

# Sakda Khoomrung, PhD

10/12/2023

The Metabolomics and Systems Biology (MSB) group, Department of Biochemistry  
Siriraj Metabolomics and Phenomics Center (SiMPC)  
10<sup>th</sup> fl, Sri Savarindira Building, Faculty of Medicine, Siriraj Hospital, Mahidol University  
2 Prannok Road, Bangkok 10700, Thailand  
Phone: +66 99 618 07 07  
Email: [sakda.kho@mahidol.edu](mailto:sakda.kho@mahidol.edu)  
<http://metsysbio.com/index.html>

---

## Personal information

Place of birth: Chumphon, Thailand  
Citizenship: Thai, Swedish  
ORCID ID: [0000-0001-9461-8597](https://orcid.org/0000-0001-9461-8597)

## Educations & trainings

**2011 – 2013:** Post Doc; Systems and Synthetic Biology, Chalmers University of Technology, Sweden  
(Supervisor: Prof. Jens Nielsen)  
**2007 - 2011:** Dr. rer. nat. (Ph.D.) in Chemistry; Karl-Franzens University, Austria  
(Supervisor: Uni.-Prof. Kevin A. Francesconi)  
**2003 - 2006:** M. Sc. in Analytical Chemistry; Prince of Songkla University, Thailand  
**2004:** Diploma (Environmental Analysis); Technical University of Denmark, Denmark  
**1997 - 2001:** B.Sc. in education (Chemistry); Prince of Songkla University, Thailand

## Positions

**2019-present** **Assoc. Prof.;** Department of Biochemistry, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand  
2018-2019: **Instructor;** Department of Biochemistry, Mahidol University, Thailand  
2017-2020: **Visiting researcher,** Systems and Synthetic Biology, Chalmers University of Technology, Sweden  
2019 (Jan -Feb): **Visiting researcher;** the Department of Biomedical Informatics, University of Arkansas for Medical Sciences, USA  
2017- 2018: **Instructor;** Center of Applied Thai Traditional Medicine and SiMPC, Faculty of Medicine Siriraj Hospital, Mahidol University  
2013-2017: **Project leader;** Systems and Synthetic Biology, Chalmers University of Technology, Sweden  
2016: **Visiting scholar;** Faculty of Medicine Siriraj Hospital Mahidol, Thailand  
2013- 2015: **Co-founder and co-director;** Chalmers Metabolomics Centre (later became Chalmers Mass Spectrometry Infrastructure), Gothenburg, Sweden  
2011 2013: **Post Doc;** Systems and Synthetic Biology, Chalmers University of Technology, Sweden  
2007- 2011: **PhD student;** Institute of Chemistry, Karl-Franzens University of Graz, Austria

- 2006-2007: **Research assistant**; Pilot Plant Development and Training Institute, King Mongkut's University of Technology Thonburi, Bangkok, Thailand
- 2001-2003: **Research assistant**; King Mongkut's Institute of Technology Ladkrabang, Thailand

### Position of Trust

- 2019-** **Member** of American Chemical Society, USA
- 2019-** **Member and Secretary** of Thailand Metabolomics Society, Thailand
- 2019-** **International committee member** of the 16<sup>th</sup> Annual Conference of the metabolomics Society 2020, Shanghai, China

