

CURRICULUM VITAE

SURNAME: Prapanthadara

FORENAME: La-aiied

NATIONALITY: Thai

DATE OF BIRTH: 9 January 1958

PROFESSIONAL ADDRESS: Research Institute for Health Sciences (RIHES), Chiangmai University, P.O. Box 80 CMU, Chiangmai, 50200. Tel: 66 53 221966. Fax: 66 53 221849.

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EDUCATION:

1993 Ph.D. Biochemistry, University of London, U.K. Thesis title:
"Purification and characterization of glutathione S-transferases
involved in DDT-resistance from the mosquito *Anopheles
gambiae*". (January 1990-July 1993)

PROFESSIONAL POSITIONS:

1981-1984 Research assistant
Research Institute for Health Sciences, Chiangmai University, Thailand

1988-1993 Senior research assistant
Research Institute for Health Sciences, Chiangmai University, Thailand

1993-present Researcher

Research Institute for Health Sciences, Chiangmai University, Thailand

MEMBERSHIP IN PROFESSIONAL SOCIETY:

1993-Present The Biochemical Society, U.K.

1994-Present The Science Society of Thailand, Thailand

FUNDING

1989-1993 A Studentship for a 3 year Ph.D. programme at the University of London was funded by The British Council

1993-1996 The project "Characterization of glutathione S-transferases involved in DDT-resistance in Thai *Anopheles* mosquitoes" was awarded by The Wellcome Trust, U.K. for Prapanthadara, L., Hemingway, J. and Ketterman, A.J.
(£34,200 for 3 years)

1994 - 1996 The project "Selection of refractory strain of *Anopheles dirus* species A" funded by TRF Research Scholar (1,080,000 Bahts), Thailand

1995-1996 The project "The development of HPLC technique for DDT and DDE analysis in anopheline mosquitoes using internal standard" from The Thai Research Council (76,000 Bahts), Thailand

1996-1997 The project "Purification and characterization of GST IVb from *Anopheles dirus*" from Chiangmai University (200,000 Bahts), Thailand

- 1997-2000 The project "Cloning, expression and characterization of the insect class II glutathione S-transferases from the malaria vector, *Anopheles dirus*" funded by [TRF Research Scholar](#) (1,080,000 Bahts), Thailand
- 1998-2001 The project "The molecular biology of glutathione S-transferases involved in insecticide resistance in *An. gambiae* and *An. dirus*." Funded by [The Wellcome Trust](#) to Professor Janet Hemingway, University of Wales Cardiff for collaboration with Dr. La-aied Prapanthadara.
- 2000 - 2001 The project ""The detection of insecticide susceptibility and determination of biochemical mechanisms leading to insecticide resistance in the *Aedes* mosquito, the vectors for dengue haemorrhagic fever, in Chiangmai and neighbouring provinces" Funded by National Research Council of Thailand (200,000 Bahts)
- 2000-2001 The project "The production of monoclonal antibody to the enzyme glutathione S-transferase and the application in affinity chromatography" University Affair (598,320 Bahts)
- 2001-2004 The project "Comparative study on biochemical and molecular characteristic involved with enhance activity of glutathione S-transferases and knockdown resistant in *Aedes aegypti* resistance to DDT and permethrin" Funded by [TRF Basic Science Research](#) (2,000,000 Bahts), Thailand : BRG/17/2544
- 2003-2005 The project "PCR amplification and sequence analysis of putative kdr gene fragment in *Anopheles* mosquito malaria vector". Funded by National Research Council of Thailand (1,257,000 Bahts).

