pathophysiologic studies, has been applied for better management of the patients and establishment of the prevention and control program of the disease. However, some clinical presentations still required more research for clarification.

To study the molecular mechanism of erythropoiesis and apoptosis in thalassemia. the thalassemias are characterized by the absence or reduced synthesis of one of the globin subunit of hemoglobin molecule. Thus the main pathophysiologic feature of thalassemia is the accumulation of unpaired globin chains in erythrocyte precursors and red blood cells. This accumulation alters cell membrane function and results in early cell destruction and ineffective erythropoiesis, leading to chronic anemia. A number of experiments including thalassemic mouse model, cultures of erythroid progenitors, and the role of microRNA have been established to understand molecular mechanisms of erythropoiesis and apoptosis.

To study the novel treatments by gene therapy and drugs that will enhance **hemoglobin F synthesis for improving the patient's quality of life. This study includes the use of antisense DNA and siRNAs in transgenic mice and primary erythroid cells.**

Current Research staff and graduate students:

1. Mr. Poramin Patthamalai (Ph.D. student)
2. Mr. Natee Jearawiriyapaisarn (Ph.D. student)
3. Ms. Jatuporn Tanakulmas (M.Sc. student)
4. Ms. Passanun Singpant (M.Sc. student)
5. Mr. Suriyan Sukati (Ph.D. student)

Selected Publications:

1. Srinoun K, Svasti S, Chumworathayee W, Vadolas J, Vattanaviboon P, Fucharoen S, Winichagoon P. Imbalanced globin chain synthesis determines erythroid cell pathology in thalassemic mice. *Haematologica* 2009; 94: 1211-1219.
2. Wannatung T, Lithanatudom P, Leecharoenkiat A, Svasti S, Fucharoen S, Smith DR. Increased erythropoiesis of $\alpha\alpha\beta$ -thalassemia/hemoglobin E proerythroblasts is mediated by high basal levels of ERK1/2 activation. *Br J Haematol* 2009; 146: 557-568
3. Svasti S, Suwanmanee T, Fucharoen S, Hong M, Moulton, Michelle H, Nelson, Nobuyo Meeda, Oliver Smithies, Ryszard Kole. RNA repair restores hemoglobin expression in IVS2-654 thalassemic mice. *PNAS* 2009; 106: 1205-1210.
4. Winichagoon P, Svasti S, Munkongdee T, Chaiya W, Noonmongkol P, Chantrakul N, Fucharoen S. Rapid diagnosis of thalassemias and other hemoglobinopathies by capillary electrophoresis system. *Translational Research* 2008; 152: 178-184.

Dr. Sarin Chimnaronk

Ph.D. (Bioscience), University of Tokyo, 2004

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Research Interests: Non-coding RNA, Structure

Functional analyses of multimeric complexes



Discovery of the RNA interference phenomenon redefined the paradigm of genetic flow and shed light on the hidden roles of non-coding (nc) RNAs in regulation of cellular processes. As it has been estimated that more than half of the transcripts in human cell do not encode proteins, and appear to be non-coding, there are likely to be many more unknown ncRNAs that are fulfilling a wide range of unexpected functions in eukaryotic biology. I have begun to explore the novel functional complexes of ncRNAs and proteins using the three hybrid system and the methodology of tag purification. The X-ray crystallographic analysis will be used to characterize these complexes to be related to the cellular function. This project is in part collaborated with Prof. Isao Tanaka in Hokkaido University, Japan.

At the same time in IMBG, I have undertaken to construct a new lab for structural and functional analysis of the membrane protein. My initial project aims to solve the structure of the membrane-inserted form of the dengue viral protease NS2B-NS3 complex. Its structure will reveal the detailed mechanism for activation of the protease activity, and provide an essential knowledge for design and development of the therapeutic agents.

Very recently, I am trying to extend my RNA techniques into more fields that are thought to be important for the country. This includes researches of diseases such as thalassemia and dengue infection.

Current Research staff and graduate students:

Mr. Opas Choksupmanee (M.Sc.)

Mr. Poramin pattamalai (Ph.D.)

Selected Publications:

1. Tanaka Y., Yamagata S., Kitago Y., Yamada Y., Chimnaronk S., Yao M., and Tanaka I.* (2009) Deduced RNA binding mechanism of Thil based on structural and binding analyses of a minimal RNA ligand. *RNA*. 15, 1498-1506.
2. Chimnaronk, S.,* Forouhar F., Sakai J., Yao M., Tron C.M., Atta M., Fontecave M., Hunt J.F., and Tanaka I.* (2009) Snapshots of Dynamics in Synthesizing N^6 -isopentenyladenosine at tRNA Anticodon. *Biochemistry*. 48, 5057-5065.
3. Chimnaronk, S., Suzuki, T., Manita, T., Ikeuchi, Y., Yao, M., Suzuki, T., and Tanaka, I.* (2008) RNA helicase module in an acetyltransferase that modifies a specific tRNA anticodon. *EMBO J*. 28, 1362-1373.
4. Nakamura, A., Yao, M., Chimnaronk, S., Sakai, N., and Tanaka, I.* (2006) Ammonia channel couples glutaminase with transamidase reaction in GatCAB. *Science* 312, 1954-1958.
5. Chimnaronk, S., Jeppesen, M.G., Suzuki, T., Nyborg, J., and Watanabe, K.* (2005) Dual-mode recognition of noncanonical tRNAs^{Ser} by seryl-tRNA synthetase in mammalian mitochondria. *EMBO J*. 24, 3369-3379.

Dr. Siwanon Jirawatnotai

Ph.D.(Molecular Genetics), Univ. of Illinois, Chicago, 2005

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Research Interests: Cancer Research



G1 cell cycle regulatory proteins, such as Cyclin Ds, and CDK4/6 play critical roles during mammalian development and tumorigenesis. Cyclin D1 overexpression/Cyclin D/CDK complexes have been shown to function as a positive regulator of cell division, however, precise roles in cancer formation is still unclear. My research interest is to identify roles of Cyclin D1 in cancer formation. In order to study the roles of Cyclin D1 in cancer formation in a global way, with a collaboration with groups in Harvard Medical School, I employed double immune-affinity protein purification coupled with high throughput protein sequencing, to identify Cyclin D1 interacting proteins from several types of human cancer. The screening yielded in several novel Cyclin D1-interacting proteins. Currently, I have been focusing on a novel non-cell cycle role of Cyclin D1 during DNA repair.

Selected Publications:

1. Bienvenu F, Jirawatnotai S, Elias JE, Mejer CA, Mizeracka K, Marson A, Frampton GM, Cole MF, Odom D, Odajima J, Geng Y, Zagozdzon A, Jecrois M, Young RA, Liu XS, Cepko C, Gygi S, Sicinski P. **Transcriptional function of cyclin D1 upstream of Notch revealed by a "genetic-proteomic" screen** Nature (in press)
2. Jirawatnotai S, Aziyu A, Osmundson E, Moons DS, Kineman R, Kiyokawa H. Cdk4 is indispensable for postnatal proliferation of the anterior pituitary. (2004). *Journal of Biological Chemistry*, 279(49):51100-6
3. Holsberger D, Jirawatnotai S, Kiyokawa H, Cooke PS. (2003). Thyroid hormone regulates the cell cycle inhibitor $p27^{kip1}$ in postnatal murine sertoli cells. *Endocrinology*, 144(9):3732-8.
4. Jirawatnotai S, Moons D, Stocco C, Franks R, Hales DB, Gibori G, Kiyokawa H. (2003). The CDK inhibitors $p27^{kip1}$ and $p21^{cip1}$ cooperate to restrict proliferative life span in differentiating ovarian cells. *Journal of Biological Chemistry*, 278(19):17021-7.
5. Moons DS, Jirawatnotai S, Parlow AF, Gibori G, Kineman RD, Kiyokawa H. (2002). Pituitary hypoplasia and lactotroph dysfunction in mice deficient for cyclin-dependent kinase-4 (Cdk4). *Endocrinology*, 143: 3001-3008.
6. Moons DS, Jirawatnotai S, Tsutsui T, Franks R, Parlow AF, Hales D, Gibori G, Fazleabas A, Kiyokawa H. (2002). Intact follicular maturation and defective luteal function in mice deficient for cyclin-dependent kinase-4 (Cdk4). *Endocrinology*, 143: 647-654.

Dr. Sukonthar Ngampramuan

Ph.D. (Neuroscience), Mahidol University

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Research Interests: Neuro-Behavioral Biology

My current research in Neurocardiology investigates the principles of interaction between the brain and the heart. I am interested in the brain control of cardiac regulation in responses to psychological stresses - a clinically important and poorly understood area. I have recently demonstrated that sudden altering stimuli can precipitate potentially fatal ventricular arrhythmias in animals, just as it sometimes happens in humans. In addition to conscious animal models, I use anesthetized animals to study descending pathways to the heart and their neurochemistry. I am currently running experimental protocols with telemetric recordings of cardiac parameters and stereotactic microinjection of pharmacological substances into the brain areas involved in the cardiac control. In collaboration with Dr. Eugene Nailvaiko (Newcastle, AU), we have described the pharmacological inhibition of the amygdala prevents restraint-stress tachycardia in rats and discovered that the activation of serotonin 1A agonist (5-HT_{1A}) receptor in the medullary raphe area also reduces tachycardia during restraint stress. This discovery has led me to hypothesize that 5-HT_{1A} receptors may represent a mechanism link between stress and cardiac malfunction. I expect my future work would provide new understandings about stress-related cardiac diseases.

Selected Publications:

1. Ngampramuan, S, Baumert M., Beig, M.I., Kotchabhakdi, N., and Nailvaiko, E. (2008). Activation of 5-HT_{1A} receptors attenuates tachycardia induced by restraint stress in rats. *Am J Physiol Regul Integr Comp Physiol* 294, R132-141.
2. Salome, N., Ngampramuan, S., and Nailvaiko, E. (2007). Intra-amygdala injection of GABA_A agonist, muscimol, reduces tachycardia and modifies cardiac sympatho-vagal balance during restraint stress in rats. *Neuroscience* 148, 335-341.