### Key Grants

- 2022-2023 Mahidol University (Fundamental Fund: fiscal year 2023 by National Science Research and Innovation Fund (NSRF): 1.34 MTHB**  
 PI: Development of deep learning for metabolomics data analysis of patients with chronic kidney disease
- 2022-2025 National Higher Education Science Research and Innovation Policy Council (NXPO), 3.29 mTHB)**  
 PI: The use of three-dimensional convolutional neural network (3DCNN) in combination with quantum chemistry and IM-MS for accurate compound identifications and properties predictions of isomeric lipids
- 2022-2024 Ministry of Higher Education, Science, Research and Innovation (MHESI), 2.4 million THB**  
 PI: The study of foot-skin microbiome and metabolomics of Thai naval cadets with pitted keratolysis
- 2021-2024 Center of Excellent for Innovation in Chemistry (PERCH-CIC), 3.55 mTHB**  
 PI: Metabolomics and systems biology to identify novel bioactive metabolites and the study biosynthesis of pyranonaphthoquinone metabolites in *Ventilago harmandiana*
- 2021-2024 มพค Organizational Bridging Found: S&T 2564, program 16, 45 mTHB**  
 Co-investigator: High-Quality Manpower and Institutional Development through Collaboration on Innovative Bioresources in Biorefinery, Metabolomics of Natural Products, and Materials for Sustainability
- 2020-2022 Faculty of Medicine Siriraj Hospital, Mahidol University (0.49 mTHB)**  
 PI: Integrated Metabolomics and Transcriptomics of Lingzhi (*Ganoderma lucidum*)
- 2020-2021 Center of Excellent for Innovation in Chemistry (2.7 mTHB)**  
 PI: Development of comprehensive MS- and NMR-based metabolomics platform for biomarker discovery of disease: A case study for the diagnosis of various types of CKD
- 2020-2023 Faculty of Medicine Siriraj Hospital, Mahidol University (2.7 mTHB)**  
 PI: The study of foot-skin microbiome and metabolomics of Thai naval cadets with pitted keratolysis
- 2019-2022 Mahidol University (3.34 mTHB/year)**  
 PI: Development of a comprehensive MS- and NMR-based metabolomics platform to support the development of precision medicine: The first example for the diagnosis of various types of CKD
- 2019-2021 CPF Food Research and Development Center (3.9 mTHB)**  
 PI: Metabolomics and microbiome in human affected by Asiatic juice and fiber added Asiatic juice

**2019-2021 Thailand research fund: Young research Grant (0.6 mTHB)**

PI: Development of a comprehensive MS- and NMR-based metabolomics platform for the diagnosis of various types of CKD

**2018-2021 Center of Excellent for Innovation in Chemistry (PERCH-CIC), 4.02 mTHB**

PI: Genome-wide association studies with metabolomics of *Ventilago harmandiana*

**2012-2020 BioVacSafe, Innovative Medicines Initiative, EU grant 726 KEUR (27 mTHB)**

Co-PI for WP5: Metabolomics of fluad and stamaril

Co-PI for WP7: Data management

PI = Principal Investigator

**Editorial Activities:**

**Editor role**

**Review Editor:** Frontiers in Chemistry (organic chemistry)

**Reviewer**

- Analytical Chemistry
- Scientific Reports
- Briefing in bioinformatics
- Journal of food composition and analysis
- Metabolomics
- Frontiers in nutrition
- Frontiers in pharmacology
- Frontiers in plant science
- Frontiers in Nutrition
- Journal of proteome research
- Frontier Oncology
- iScience
- Nature Communications

**Publication/ conference presentations**

Google scholar ID: [Sakda Khoomrung Google citations](#)

**Research papers in international journals with peer-reviewed, H-index of 19 (google scholar)**

**35:** Research articles in peer reviewed journal

**6 :** Review articles in peer reviewed journal

1. Wisanpitayakorn P, Sartyoungkul S, Kurilung A, Sirivatanauksorn Y, Visessanguan W, Sathirapongsasuti N, **Khoomrung S\*** (2022) Collision Cross Section of a Small Molecule Determined by its Polarizability rather than its Mass and Shape. (Submitted)
2. Kurilung A, Kaewnarin K, Wisanpitayakorn P, Jariyasopit N, Wanichthanarak K, Sartyoungkul S, Chee Wong S-C, Limjiasahapong S, Sathirapongsasuti N, Kitiyakara C, Sirivatanauksorn Y, **Khoomrung\***. (2022). Measurement of Very Low-Molecular Weight Metabolites by Traveling Wave Ion Mobility and Its Use in Human Urine Samples (Submitted).
3. Wanichthanarak K, Nookaew I, Pasookhush P, Wongsurawat T, Jenjaroenpun P, Leeratsuwan N, Wattanachaisaereekul S, Visessanguan W, Sirivatanauksorn Y, Nuntasaen N, Kuhakarn C, Reutrakul V, Ajawatanawong P\*, **Khoomrung S\***. (2022) Revisiting Chloroplast Genomic Landscape and