- 2004-2005 “The development of research network to study on transovarial transmission of dengue virus and the disease control via vector manipulation”
Funded by Chiangmai University (88,580 Bahts)
- 2008-2009 “*In Vitro* metabolism of permethrin in *Aedes aegypti*” Funded by National Research Council of Thailand (754,200 Bahts)
- 2005-2010 “Molecular study on sodium channel gene point mutation and the association with insecticide resistance in *Aedes aegypti*” Funded by The Thailand Research Fund for **The Royal Golden Jubilee Ph.D. Program** : [PHD/0095/2548](#)
- 2007-2010 “Characterization of the over expressed member of cytochrome P450s in permethrin resistance *Aedes aegypti*” Funded by **TRF Basic Science Research** (1,600,000 Bahts), Thailand : BRG5080010

SHORT COURSE TRAINING

- 1) June 13th – June 27th 1998 “Biology of disease vectors” Colorado State University, Arthropod Borne and Infectious Diseases Laboratory (AIDL), Foothills Campus, Fort Collins, Colorado 80523-1682.
- 2) June 20th – July 19th 2005 “The Twenty-Third Annual Graduate Summer Institute of Epidemiology and Biostatistics : Epidemiology of HIV/AIDS; Principle of Epidemiology; Statistical Reasoning in Public Health I; Statistical Reasoning in Public Health II.” The Johns Hopkins University, Bloomberg School of Public Health, Baltimore, Maryland, USA.

REFEREED PUBLICATIONS:

- 1) PRAPANTHADARA, L., HEMINGWAY, J. AND KETTERMAN, A.J. (1993) Partial purification and characterization of glutathione S-transferases involved in DDT resistance from the mosquito *Anopheles gambiae*. *Pest. Biochem. Physiol.* **47** : 119-133. IF 1.19
- 2) PRAPANTHADARA, L., HEMINGWAY, J. AND KETTERMAN, A.J. (1995) DDT-resistance in *Anopheles gambiae* Giles from Zanzibar Tanzania based on increased DDT-dehydrochlorinase activity of glutathione S-transferases. *Bull. Entomol. Res.* **85**: 267-274.
- 3) PRAPANTHADARA, L., KOOTTATHEP, S., PROMTET, N., HEMINGWAY, J. AND KETTERMAN, A. J. (1996) Purification and characterization of the major form of glutathione S-transferase in the mosquito *An. dirus*. *Insect Biochem. Molec. Biol.* **26**: 277-285. IF 2.71
- 4) RANSON, H., PRAPANTHADARA, L. AND HEMINGWAY, J (1998) Cloning and characterization of two glutathione S-transferases from a DDT resistant strain of *Anopheles gambiae*. *Biochem. J.* **324** : 97-102. IF 4.10
- 5) PRAPANTHADARA, L., RANSON, H. SOMBOON, P. AND HEMINGWAY, J. (1998) Cloning, expression and characterization of a class I insect glutathione S-transferase from the mosquito *An. dirus*. *Insect Biochem. Mol. Biol.* **28**, 321-329. IF 2.71
- 6) HEMINGWAY, J., HAWKES, N., PRAPANTHADARA, L., JAYAWARDENA, K.G.I., AND RANSON, H. (1998) The role of gene splicing, gene amplification and regulation in mosquito insecticide resistance. *Phil. Trans. R. Soc. Lond. B Biol. Sci.* **353 (1376)**, 1695-1699.