Dr. Supattra Treerattrakool

Ph.D. (Molecular Genetics & Genetic Engineering), Mahidol University, 2008

Email: mbsupattra@staff2.mahidol.ac.th

Research Interests: Shrimp Molecular Biology

Current research activity involves molecular study of eyestalk-neuropeptide hormones controlling growth and reproduction in shrimp *Penaeus monodon*. The peptide hormones in optic ganglia, CHH family, play important roles in growth and reproduction of crustaceans. This peptide family is composed of crustacean hyperglycaemic hormone (CHH), molt-inhibiting hormone (MIH) and gonad-inhibiting hormone (GIH). In the production of shrimp fry, female broodstock must be unilateral-eyestalk ablation in order to induce ovarian maturation: this technique that leads to reduce the GIH in the broodstock. . Although eyestalk ablation gives several maturations and spawning in captivity condition but the spawners will become weary with continuous spawning and eventual die within 1-2 months. This technique leads to over-exploitation of broodstocks that directly affects shrimp production investment.

Our research goals are to study both molecular and functional aspects of GIH and apply this knowledge to block GIH activity in shrimp without eyestalk ablation. This would enable effective of broodstock utilization and desirable for both ethical and economical bases.

Selected Publications:

1. Treerattrakool S., Panyim S., Chan S-M., Withyachumnarnkul B. and Udomkit A. (2008) Molecular characterization of gonad-inhibiting hormone of *Penaeus monodon* and elucidation of its inhibitory role in vitellogenin expression by RNA interference. *FEBS J.* 275 (5), 970-980.
2. Treerattrakool S., Udomkit A. and Panyim S. (2006) Anti-CHH antibody causes impaired hyperglycemia in *Penaeus monodon*. *J. Biochem. Mol. Biol.* 39, 371- 376.
3. Yodmuang S., Udomkit A., Treerattrakool S. and Panyim S. (2004) Molecular and biological characterization of molt-inhibiting hormone of *Penaeus monodon*. *J. Exp. Mar. Biol. Ecol.* 312, 101-114.
4. Udomkit A., Treerattrakool S. and Panyim S. (2004) Crustacean hyperglycemic hormones of *Penaeus monodon*: cloning, production of active recombinant hormones and their expression in various shrimp tissues. *J. Exp. Mar. Biol. Ecol.* 298, 79-91.
5. Treerattrakool S., Udomkit A., Eurwilaichitr L., Sonthayanon B. and Panyim S. (2003) Expression of biologically active crustacean hyperglycemic hormone (CHH) of *Penaeus monodon* in *Pichia pastoris*. *Mar. Biotechnol.* 5(4), 373-379.

Assistant Professor Surapon Piboonpocanun

Ph.D. (Molecular Biology & Physiology), Ohio State Univ., 1994.

Email: piboons@gmail.com

Research Interests: Allergy



Identification and characterization of novel shrimp allergens.

Shrimp is a very popular food around the world. Hypersensitivity after eating shrimp causes harsh responses in various systems such as respiratory, skin, and digestive. Several techniques such as immunoblot, inhibition assay, ion exchange chromatography, and mass spectrometry are used to identify allergic proteins. Cloning cDNA encoding allergenic proteins are also performed.

Structure and function study of HDM group 2 allergen.

Physical properties and structure of recombinant allergens are studied by Circular Dichroism and Hydrophobic area staining. Immuno-reactivity properties are studied by immunoblot, inhibition assay, PBMC proliferation, and basophil degranulation. Site-directed mutagenesis of allergen is also performed to study the effect of altered structure on immuno-reactivity properties.

Crystal structure analysis of invertebrate tropomyosin and arginine kinase.

To have a better understanding of IgE cross-reactivity with invertebrate tropomyosin and enzyme arginine kinase, obtaining x-ray crystal structure of both proteins are carried out. Several techniques such as protein expression and purification, Circular Dichroism, immunoblot, inhibition assay, and bioassay are performed to ensure recombinant proteins are correctly folded and retain their biological function before crystallization is performed.

Current Research staff and graduate students:

1. Ms Sasipa Tanyaratsrisakul (PhD student)
2. Ms Thitinun Tipayanon (MSc student)
3. Ms Nareerat Wongchum (MSc student)

Selected Publications:

1. Tanyaratsrisakul S, Malainual N, Jirapongsananuruk O, Smith WA, Thomas WR, Piboonpocanun S. Structural and IgE Binding Analyses of Recombinant Der p 2 Expressed from the Hosts *Escherichia coli* and *Pichia pastoris*. *Int Arch Allergy Immunol*. 2010;151(3):190-198. [Epub 2009 Sep 29] PubMed PMID: 19786799.
2. Luangwedchakarn V, Jirapongsananuruk O, NiemeLa JE, Thepthai C, Chokephaibulkit K, Sukpanichnant S, Pacharn P, Visitsunthorn N, Vichyanond P, Piboonpocanun S, Fleisher TA. A novel mutation of the IL12RB1 gene in a child with nocardiosis, recurrent salmonellosis and neurofibromatosis type I: first case report from Thailand. *Asian Pac J Allergy Immunol*. 2009;27(2-3):161-5. PubMed PMID: 19839503.
3. Jirapongsananuruk O, Sripramong C, Pacharn P, Udompunturak S, Chinratanapisit S, Piboonpocanun S, Visitsunthorn N, Vichyanond P. Specific allergy to *Penaeus monodon* (seawater shrimp) or *Macrobrachium rosenbergii* (freshwater shrimp) in shrimp-allergic children. *Clin Exp Allergy*. 2008;38(6):1038-47. PubMed PMID: 18498545.
4. Jirapongsananuruk O, Noack D, Boonchoo S, Thepthai C, Chokephaibulkit K, Visitsunthorn N, Vichyanond P, Luangwedchakarn V, Likasitwattanukul S, Piboonpocanun S. A novel mutation of the CYBB gene resulting in severe form of X-linked chronic granulomatous disease. *Asian Pac J Allergy Immunol*. 2007;25(4):249-52. PubMed PMID: 18402299.