- Annotation towards Comparative Chloroplast Genomes of Rhamnaceae. *BMC Plant Biology* 23(1) 1-22.
4. Jariyasopit N, Limjiasahapong S, Kurilung A, Sartyoungkul S, Wisanpitayakorn P, Nuntasaeen N, Kuhakarn C, Reutrakul V, Kittakoop P, Sirivatanauksorn Y, **Khoomrung S\***. (2022) Travelling Wave Ion Mobility-derived Collision Cross Section Database for Plant Specialized Metabolites: An Application to *Ventilago harmandiana* Pierre. *J. Proteome Res.* 21(10): 2481. **(Front Cover of October issue 10)**
  5. Duangkumpha K, Jariyasopit N, Wanichthanarak K, Dhakal E, Wisanpitayakorn P, Thotsiri S, Sirivatanauksorn Y, Kitiyakara C, Sathirapongsasuti N, **Khoomrung S\***. (2022) GC×GC-TOFMS metabolomics analysis identifies elevated levels of plasma sugars and sugar alcohols in diabetic mellitus patients with kidney failure. *J. Biol. Chem.* 298 (10): 102445.
  6. Indrati N, Sumpavapol P, Phonsatta N, Pongsombat P, **Khoomrung S**, and Panya A (2022). Metabolic profiles alteration of Southern Thailand traditional sweet pickled mango during the production process. In Press in *Frontiers in Nutrition*. doi: 10.3389/fnut.2022.934842
  7. Indrati N, Sumpavapol P, Samakradhamrongthai RS, Phonsatta N, Pongsombat P, **Khoomrung S**, Panya A. (2022) Volatile and non-volatile compound profile of commercial sweet pickled mango (*Ma-Muang Bao Chae Im*) and its correlation with consumer acceptance. *J. Food Sci. Technol.* 57: 37603770.
  8. Mathema VB, Duangkumpha K, Wanichthanarak K, Jariyasopit N, Dhakal E, Sathirapongsasuti N, Kitiyakara C, Sirivatanauksorn Y, **Khoomrung S\***. (2022) CRISP: A Deep Learning Architecture for GC×GC-TOFMS Contour ROI Identification, Simulation, and Analysis in Imaging Metabolomics. *Brief. Bioinform.* 23(2): 1-7.
  9. Anekthanakul K, Manochewea M, Chienwichai K, Pongsombat P, Limjiasahapong S, Wanichthanarak K, Jariyasopit N, Mathema VB, Kuhakarn C, Reutrakul V, Phetcharaburanin J, Panya A, Phonsatta N, Visessanguan W, Pomyen Y, Sirivatanauksorn Y, Worawichawong S, Sathirapongsasuti N, Kitiyakara C\*, **Khoomrung S\***. (2021) Predicting of Lupus Membranous Nephritis using Reduced Picolinic Acid to Tryptophan Ratio as a Urinary Biomarker. *iScience.* 24(11): 103355
  10. Kaewnarin K, Limjiasahapong S, Jariyasopit N, Anekthanakul K, Kurilung A, Chee Wong S-C, Sirivatanauksorn Y, Visessanguan W, **Khoomrung S\***. (2021) *High-Resolution QTOF-MRM for Highly Accurate Identification and Quantification of Trace Levels of Triterpenoids in Ganoderma lucidum* Mycelium. *J. Am. Soc. Mass Spectrom Chem.* 32:2451-2462. **(Front cover of issue 9, September 2021)**
  11. Jariyasopit N, Khamseang S, Panya A, Vinaisuratarn P, Metem P, Asawalertpanich W, Visessanguan W, Sirivatanauksorn V, **Khoomrung S\***. (2021) *Quantitative Analysis Nutrient Metabolite Compositions of Retail Cow's Milk and Milk Alternatives in Thailand*. *J. Food Compos. Anal.* 97: 103785.
  12. Limjiasahapong S, Kaewnarin K, Jariyasopit N, Hongthong S, Nuntasaeen N, Robinson JL, Nookaew I, Sirivatanauksorn Y, Kuhakarn C, Reutrakul V, **Khoomrung S\***. (2021) *UPLC-ESI-MRM for absolute quantification and MS/MS structural elucidation of six specialized pyranonaphthoquinone metabolites from Ventilago harmandiana*. *Front. Plant Sci.* 11, 2038.
  13. Kenneth H, Jiradej M, Robinson JL, **Khoomrung S**, Trairak P. (2020) *Deep Proteomic Deconvolution of Interferon and Hepatitis B Effects on a Hepatoblastoma Cell Line*. *ACS Omega.* 16:16796-16781.
  14. Liu Y, Liu Q, Krivoruchko A, **Khoomrung S**, Nielsen J. (2020) *Engineering yeast phospholipid metabolism for de novo oleylethanolamide production*. *Nat Chem Biol.* 16:197-205.