- 7) HEMINGWAY, J., HAWKES, N., PRAPANTHADARA, L., JAYAWARDENA, K.G.I., AND RANSON, H. The role of gene splicing, gene amplification and regulation in mosquito insecticide resistance. In "*Insecticide Resistance: From Mechanism to Management*" (I. Denholm, J.A. Pickett and A.L. Devonshire eds.) CABI Publishing, Wallingford, Oxon. pp.19-23, 1999.
- 8) SOMBOON, P., PRAPANTHADARA, L. AND SUWONKERD, W. (1999) Selection of *Anopheles dirus* for refractoriness and susceptibility to *Plasmodium yoelii nigeriensesis*. *Med. Vet. Entomol.* Oct; **13 (4)**, 355-361. IF 2.04
- 9) RANSON, H.; JENSEN, B.; WANG, X.; PRAPANTHADARA, L AND HEMINGWAY, J. (2000) Genetic mapping of two loci affecting DDT resistance in the malaria vector *Anopheles gambiae*. *Insect Mol. Biol.* **9 (5)** : 499-507. IF 2.64
- 10) PRAPANTHADARA, L., PROMTET, N., KOOTTATHEP, S., SOMBOON, P. AND KETTERMAN, A.J. (2000) Isoenzymes of glutathione S-transferases from the mosquito *Anopheles dirus* species B : The purification, partial characterization and interaction with various insecticides. *Insect Biochem. Mol. Biol.* **30 (5)**, 395-403. IF 2.71
- 11) KETRTERMAN, A.J., PROMMEENATE, P., BOONCHAUY, C., CHANAMA, U., LEETACHEVA, S., S., PROMTET, N. AND PRAPANTHADARA, L. (2001) Single amino acid changes outside the active site significantly affect activity of glutathione S-transferases. *Insect Biochem. Mol. Biol.* **31 (1)**, 65-74. IF 2.71
- 12) PONGJAROENKIT, S, JIRAJAROENRAT, BOONCHAUY, C., CHANAMA, U., LEETACHEVA, S., PRAPANTHADARA, L AND KETRTERMAN, A.J. (2001) Genomic organization and putative promoters of highly conserved glutathione S-

- transferases originating by alternative splicing in *Anopheles dirus*. *Insect Biochem. Mol. Biol.* **31 (1)**, 75-85. IF 2.71
- 13) JIRAJAREONRAT, K.; PONGJAREONKIT, S.; PRAPANTHADARA, L. AND KETTERMAN, A.J. (2001) Heterologous expression and characterization of alternatively spliced glutathione S-transferases from a single gene. *Insect Biochem. Mol. Biol.* **31 (9)**, 867-875. IF 2.71
- 14) PRAPANTHADARA, L., PROMTET, N., KOOTTATHEP, S., SOMBOON, P., SUWONKERD, W., MCCARROLL AND HEMINGWAY, J. (2002) Mechanisms of DDT and permethrin resistance in *Aedes aegypti* from Chiangmai, Thailand. *Dengue Bulletin* **26**, 185-189.
- 15) SOMBOON, P. AND PRAPANTHADARA, L. (2002) Trypsin and aminopeptidase activities in blood-fed females *Anopheles dirus* (Diptera: Culicidae) of differing susceptibility to *Plasmodium yoelii nigeriensis*. *Southeast Asian J Trop Med Public Health.* **4**, 691-693
- 16) SOMBOON P, PRAPANTHADARA LA, SUWONKERD W. (2003) Insecticide susceptibility tests of *Anopheles minimus* s.l., *Aedes aegypti*, *Aedes albopictus*, and *Culex quinquefasciatus* in northern Thailand. *Southeast Asian J Trop Med Public Health.* Mar;34(1):87-93
- 17) WONGTRAKUL, J., SRAMALA, I., PRAPANTHADARA, L. AND KETTERMAN, A. (2005) Intra-subunit residue interactions from the protein surface to the active-site of glutathione S-transferase AdGSTD3-3 impact on structure and enzyme properties. *Insect Biochem. Mol. Biol.* **35**, 197-205. IF 2.71

- 18) Udomsilprasert, R., Pongjaroenkit, S., Wongsantichon, J., Oakley, A.J., **Prapanthadara, L.**, Wilce M.C.J., Ketterman, A.J. (2005) Identification, characterization and structure of a new delta class glutathione S-transferase isoenzyme. *Biochem. J.* 17 Feb 2005. IF 4.10
- 19) **Prapanthadara, L.**†¹, Reunkum, W., Leelapat, P.†, Suwon, N. (2005) Glutathione S-transferase isoenzymes and the DDTase activity in two DDT-resistant strains of *Aedes aegypti*. *Dengue Bulletin* 29, 183-191.
- 20) Lumjuan N, McCarroll L, **Prapanthadara LA**, Hemingway J, Ranson H. (2006) Elevated activity of an Epsilon class glutathione transferase confers DDT resistance in the dengue vector, *Aedes aegypti*. *Insect Biochem Mol Biol.* 2005 Aug;35(8):861-71. IF 2.71
- 21) Charoensilp, G., Vararattanavech, A., Leelapat, P., **Prapanthadara, L.-A.**, Ketterman, A.J. (2006) Characterization of Anopheles dirus glutathione transferase epsilon 4 *Science Asia* 32 (2), pp. 159-165.
- 22) Lumjuan, N., Stevenson, B.J., **Prapanthadara, L.**, Somboon, P., Brophyd, P.M., Loftuse, B.J., Severson, D.W. and Hilary Ranson (2007) The *Aedes aegypti* glutathione S-transferase family. *Insect Mol. Biochem. Mol. Biol.* 37, 1026–1035. IF2.71
- 23) Hutamai S, Suwonkerd W, Suwannchote N, Somboon P, **Prapanthadara LA**. (2007) A survey of dengue viral infection in *Aedes aegypti* and *Aedes albopictus* from re-epidemic areas in the north of Thailand using nucleic acid