Associate Professor Sutee Yoksan

Ph.D. (Pathobiology), Mahidol University, 1989

Email: grsys@mahidol.ac.th

Research Interests: Vaccine Development



- Dengue Vaccine Development :
 - Live attenuated
 - Live molecular
- Japanese encephalitis Vaccine Development :
 - Inactivate
 - Live molecular
- Chikungunya Vaccine :
 - Inactivated
 - Live attenuated

Selected Publications:

1. Suputthamongkol Y., Nitatpattana N., Chayakulkeeree M., Palabodeewat S., Yoksan S., and Gonzalez JP. (2005). Hantavirus infection in Thailand: First clinical case report. . Southeast Asian J Trop Med Public Health Vol. 36 (1): 217-220.
2. Nitatpattana N., Apiwathnasorn C., Barbazan P., Leemingsawat S., Yoksan S., and Gonzalez JP. (2005). First isolation of Japanese Encephalitis from *Culex Quinquefasciatus* in Thailand. Southeast Asian J Trop Med Public Health Vol. 36 (4): 875-878.
3. Sakuntabhai A., Turbpaiboon C., Casad mont I., Chunsumrit A., Lowhnoo T., Kajaste-Rudnitski A., Kalayanarooj S.M., Tangnararatchakit K., Tangthawornchaikul N., Vasanawathana S., Chaiyaratana W., Yenchitsomanus P., Suriyaphol P., Avirutnan, P., Chokephaibulkit K., Matsuda F., Yoksan S., Jacob Y., Lathrop M., Malasit P., Despr s P., and Julier C. (2005). A variant in the *CD209* promoter is associated with severity of dengue disease. Nature Genetics Vol. 37 (5): 507-513.
4. Kitchener S., Nissen M., Nasveld P., Forrat R., Yoksan S., Lang J., Saluzzo J.F. (2006). Immunogenicity and safety of two live-attenuated tetravalent dengue vaccine formulations in healthy Australian adults. Vaccine 24: 1238-1241.
5. Guirakhoo F., Kitchener S., Morrison D., Forrat R., McCarthy K., Nichols R., Yoksan S., Duan X., Ermak T.H., Kanasan-thasan N., Bedford P., Lang J., Quentin-Millet M.J., Monath T.P. (2006). **Live Attenuated Chimeric Yellow Fever Dengue Type 2 (ChimeriVax™-DEN2) Vaccine: Phase I Clinical Trial For Safety and Immunogenicity, Effect of Yellow Fever Pre-immunity in Induction of Cross Neutralizing Antibody Responses to All 4 Dengue Serotypes.** Human Vaccines 2:2, 60-67.
6. Chanthavanich P., Luxemburger C., Sirivichayakul C., Lapphra K., Pengsaa K., Yoksan Y., Sabchareon A., and Lang J. (2006). Immune response and occurrence of dengue infection in Thai children 3 to 8 years after vaccination with live attenuated tetravalent dengue vaccine. Am J Trop Med Hyg. Jul;75(1):26-28.
7. Butthep P., Chanhakan S., Tangnararatchakit K., Yoksan S., Pattanapanyasat K., Chuansumrit A. (2006). Elevated soluble thrombomodulin in the febrile stage related to patients at risk for dengue shock syndrome. Pediatr Infect Dis J. 25: 894-897.

Professor Suthat Fucharoen

Medicine, Chiang Mai University

Email: grsfc@mahidol.ac.th

Research Interests: Thalassemia Research



Thalassemia is the most common genetic disorders in Thailand and worldwide. In the past several years, works from Thalassemia Research Center have defined the frequencies of different thalassemia genes, their molecular genetic nature, disease burdens, clinical manifestation and management. Thalassemia research covers the study from the clinical to the molecular levels, which is expanded in depth and scope. This information, including results of pathophysiologic studies, has been applied for better management of the patients and establishment of the prevention and control program of the disease. However, some clinical presentations still required more research for clarification.

To understand the genotype-phenotype interaction in β -thalassemia/HbE. Substantial evidence suggests the involvement of additional factors that can modify clinical presentation amongst patients with similar β -thalassemia genotypes. A genome-wide search for genetic polymorphisms associated with disease severity revealed significant single nucleotide polymorphisms (SNPs) that may involve in disease heterogeneity. Functional studies for candidate genes are being explored including those involve in Hb F regulation, proteolysis and molecular mechanism of erythropoiesis and apoptosis.