15. **Khoornung S\***, Nookaew I, Sen P, Olafsdottir TA, Persson J, Moritz T, Andersen P, Harandi A, Nielsen J. (2019) *Metabolic profiling and compound-class identification reveal alterations in serum triglyceride levels in mice immunized with human vaccine adjuvant Alum*. J. Proteome Res. 19: 269-278. **(Front cover of volume 19, issue 1, 2020)**
16. Jariyasopit N, Tung P, Su K, Halappanavar S, Evans GJ, Su Y, **Khoornung S**, Harner T. (2019) *Polycyclic Aromatic Compounds in Urban Air and Associated Inhalation Cancer Risks: A Case Study Targeting Distinct Source Sectors*. Environ. Pollut. 252: 1882-1891.
17. Jeennor S, Anantayanon J, Panchanawaporn S, **Khoornung S**, Chutrakul C, Laoteng K. (2019) *Reengineering Aspergillus oryzae to enhance dihomogamma linolenic acid production using integrative approach*. Gene. 706: 106-114.
18. Wanichthanarak K, Jiamsripong S, Pornputtpong N, **Khoornung S\***. (2019) *Accounting for biological variation with linear mixed-effects modelling improving quality of clinical metabolomics data*. Comput. Struct Biotechnol. J. 17: 611-618.
19. Guo Z, **Khoornung S**, Nielsen J, Olsson L. (2018) *Changes in lipid metabolism convey acid tolerance in Saccharomyces cerevisiae*. Biotechnol Biofuels. 11 (1):297.
20. Rodriguez A, Chen Y, **Khoornung S**, Özdemir E, Borodina I, Nielsen J. (2017) *Comparison of the metabolic response to over-production of p-coumaric acid in two yeast strains*. Metab. Eng. 44: 265-272.
21. Fletcher E, Feizi A, Bisschops MMM, Hallström BM, **Khoornung S**, Siewers V, Nielsen J. (2017) *Evolutionary engineering reveals divergent paths when yeast is adapted to different acidic environments*. Metab. Eng. 39: 19-28.
22. Olafsdottir TA, Lindqvist M, Nookaew I, Andersen PL, Maertzdorf J, Persson J, Weiner J, Zhang Y, Anderson J, **Khoornung S**, Sen P, Agger EM, Coler R, Carter D, Meinke A, Kaufmann SHE, Reed SG, Harandi AM. (2016) *Comparative Systems Biology Analysis Reveals Molecular Signature of Three Clinically Tested Vaccine Adjuvants*. Sci. Rep. 6:39097.
23. Tippmann S, Nielsen J, **Khoornung S\***. (2016) *Improved quantification of farnesene during microbial production from S. cerevisiae in two-liquid-phase fermentations*. Talanta. 146: 100-106.
24. **Khoornung S\***, Martinez JL, Tippmann, S, Jansa-Ard S, Buffing M, Nicastro R, Nielsen J. (2015) *Expanded metabolite coverage of Saccharomyces cerevisiae extract through improved chloroform/methanol extraction and t-BDMS derivatization*. Anal. Chem Res. 6:9-16.
25. Qin J. G., Zhou Y. J., Krivoruchko A, Huang M, Liu L, **Khoornung S**, Siewers S, Jiang B, Nielsen J. (2015) *Modular pathway rewiring of Saccharomyces cerevisiae enables high-level production of L-ornithine*. Nat Commun 6: 8224.
26. Nicastro R, Tripodi F, Guzzi C, Reghellin V, **Khoornung S**, Airoidi C, Nielsen J, Alberghina L, Coccetti P. (2015) *Enhanced amino acid utilization sustains growth of cells lacking Snf1/AMPK*. BBA- Mol Cell Res. 1853: 1615-1625.
27. **Khoornung S\***, Raber G, Laoteng K, Francesconi KA. (2014) *Identification and characterization of fish oil supplements based on fatty acid analysis combined with a hierarchical clustering algorithm*. Eur Lipid Sci Tech. 116:795-804.
28. Knuf C, Nookaew I, Remmers I, **Khoornung S**, Brown S, Berry A, Nielsen J. (2014) *Physiological Characterization of the High Malic Acid-Producing Aspergillus oryzae Strain 2103a-68*. Appl Microbiol Biotechnol 98(8): 3517-3527.

