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Education

March 2007, