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**Position** Associate Professor  
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#### **Education background**

- 1987 B.Sc. (Microbiology), Chulalongkorn University, Bangkok
- 1990 M.Sc. (Industrial Microbiology), Chulalongkorn University, Bangkok
- 1994 Ph.D. (Molecular Genetics), University of Glasgow, Glasgow, UK
- 1998 Post-Doctoral Fellow (Combinatorial Biosynthesis), Kosan Biosciences, Inc., California, USA

#### **Courses taught**

- 416311 Principle of Genetics
- 416312 Laboratory in Genetics
- 416454 Introduction to Bioinformatics
- 416458 Laboratory in Genetic Engineering
- 416551 Intensive Genetics
- 416553 Molecular Genetics
- 416554 Bioinformatics
- 416653 Advanced Molecular Genetics
- 416691 Research Techniques in Genetics

#### **Research interests**

- Biology and Molecular Genetics of *Streptomyces* and related genera
- Genetics and Biosynthetic Pathway of Polyketide Antibiotics
- Combinatorial Biosynthesis
- Endophytic actinomycetes: plant growth regulating agents and bioactive compounds

#### **Funding/Grant**

2006-2009 JST program "Asia Science and Technology Cooperation Promotion Strategy: Solution of Research Issues Shared by Asian Regions", Osaka University, Japan. Topic: Selection and identification of endophytic actinomycetes towards novel bioactive compounds discovery

2006-2009 TRF-CHE Research Grant for Mid-Career University Faculty. Topic: Isolation and identification of endophytic/rhizospheric actinomycetes that produce bioactive compounds against plant pathogenic microorganisms.

2007-2009 BIOTEC, NSTDA. Title: Construction of mutants by manipulation of genes involved in shikimate pathway in *Streptomyces*

2008-2010 Prime Minister's Initiative for International Education 2 (PMI2) Connect-Research Co-operation Award, British Council, UK. Title: Expression of novel actinobacteria Type III polyketide synthase (PKS) gene: towards new natural product discovery.

## Publications

1. Duangmal, K., Mingma, R., **Thamchaipenet, A.**, Matsumoto, A. and Takahashi, Y. (2010). *Saccharopolyspora phatthalungensis* sp. nov., isolated from rhizospheric soil of *Hevea brasiliensis*. ***Int. J. Syst. Evol. Microbiol.*** (in press). doi:10.1099/ijs.0.018275-0
2. Indananda, C., Matsumoto, A., Inahashi, Y., Takahashi, Y., Duangmal, K. and **Thamchaipenet, A.** (2010). *Actinophytocola* gen. nov., a new genus of the family *Pseudonocardiaceae* and description of a new species, *Actinophytocola oryzae* sp. nov., isolated from root of Thai glutinous rice plant. ***Int. J. Syst. Evol. Microbiol.*** (in press). doi: 10.1099/ijs.0.008417-0
3. **Thamchaipenet, A.**, Indananda, C., Bunyoo, C., Duangmal, K., Matsumoto, A. and Takahashi, Y. (2010). *Actinoallomurus acaciae* sp. nov., a novel endophytic actinomycete isolated from *Acacia auriculiformis* A. Cunn. ex Benth. in Thailand. ***Int. J. Syst. Evol. Microbiol.*** (in press). doi: 10.1099/ijs.0.012237-0
4. **Thamchaipenet, A.** (2009). Endophytic actinomycetes from Thai tropical plants. In: Proposal on Efficient Utilization of Thai Bioresources