29. Hussain A, Olausson H, Nilsson S, Nookaew I, **Khoornung S**, Andersson L, Koskela A, Tuukkanen J, Ohlsson C, Holmag A. (2013) *Maternal beef and postweaning herring diets increase bone mineral density and strength in mouse offspring*. *Exp Biol Med* (Maywood). 238:1362-1369.
30. Hussain A, Nookaew I. **Khoornung S**, Andersson L, Larsson I, Hulthen L, Jansson N. Jakubowicz R, Nilsson S, Sandberg AS, Nielsen J, Holmag A. (2013) *A maternal diet of fatty fish reduces body fat of offspring compared with a maternal diet of beef and a post-weaning diet of fish improves insulin sensitivity and lipid profile in adult C57BL/6 male mice*. *Acta Physiol*. 209: 220-234.
31. **Khoornung S**, Chumnanpuen P, Jansa-Ard S, Ståhlman M, Nookaew I, Boren J, Nielsen J. (2013) *Rapid quantification of yeast lipid using microwave-assisted total lipid extraction and HPLC-CAD*. *Anal Chem*. 85: 4912-4919.
32. **Khoornung S**, Chumnanpuen P, Jansa-ard S, Nookaew I, Nielsen J. (2012) *Fast and accurate preparation fatty acid methyl esters by microwave-assisted derivatization in the yeast *Saccharomyces cerevisiae**. *Appl Microbiol Biotechnol*, 94: 1637-1646.
33. Shi S, Valle-Rodríguez JO, **Khoornung S**, Siewers V, Nielsen J. (2012) *Functional expression of five wax ester synthases in *Saccharomyces cerevisiae* and their utility for biodiesel production*. *Biotechnol Biofuels*, 5:7.
34. Raber G, **Khoornung S**, Taleshi MS, Edmonds JS, Francesconi KA. (2009) *Identification of arsenolipids with GC/MS*. *Talanta*. 78: 1215-1218.
35. **Khoornung S**, Laoteng K, Jitsue S, Cheevadhanarak S. (2008) *Significance of fatty acid supplementation on profile of cell growth, fatty acid and gene expression of three desaturases in *Mucor rouxii**. *Appl Microbiol Biotechnol*. 80: 499 -506.