Current Research staff and graduate students:

1. Dr. Nantika Panuddaporn (Researcher)
2. Mrs. Pornpan Sirangkapracha (M.Sc.)
3. Ms. Thongperm Munkongdee (M.Sc.)
4. Ms. Nattawara Chaneiam (Ph.D. student)
5. Ms. Alisa Tubsuwan (Ph.D. student)
6. Ms. Orawan Sarakul (Ph.D. student)
7. Mr. Manit Nuinoon (Ph.D. student)
8. Ms. Chanita Sanyear (M.Sc. student)

Selected Publications:

1. Srinoun K, Svasti S, Chumworathayee W, Vadolas J, Vattanaviboon P, Fucharoen S, Winichagoon P. Imbalanced globin chain synthesis determines erythroid cell pathology in thalassemic mice. *Haematologica* 2009; 94: 1211-1219.
2. Wannatung T, Lithanatudom P, Leecharoenkiat A, Svasti S, Fucharoen S, Smith DR. Increased erythropoiesis of $\alpha\alpha\beta$ -thalassemia/hemoglobin E proerythroblasts is mediated by high basal levels of ERK1/2 activation. *Br J Haematol* 2009; 146: 557-568.
3. Jirasomprasert T, Noppawan P, Morales, Lie M.G. Limenta, Sirijaroonwong S, Yamanont P, Wilairat P, Fucharoen S, Chantharaksri U. Pharmacokinetic-related pro-oxidant activity of deferiprone in β -thalassemia. *Free Radical Research* 2009; 43(5): 485-491.
4. Tayapiwatana C, Kuntaruk S, Tatu T, Chiampanichayakul S, Munkongdee T, Winichagoon P, Fucharoen S, Kasinrerak W. Simple method for screening of β -thalassemia 1 carriers. *Int J Hematol* 2009; 89: 559-567.

Associate Professor Varaporn Akkarapatumwong

Ph.D. (Science), University of Adelaide, Australia

Email: stvtl@mahidol.ac.th

Research Interest: Molecular Basis of Genetic Diseases



My laboratory is interested in investigation the molecular basis of human diseases such as distal renal tubular acidosis (dRTA) and renal stone formation in collaboration with Prof. Pa-thai Yenchitsomanus. Both dRTA and renal stone are diseases which commonly found in the northeastern population of Thailand. Several evidences suggested that genetic factors may play an important role in causing these diseases. Our research goal for dRTA is to investigate the molecular defects causing dRTA by several approaches including mutation analysis and functional analysis. Yeast two-hybrid screening was used to search for protein interacting with kAE1, an isoform of AE1 in kidney. Integrin-linked kinase (ILK) was obtained as one of the protein interacting with kAE1 and detail analysis of the interaction of ILK and kAE1 was performed in collaboration with Prof. Joe Casey. For the research work in renal stone formation, we are part of the ongoing project aimed to identify candidate genes for this disease. Association studies using single nucleotide polymorphisms (SNPs) was conducted to study the selected genes that may associated with renal stone formation.

Research staff and graduate students:

1. Pornthip Saengsawang
2. Thitima Keskanokwong
3. Phuttawadee Phuengcharoen
4. Pairoa Praihirunkit

Selected publications

1. Keskanokwong T, Shandro HJ, Johnson DE, Kittanakom S, Vilus GL, Thorner P, Reithmeier RA, Akkarapatumwong V, Yenchitsomanus PT, Casey JR. (2007) Interaction of Integrin-linked Kinase with the Kidney Chloride/Bicarbonate Exchanger, kAE1. *J. Biol. Chem.* 282(32): 23205-18.
2. Wongthida P, Akkarapatumwong V, Limjindaporn T, Kittanakom S, Keskanokwong T, Eurwilaichitr L, Yenchitsomanus PT. (2006) Analysis of the interaction between human kidney anion exchanger 1 and kanadaptin using yeast two-hybrid systems. *Gen Mol Biol* 29(1): 14-22.
3. Sawasdee N, Udomchaiprasertkul W, Noisakran S, Rungroj N, Akkarapatumwong V, Yenchitsomanus P. Trafficking defect of mutant kidney anion exchanger 1 (kAE1) proteins associated with distal renal tubular acidosis and Southeast Asian ovalocytosis. (2006) *Biochem. Biophys. Res. Comm.* 350(3): 723-730.
4. Changsri K, Akkarapathumwong V, Jamsai D, Winichagoon P. (2006) Molecular mechanism of high hemoglobin F production in southeast Asian-type hereditary persistence of fetal hemoglobin. *Inter. J. Hematology* 83(3): 229-237.