sequence based amplification assay. ***Southeast Asian J Trop Med Public Health***. May;38(3):448-54.

- 24) Wongtrakul J, Wongsantichon J, Vararattanavech A, Leelapat P, Prapanthadara LA, Ketterman AJ. (2009) Molecular cloning and expression of several new *Anopheles cracens* epsilon class glutathione transferases. ***Protein Pept Lett***. 2009;16(1):75-81.
- 25) Yanola J, Somboon P, Walton C, Nachaiwieng W, Prapanthadara L (manuscript accepted with minor revision) A novel F1552/C1552 point mutation in the *Aedes aegypti* voltage-gated sodium channel gene associated with permethrin resistance. ***Pesticide Biochem Physiol***. (IF 1.19)

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Pesticide Biochem Phys. 1.19

MEETING ABSTRACTS AND NON-REFEREED PUBLICATIONS

- 1) RANSON, H., PRAPANTHADARA, L. AND HEMINGWAY, J. (1996) Molecular and genetic analysis of the glutathione S-transferases involved in DDT resistance in *Anopheles gambiae*. XX International Congress of Entomology, Firenze, Italy, August 25-31.
- 2) PRAPANTHADARA, L., PROMTET, N., RANSON, H., AND HEMINGWAY, (1996) Expression and the biochemical characterization of an *Anopheles dirus* gene encoding an insect class I glutathione S-transferase. XX International Congress of Entomology, Firenze, Italy, August 25-31.

- 3) KETRTERMAN, A.J., CHANAMA, U., LEETACHEVA, S., PANYIM, S., PROMTET, N. AND PRAPANTHADARA, L. (1997) Kinetic Characterization of a heterologous expressed recombinant mosquito glutathione S-transferase. Australian Society for Biochemistry and Mol. Biol. 29th - 2nd Oct.
- 4) PRAPANTHADARA, L., PROMTET, N., KOOTTATHEP, S, SOMBOON, P. SUWONKERD, W, HEMINGWAY, J., AND RANSON, H., (1998) Glutathione S-transferases in *Anopheles* mosquitoes: The Biochemical and molecular characterization. Summer Course on "Biology of Disease Vectors" June 13rd - 27th at Colorado State University, USA. (Sponsored by the MacArthur Foundation and the WHO.
- 5) PRAPANTHADARA, L., KOOTTATHEP, S, PROMTET, N., SUWONKERD, W, KETTERMAN, A.J. AND SOMBOON, P. (1999) Correlation of glutathione S-transferase and DDT dehydrochlorinase activities with DDT susceptibility in *Anopheles* and *Culex* mosquitoes from Northern Thailand. JITMM 4-6 August 1999, Century Park Hotel, Bangkok.
- 6) “ย.ยุง....ยุงจริง” งานวิจัย ยุงที่ต่อยามาแมลง โดย ดร.ละเอียต ประพันธ์ดารา สถาบันวิจัยวิทยาศาสตร์สุขภาพ มหาวิทยาลัยเชียงใหม่ วารสารรายสัปดาห์ มหาวิทยาลัยเชียงใหม่ มิถุนายน 2551