### Review articles

1. Mathema VB, Sen P, Lamichhane S, Orešič M, **Khoornung S\***. (2022) *Deep learning facilitates multi-data type analysis and predictive biomarker discovery in cancer precision medicine*. *Comput. Struct Biotechnol*. 21:1372-1382.
2. Pomyen Y, Wanichthanarak K, Pounsombat P, Fahrman J, Grapov D, **Khoornung S\*** (2020) *Deep Metabolome: Applications of deep learning in metabolomics*. *Comput. Struct Biotechnol*. 18: (2818-2825).
3. Sen P, Lamichhane S, Mathema VB, McGlinchey A, Dickens AM, **Khoornung S**, Orešič M. (2020) *Deep learning meets metabolomics: A methodological perspective*. *Briefings in Bioinformatics*. 00:1-12
4. Grapov D, Fahrman F, Wanichthanarak K, **Khoornung S**. (2018) *Rise of deep learning for genomic, proteomic and metabolomic data integration in precision medicine*. *OMICS*. 10: 630-636.
5. **Khoornung S\***, Wanichthanarak K, Nookaew I, Thamsermsang O, Seubnooch P, Laohapand T, Akarasereenont P\*. (2017). *Metabolomics and integrative omics for the development of Thai traditional medicine*. *Front. Pharmacol* 8: 474.

\* = **Corresponding author**

### Selected invited Lectures/Talks

1. *Metabolomics for the development of human vaccine*. The 44<sup>th</sup> on Science and Technology of Thailand; Science and Technology in the Disruptive Era October 29<sup>th</sup>-31<sup>st</sup> 2018, Bangkok International Trade & Exhibition Centre (BITEC), Bangkok, Thailand.

2. *Metabolomics of alum adjuvant*. The 2<sup>nd</sup> CU FPhS-RIKEN CDB Symposium and 34th International Annual Meeting in Pharmaceutical Sciences, with the theme of "Advances in Cellular and Molecular Biology, March 8-9, (2018) Bangkok, Thailand.
3. *Metabolomics research in Thailand*. The 1<sup>st</sup> Asian Oceania Metabolomics Forum (nine countries including Australia, New Zealand, Korea, Indonesia, Japan, Singapore, Malaysia, China and Thailand), September 6, (2017) Bangkok, Thailand.
4. *Metabolomics at SiMPC*. Seminar on Metabolomics and Phenomics Study at Faculty of Medicine Siriraj Hospital, Mahidol University July 7, (2017) Bangkok Thailand.
5. *Metabolomics of fluad and stamaryl*. The 5<sup>th</sup> BiovacSafe Annual meeting, 8-10 June, (2017) Reykjavik, Iceland.
6. *Rapid quantification of yeast lipid using microwave-assisted total lipid extraction and HPLC-CAD*. Swedish Mass Spectrometry Society, Annual Symposium, 5-7 (2014) October, Sweden.
7. *Metabolomics: A tool for understanding biological complexity*. Advanced course in Lipid-Protein Interactions: Understanding their Importance and Modulation in Cell Physiology, 18-21 August (2014) Cuernavaca, Morelos, Mexico.
8. *Metabolomics: Analytics method driving progress in biological research*. The 1<sup>st</sup> Regional Undergraduate Conference on Agricultural Sciences and Technology; RUCA I. "Challenging Sustainable and Green Agriculture toward AEC", 3-5 April (2014) Silpakorn University (Petchaburi Campus), Thailand.
9. *Metabolomics: Analytics method driving progress in cell factories*. The 1<sup>st</sup> ASEAN Microbial Biotechnology Conference 2014 (AMBC2014) 19 – 21 February (2014), BIOTEC, Bangkok Thailand
10. *Analytical platform for characterization and identification of high-value chemicals in microbial cells*. Mini-symposium "Agilent in Metabolomics Nordic Tour" at Chalmers University of Technology, November 14 (2012) Gothenburg, Sweden
11. *Determination of arsenic containing-fatty acids in cod liver oil by GC/MS*. The 16<sup>th</sup> Young Investigators' Seminar on Analytical Chemistry, June 26 - July 2 (2009) Graz, Austria
12. *Preliminary attempts to determine arsenic-containing fatty acids by GC/MS*. The 15<sup>th</sup> Young Investigators' Seminar on Analytical Chemistry, July 2 – 5 (2008) Ljubljana, Slovenia