Professor Warren Y. Brockelman

Ph.D. (Zoology), University of Michigan, USA. 1968

Email: wbybrock@cscs.com, scwbk@mahidol.ac.th

Research Interests: Conservation Genetics and Ecology



1. **Behavior and conservation of wild elephants using non-invasive sampling of DNA:** We are currently attempting to census elephants and study ranging and social structure in Salak Phra Wildlife Sanctuary, western Thailand, through genetic fingerprinting using hypervariable microsatellite loci obtained from fresh dung. In the future this work may be extended to other conservation areas, and to other species.
2. **Behavior and ecology of gibbons (*Hylobates lar*):** Study of the gibbon diet and foraging behavior, and life history, in Khao Yai National Park.
3. **Census and conservation of endangered gibbon populations:** We apply auditory methods for censusing populations of several species of gibbons, including *Hylobates pileatus* in Southeast Thailand, *H. agilis* in South Thailand and *Hoolock leuconedys* in Myanmar.
4. **Seed dispersal and forest dynamics** on the Mo Singto Forest Dynamics Plot in Khao Yai National Park, central Thailand. Particular emphasis is devoted to seed dispersal by gibbons and other frugivores and plant recruitment on the 30-ha plot.

Current Research staff and graduate students:

1. Dr. Norberto Asensio (Post-doctoral fellow)
2. Ms Chomcheun Siripunkaw (Ph.D. student)
3. Ms. Chalilta Konkrit (Ph.D. student)
4. Ms. Josie Vayro (M.Sc. student)
5. Ms. Carrie Tarazi (M.Sc. student)

Selected Publications:

1. Brodie, J. F., O. E. Helmy, W. Y. Brockelman, and J. L. Maron. 2009. Functional differences within a guild of tropical mammalian frugivores. *Ecology* 90: 688–698.
2. Brodie, J. F., O. E. Helmy, W. Y. Brockelman, and J. L. Maron. 2009. Bushmeat poaching reduces the seed dispersal and population growth rate of a mammal-dispersed tree. *Ecological Applications* 19: 854–863.
3. Gale, G. A., P. D. Round, A. J. Pierce, S. Nimnuan, A. Pattanavibool, and W. Y. Brockelman. 2009. A field test of distance sampling methods for a tropical forest bird community. *Auk* 126: 439–448.
4. Brockelman, W. Y., A. Nathalang, and G. A. Gale. 2009. The Mo Singto forest dynamics plot, Khao Yai National Park, Thailand. *Nat. Hist. Bull. Siam Soc.* (in press).
5. Brockelman, W. Y. 2008. Ecology and the social behavior of gibbons. In: D. Whittaker and S. M. Lappan (eds.), *Wild Gibbon Populations: New Understandings of Small Ape Socioecology, Population Biology, and Conservation*. Springer Verlag, New York (pp. 211–239).

Associate Professor Wipa Chungjatupornchai

Ph.D. (Molecular Biology), Free University of Brussels, 1989

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Research Interests: Cynaobacterial Molecular Biology



Our research goal is to study the control of gene expression in microalgae, in order to improve the productivity of these organisms. Microalgae produce valuable molecules ranging from therapeutic proteins to biofuels. Microalgae are unique because they have the ability of photosynthesis with the high yields of microbial cultivation, making them valuable organisms for economical, industrial-scale production processes. Our current research activities involve in three areas: (i) control of gene expression in cyanobacteria (blue green algae); (ii) biodegradation of organophosphate pesticides using recombinant cyanobacteria and (iii) development of genetic transformation system in microalgae used as feedstock for biofuels.

Cyanobacteria have been used as hosts to express several heterologous genes. However, the level of heterologous gene expression in cyanobacteria is low when compared with that in *E. coli*. Current knowledge of the relationship between nucleotide sequence structure and function of promoters and ribosome binding site for translation initiation recognized within cyanobacteria is still limited. This project is aimed to develop highly active regulatory sequences in cyanobacterium *Synechococcus* PCC7942 by generating strong promoters/enhancers and optimal translation initiation sequences from synthetic DNA libraries.

The enzyme organophosphorus hydrolase (OPH) is capable of degrading a wide range of organophosphate pesticides. In this project, the expression of OPH in cyanobacterium *Synechococcus* PCC7942 may lead to the development of a low-cost and low-maintenance biocatalyst useful for detoxification of organophosphate pesticides.

Many microalgae are exceedingly rich in oil, which can be converted to biodiesel using existing technology. Much of the previous work has focused on species selection and cultivation techniques. This project is aim to develop the genetic transformation system in some microalgae that may lead to improve the productivity of algal biofuels via genetic and metabolic engineering.

Current Research staff and graduate students:

1. Ms. Sirirat Fa-aroonswat, M.Sc. (research staff)
2. Ms. Pawena Kitraksa, B.Sc. (research staff)
3. Ms. Nawapol Udpuay (M.Sc. Student)
4. Ms. Pajaree Leanglum (M.Sc. Student)

Selected Publications:

1. Chungjatupornchai W. and Fa-aroonswat S. (2009) Translocation of green fluorescent protein to cyanobacterial periplasm using ice nucleation protein. *J. Microbiol.* 47: 187-192.
2. Monshupanee T, Gregory ST, Douthwaite S, Chungjatupornchai W, Dahlberg AE. (2008) Mutations in the conserved helix 69 of 23S rRNA of *Thermus thermophilus* that affect capreomycin resistance but not posttranscriptional modifications. *J. Bacteriol.* 190:7754-7761.