- (supplementary volume). Nihira, T. (ed.). International Center for Biotechnology, Osaka University, Japan. pp. 1-4.
5. Kokaew, K., Srisuk, N., Limtong, S. and **Thamchaipenet, A.** (2009). Cloning and nucleotide sequence analysis of xylose reductase (XR) gene from thermotolerant methylotrophic yeast *Ogataea siamensis* N22. **Thai J. Genet.** 2: 66-71.
  6. Duangmal, K., **Thamchaipenet, A.**, Matsumoto, A. and Takahashi, Y. (2009). *Pseudonocardia acaciae* sp. nov., isolated from *Acacia auriculiformis* A. Cunn. ex Benth. **Int. J. Syst. Evol. Microbiol.** 59: 1487-1491.
  7. Phithakrotchanakoon, C., Daduang, R., **Thamchaipenet, A.**, Wangkam, T., Srihirin, T., Eurwilaichitr, L. and Champreda, V. (2009). Heterologous expression of polyhydroxyalkanoate depolymerase from *Thermobifida* sp. in *Pichia pastoris* and catalytic analysis by surface plasmon resonance. **Appl. Microbiol. Biotechnol.** 82: 131-140.
  8. Anusonpornpurn, S., Lersrutaiyotin, R., Rattanakreetakul, C., Thamchaipenet, A. and Weerathaworn, P. (2008). Identifying QTLs for fiber content and agronomic characters in sugarcane using AFLP markers. **Kasetsart J. (Nat. Sci.)** 42(4): 668-675.
  9. Pinyoowong, D., Jittapalapong, S., Peyachoknagul, S. and Thamchaipenet, A. (2008). Topology prediction and motifs identification of bicyclomycin resistance protein of *Ehrlichia canis* strain Bangkok. **Biomed. & Pharmacol. J.** 1: 1-8.
  10. Duangmal, K., Thamchaipenet, A., Ara, I., Matsumoto, A. and Takahashi, Y. (2008). *Kineococcus gynurae* sp. nov., isolated from Thai medicinal plant. **Int. J. Syst. Evol. Microbiol.** 58: 2439-2442.
  11. Pinyoowong, D., Jittapalapong, S., Suksawat, F., Stich, R.W. and Thamchaipenet, A. (2008). Molecular characterization of Thai *Ehrlichia canis* and *Anaplasma platys* strains detected in dogs. **Infect. Genet. Evol.** 8: 433-438.

12. Chungool, W., Thongkam, W., Ravisri, P., Thamchaipinet, A. and Pinphanichakarn, P. (2008). Production, purification and characterization of acetyl esterase from *Streptomyces* sp. PC22 and its action in cooperation with xylanolytic enzymes on xylan degradation. **World J. Microbiol. Biotechnol.** 24: 549-556.
13. Phornphisutthimas, S., Thamchaipinet, A. and Panijpan, B. (2007). Conjugation in *Escherichia coli*: a laboratory exercise. **Biochem. Mol. Biol. Edu.** 35: 440-445.
14. Smphor, L., Thaveechai, N., Chowpongpan, S., Thamchaipinet, A. and Paradornuwat, A. (2007). Diagnosis of greening and Tristeza diseases on lime in Thailand by transmission electron microscope. **J. Microscopy Society of Thailand.** 21: 366-367.
15. Petković, H., Cullum, J., Hranueli, D., Hunter, I.S., Perić-Concha, N., Pigac, J., Thamchaipinet, A., Vujaklija, D. and Long, P.F. (2006). Genetics of *Streptomyces rimosus*, the oxytetracycline producer. **Microbiol. Mol. Biol. Rev.** 70: 704-728.
16. Meinkerd, S. and **Thamchaipinet, A.** (2006). Two types of ketoreductase domains in Type I polyketide synthase system and model design for functional analysis. **KU Sci. J.** 23: 54-61 (in Thai).
17. Attanoraks, S., Thamchaipinet, A., Piamsa-Nga, P. and Soonthornphisaj, N. (2006). Consensus selection algorithm for automatic primer design system. **KMITL Sci. J.** 6: 232-240.
18. Sukhapesna, J., Amavisit, P., Wajjwalku, W., Thamchaipinet, A. and Sukpuaram, T. (2005). Antimicrobial resistance of *Campylobacter jejuni* isolated from chicken in Nakhon Phathom Province, Thailand. **Kasetsart J. (Nat. Sci.)** 39: 240-246.
19. Nabhadalung, N., Suwanarit, A., Dell, B., Nopamornbodi, O., Thamchaipinet, A. and Rungchuang, J. (2005). Effects of long-term NP-fertilization on abundance and diversity of arbuscular mycorrhizal fungi under a maize cropping system. **Plant Soil.** 270: 371-382.