### **Poster presentation**

1. **Khoomrung S**, Nookaew I, Sen P, Olafsdottir TA, Persson J, Moritz T, Andersen PL, Harand AM, Nielsen J. *Metabolomics of Alum Adjuvant*. The 14<sup>th</sup> Annual Metabolomics 2018 Conference. June 24-28 (2018) Seattle WA, USA.
2. Akarasereenont P, Wattanarangsana J, Wanichthanarak K, Manochewa S, Limsuvan S, Boonrak R, Vannabhum M, **Khoomrung S**. *Absolute Quantification of Phenolic Compounds in Thai Herbal Medicines by LC-MS/MS*. The 14<sup>th</sup> Annual Metabolomics 2018 Conference. June 24-28 (2018) Seattle WA, USA.
3. **Khoomrung S**, Sen P, Nookaew I, Moritz T, Nielsen J. *Metabolomics for biomarkers of vaccine immunosafety*. 3<sup>rd</sup> Advance & Application in Human Disease Conference, May 25-26, (2016) Boston, USA.
4. **Khoomrung S**, Martinez JL, Jansa-Ard S, Nielsen J. *Improved Chemical Derivatization of Tert-butyl dimethylsilylation for Quantitative Analysis of Amino/Non-amino Acids by GC-MS in Saccharomyces cerevisiae*. Annual Metabolomics Meeting, 26- 27 March, (2015) Uppsala, Sweden.

5. **Khoorung S**, Nielsen J. *Rapid quantification of yeast lipid using microwave-assisted extraction total lipid extraction and HPLC-CAD*. The 4<sup>th</sup> European lipidomics meeting, September 22-24, (2014) Graz, Austria.
6. **Khoorung S**, Jansa-ard S, Martinez JL, Nookaew I, Moritz T, Nielsen J. *Analytical Plattform for metabolome analysis of microbial cell factory*. The 10<sup>th</sup> International Conference of the Metabolomics Society, 23-26 June, (2014) Tsuruoka, Japan.
7. **Khoorung S**, Jansa-ard S, Martinez JL, Nookaew I, Moritz T, Nielsen J. *Analytical platform for metabolome analysis of microbial cell factory*. The 9<sup>th</sup> International Conference of the Metabolomics Society, 1-4 July, (2013) Glasgow, Scotland.
8. **Khoorung S**, Chumnanpuen P, Nookaew I, Nielsen J. *Microwave-assisted: Fast and accurate sample preparation technique for high-throughput lipidomics*. LIPID MAPS Annual Meeting 2012: Lipidomics impact on cell biology, metabolomics and translational medicine, May 7-8, (2012) La Jolla, CA USA.
9. **Khoorung S**, Nookaew I, Chumnanpuen P, Nielsen J. *Optimization of mouse lipidomic analysis: a fast and accurate method*. Metabolomeeting. September 25-28, (2011) Helsinki Finland.
10. **Khoorung S**, Laoteng K, Tanticharoen M, and Cheevadhanarak, S. *Lipid classification of *Mucor rouxii* under different growth environments*. The 8<sup>th</sup> Annual Meeting of the Thai Society for Biotechnology, 2-3, November (2006) Bangkok, Thailand

### **Awards and Fellowships**

2016: Visiting Scholar: Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

2015: Wallenberg foundation: travel grant for the metabolomics workshop, Imperial College London, UK