Associate Professor Wipawan Thangnipon

Ph.D. (Neurochemistry), University of London, U.K. 1985

Email: grwtn@mahidol.ac.th

Research Interests: Neuro-Behavioural Biology



Genetically modified neural stem cells for cellular therapy in Alzheimer's disease. To study the genetically modified human neural stem cells for Alzheimer's disease (AD), producing neurotrophin-secreting cells. Those cells can release neurotrophic factors such as BDNF, NT-3, etc. and will be able to protect neuronal cell death in AD models. Influence of neurotrophic factors on the brain and behavioural development in pre-school children To investigate effects of enriched environment, physical exercise and music may increase the expression of neurotrophic factors such as BDNF, NGF, etc and influence the brain and behavioural development in Thai pre-school children. Protective effects of *N-trans* feruloyltyramine on β -amyloid peptide-induced neurotoxicity in rat cortical cell cultures

Current Research staff and graduate students:

1. Assoc. Prof. Naiphinich Kotchabhakdi
2. Asst. Prof. Nuanchan Jutapukdeekul
3. Mr Narisorn Kitiyanant (Ph.D. student)
4. Mr Nirut Suwanna (Ph.D. student)
5. Miss Siriporn Pipatshukiat (Ph.D. student)

Selected Publications:

1. Buntup, D., Chayasadam, A., Surarit, R., Jutapakdeegul, N., Thangnipon, W. (2009) Effects of amyloid- β peptide on glutamine transporter mRNA expression and cell viability in cultured rat cortical cells. *ScienceAsia*. (In press)
2. **Sotthibundhu, A., Li, Q., Thangnipon, W. and Coulson, E.J. (2008) A β 1–42 stimulates adult SVZ neurogenesis through the p75 neurotrophin receptor.** *Neurobiology of Aging*. (In press)
3. Buntup, D., Skare, Ø., Solbu, T.T., Chaudhry, F.A., Storm-Mathisen, J. and Thangnipon, W. (2008) β -Amyloid 25-35 Peptide Reduces the Expression of Glutamine Transporter SAT1 in Cultured Cortical Neurons. *Neurochem Res* 33, 248–256.
4. Tong, L., Balazs, R., Soiampornkul, R., Thangnipon, W. and Cotman, C.W. (2008) Interleukin-1 β impairs brain derived neurotrophic factor-induced signal transduction. *Neurobiology of Aging* 29, 1380-1393.
5. Sotthibundhu, A., Sykes, A.M., Fox, B., Underwood, C.K., Thangnipon, W. and Coulson, E.J. (2008) β -Amyloid_{1–42} Induces Neuronal Death through the p75 Neurotrophin Receptor. *The Journal of Neuroscience* 28(15), 3941–3946.
6. Soiampornkul, R., Tong, L., Thangnipon, W., Balazs, R. and Cotman, C.W. (2008) Interleukin-1 β interferes with signal transduction induced by neurotrophin-3 in cortical neuron. *Brain Research* 1188, 189-197.
7. Sotthibundhu, A., Chansirikarnjana, S., Sanghirun, C., Cherdchu, K., Cheeramakara, C, Nimkulrat, E., Wongmek, W. and Thangnipon, W. (2008) Low vitamin B12 level in Alzheimer's disease as detected by a novel solid phase radioimmunoassay. *Siriraj Medical Journal* 60, 66-68.

Assistant Professor Witoon Tirasophon

Ph.D. (Biological Chemistry), University of Michigan, 1998

Email: mbwtr@mahidol.ac.th

Research Interests: RNA Interference



Research in our laboratory is focusing on two major areas related to mechanisms by which eukaryotic cells respond to patho-physiological stresses. The first part aims to understand the molecular mechanism for coping with conditions that compromises protein folding in endoplasmic reticulum (ER). Model organisms including yeast, insect cells and mammalian cells are used in dissecting the pathway. Understanding of this mechanism can help to improve production of high value recombinant proteins in the target cells. In addition, this might help us to get insight into pathological conditions associated with protein folding defects such as viral infection and genetic diseases. The second part is related to transcription suppression of target genes by RNA interference. The recent finding that eukaryotic gene could be specifically knocked down upon introduction homologous double stranded RNA into target cells. This concept has been efficiently used for functional studies of the target genes. We are interested in applying this strategy to develop a new means to control viral disease in economic animals of Thailand including shrimp and live stock.

Research staff and graduate students:

Nongluk Plongthongkum, Teva Phanaksri, Wanlop Chinnirunvong, Niwed Kullawong, Pattarawut Sopha, Pharanai Sukumungoon, Jutakorn Poothong, Thanyarat Promlek

Selected publications

1. Plongthongkum, N., Kullawong, N., Panyim, S. and Tirasophon, W. (2007) Ire1 regulated *XBP1* mRNA splicing is essential for the unfolded protein response (UPR) in *Drosophila melanogaster*. *Biochem. Biophys. Res. Comm.* 354:789-794.
2. Yodmuang, S., Tirasophon, W., Roshorm, Y., Chinnirunvong, W. and Panyim, S. (2006) YHV-protease dsRNA inhibits YHV replication in *Penaeus monodon* and prevents mortality. *Biochem. Biophys. Res. Comm.* 341:351-356.
3. Tirasophon, W., Roshorm, Y. and Panyim, S. (2005) Silencing of Yellow Head Virus Replication in Penaeid Shrimp Cells by dsRNA *Biochem. Biophys. Res. Comm.* 334:102-107.
4. Assawalapsakul, W., Tirasophon, W., Panyim, S. (2003) Antiserum to the Gp116 Glycoprotein of Yellow Head Virus Neutralizes Infectivity in Primary Lymphoid Organ Cells of *Penaeus monodon*. *Dis. Aquat. Org.* 63:85-88.
5. Lee, K., Tirasophon, W., Shen, X., Michalak, M., Prywes, R., Okada, T., Yoshida, H., Mori, K., and Kaufman, R.J. (2002) IRE1-mediated unconventional mRNA splicing and S2P-mediated ATF6 cleavage merge to regulate XBP1 in signaling the unfolded protein response. *Genes Dev.* 16:452-466.

Assistant Professor Yongyuth Kajornpredanon

M.Sc. (Biomedical Instrumentation), Mahidol University, 1986

Email: styks@mahidol.ac.th

Research Interests: Biomedical Instrumentation



Our research goal is to create the biomedical instruments that are needed by the general hospitals and medical schools in Thailand. These instruments should have precision and safely operation enough for treatment purpose. Also they should be easy to maintenance and repair in **case of failure by the hospital's technician**. Current research activity involves the Defibrillator Analyzer, the Patient Simulator, equipments for the elderly and disabilities patient.

Current Research staff and graduate students:

1. Asst. Prof. Somsri Daochai
2. Asst. Prof. Sumethee Thanungkul
3. Asst. Prof. Tortrakool Apaiwongse
4. Mr. Wirasak Angkhananuwat
5. Mr. Charaim Pairor
6. Mr. Kuson Petchsup
7. Mr. Watchara Sroykham

Selected Publications:

1. Kajornpredanon Y, Daochai S, Apaiwong C, Rattanakajornsak R. Quality Assessments of the Infusion Pump: Servicing Aspects. BMEiCON2009, Thailand.
2. Kajornpredanon Y, Daochai S, Apaiwong C, Rattanakajornsak R. Performance Test of the Prototype Defibrillator Analyzer. BMEiCON2009, Thailand.

Dr. Yun-Kiam Yap

Ph.D. (Biological Sciences) Nara Institute of Sci. & Tech, 2002

Email: fryky@mahidol.ac.th

Research Interests: Plant Molecular Virology / Plant Biology



Our laboratory is interested in two areas of plant molecular biology. One of our interests is in the area of plant molecular virology, which aimed to achieve sustainable control and management of plant viral disease through the studies of viral pathogenesis and plant-viral interaction. The focus of our research is on *Papaya ringspot virus* (PRSV), a potyvirus which infects papaya and many cucurbit species such as pumpkin, zucchini, melon, cucumber and etc. We are interested in the elucidation of PRSV gene functions and examination of the mechanisms involved in symptom attenuation and host specificity. Another area of our research interest involved the biopharming technology, which uses plant as a host to produce bio-products in large quantities and at low costs. Our current research is on the development of chloroplast transformation system in the expression of a mosquito larvicidal toxin.

Current Research staff and graduate students:

Mr. Ibsa Fite Merga (M.Sc. student)

Selected Publications:

1. Y-K. Yap, J. Duangjit, S. Panyim (2009) N-terminal of Papaya ringspot virus (PRSV) helper component proteinase (HC-Pro) is essential for PRSV systemic infection in zucchini. *Virus Genes* 38: 461-467
2. S. Eiamtanasate, M. Juricek, Y-K. Yap (2007) C-terminal hydrophobic region leads PRSV P3 protein to endoplasmic reticulum. *Virus Genes* 35: 611-617
3. F. Waller, A. Müller, K-M Chung, Y.K Yap, K. Nakamura, E. Weiler, H. Sano (2006) Expression of WIPK-Activated transcription factor results in increase of endogenous salicylic acid and pathogen resistance in tobacco plants. *Plant Cell Physiology* 47(8): 1169-1174
4. Y.K Yap, Y. Kodama, F. Waller, K.M. Chung, H. Ueda, K. Nakamura, M. Oldsen, H. Yoda, Y. Yamaguchi, H. Sano (2005) Activation of a novel transcription factor through phosphorylation by WIPK, a Wound-induced Mitogen Activated Protein Kinase in tobacco plants *Plant Physiology* 139: 127-137
5. Y.K. Yap, K. Kakamu, Y. Yamaguchi, N. Koizumi, H. Sano (2002) Promoter analysis of WIPK, a gene encoding a tobacco MAP kinase, with reference to wounding and Tobacco mosaic virus infection *Journal of Plant Physiology* 159: 77-83
6. M. Huang, D.C-Y. Koh, L.J. Weng, M.L. Chang, Y.K. Yap, L. Chang and S.M. Wong (2000) Complete nucleotide sequence and genome organization of Hibiscus chlorotic ringspot virus, a new member of the genus Carmovirus: Evidence for the presence and expression of two novel open reading frames *Journal of Virology* 74(7): 3149-3155