20. Pinphanichakarn, P., Tangsakul, T., Thongnumwon, T., Talawanich, Y. and Thamchaipenet, A. (2004). Purification and characterization of  $\beta$ -xylosidase from *Streptomyces* sp. CH7 and its gene sequence analysis. ***World J. Microbiol. Biotechnol.*** 20: 727-733.
21. Thamchaipenet, A. (2003). Bioinformatics. ***J. Sci. Soc. Thailand.*** 57: 125-127 (in Thai).
22. Thamchaipenet, A., Chaipackdee, V., Kawasaki, H. and Seki, T. (2001). Partial 16S rDNA analysis of anti-fungal producing streptomycetes isolated from coastal areas of Thailand. In "Biotechnology for Sustainable Utilization of Biological Resources in the Tropics". Vol. 15. Murooka, Y. *et al.* (eds.). ICBiotech, Osaka Univ., Japan. pp. 132-137.
23. Thamchaipenet, A. (1999). Multiple domain substitutions of erythromycin polyketide synthase to produce a combinatorial library. ***Actinomycetologica.*** 13: 113-119.
24. Petkovic, H., Thamchaipenet, A., Zhou, L-H., Hranueli, D., Raspor, P., Waterman, P. and Hunter, I.S. (1999). Disruption of the aromatase/cyclase from the oxytetracycline gene cluster of *Streptomyces rimosus* results in production of novel polyketides with shorter chain lengths. ***J. Biol. Chem.*** 274: 32829-32834.
25. McDowall, K.J., Thamchaipenet, A. and Hunter, I.S. (1999). Phosphate control of oxytetracycline production by *Streptomyces rimosus* is at the level of transcription from promoters overlapped by tandem repeats similar to those of the DNA-binding sites of the OmpR family. ***J. Bacteriol.*** 181: 3025-3032.
26. McDaniel, R.M., Thamchaipenet, A., Gustafsson, C., Fu, H., Betlach, M., Betlach, M. and Ashley, G. (1999). Multiple genetic modifications of the erythromycin gene cluster to produce a library of novel 'unnatural' natural products ***Proc. Natl. Acad. Sci. USA.*** 96: 1846-1851.

27. Thamchaipenet, A. (1998). Combinatorial Biosynthesis. ***KU Sci. J.*** 16: 45-54 (in Thai).
28. Lui, L., Thamchaipenet, A., Fu, H., Betlach, M. and Ashley, G. (1997) Biosynthesis of 2-nor-6-deoxyerythronolide B by rationally designed domain substitution. ***J. Am. Chem. Soc.*** 119: 10553-10554.
29. Pinphanichakarn, P., Thamchaipenet, A. and Hunter, I.S. (1995). Cloning of xylanase gene from *Streptomyces griseoruber* 42-9 into glucose isomerase-producing *Streptomyces cyaneus* 190-1. ***J. Natl. Res. Council Thailand.*** 27: 1-17.
30. Linton, K.J., Thamchaipenet, A. and Hunter, I.S. (1995). The impact of molecular genetics on understanding antibiotic biosynthesis: design of new drugs. ***Food Tech. Biotech. Rev.*** 32: 61-66.
31. Thamchaipenet, A. and Hunter, I.S. (1995). Disruption of two genes encoding the putative ketoreductase and cyclase/dehydratase of *Streptomyces rimosus* involved in oxytetracycline biosynthesis. In: "Biotechnology Research and Applications for Sustainable Development (BRASD)". Mongkolsuk, *et al.*, (eds.). Thailand. pp. 155-160.