2014: Wallenberg foundation: travel grant for the 10<sup>th</sup> metabolomics annual meeting, Tsuruoka, Japan

2014: Wallenberg foundation: travel grant for the AMBC2014, Bangkok, Thailand

2013: Wallenberg foundation: travel grant for the 9<sup>th</sup> metabolomics annual meeting, Glasgow, Scotland

2012: Wallenberg foundations: travel grant for the LipidMaps annual meeting CA, USA

Oct. 2007 – Sep. 2010: ÖAD Austrian exchange service program, fellowship for doctoral study, Austria

Oct. 2003 – Sep 2005: Postgraduate Education and Research Program in Chemistry (master degree), Thailand

April – July 2004: DUO-Denmark fellowship program (scholarship for exchange student program), Denmark

### **Computer software and Web application development**

1. Linear mixed-effects modelling for normalization of clinical metabolomics data by using subject metadata.

<http://metsysbio.com/tools.html>

### **Teaching and Mentoring experience**

#### **Course lectures**

Faculty of Medicine Siriraj hospital, Mahidol University

2017-present:

Graduate:



- Metabolomics approach for precision medicine
- Microbiome and disease related
- Metabolomics and Systems Biology in Stem Cell research
- Introductory to medical metabolomics
- Metabolomics data analysis
- Omics and Systems Biology in Biomedical Research
- Big data and Biomedical Sciences
- Metabolomics & its applications
- Mass Spectrometry
- Uni and multi variate analysis

#### Undergraduate

- Introduction to medical metabolomics

Faculty of Science, Mahidol University

Graduate:

- Metabolomics & its applications
- Mass spectrometry-based metabolomics

#### **Mentoring activities (Current)**

|                           |     |
|---------------------------|-----|
| Researcher/postdoc        | 7   |
| Research assistant        | 2   |
| PhD student/Co-supervisor | 2/1 |
| Master student            | 3   |

#### **Alumni (Faculty of Medicine Siriraj Hospital, Mahidol University)**

##### **Postdoc**

|                                 |               |
|---------------------------------|---------------|
| 1. Dr Alongkorn Kurilung        | 2020-2022     |
| 2. Dr Oyenike Olufunmi Olatunji | 2022-2022     |
| 3. Dr Sitanan Sartyoungkul      | 2020-2022     |
| 4. Dr Krittima Anekthanakul     | 2019-2022     |
| 5. Dr Khwanta Kaewnarin         | 2019-2021     |
| 6. Dr Apiwat Sangphukieo        | Jan- May 2020 |
| 7. Dr Sakchai Hongtong          | 2018- 2019    |

##### **Research Assistant**

|  |           |
|--|-----------|
| 1. Kittiphath Pitchayametathun (B/Sc.) | 2020-2022 |
| 2. Suphitcha Limjiasahapong (M.Sc.)    | 2018-2020 |
| 3. Chalita Phutthasimma (M.Sc.)        | 2019-2020 |
| 4. Santikorn Chaimanee (M.Sc.)         | 2019-2020 |

##### **Master Student**

|                |           |
|----------------|-----------|
| 1. Kajol Thapa | 2020-2022 |
| 2. Esha Dhakal | 2018-2022 |

**Internship**

- |   |      |
|---|------|
| 1. Praj Chirathivat (Choate Rosemary Hall, Wallingford, CT):    | 2021 |
| 2. Ruthairatch Poonsornsiri (Deerfield Academy, Massachusetts): | 2020 |
| 3. Prattakorn Metem (Chulalongkorn University):                 | 2019 |
| 4. Punvinai Vinaisuratarn (Chulalongkorn University):           | 2019 |
| 5. Wichaya Asawalertpanich (Chulalongkorn University):          | 2019 |

**Chalmer University of Technology, Sweden****Master student**

- |                      |           |
|----------------------|-----------|
| 1. Marieke F Buffing | 2011-2011 |
|----------------------|-----------|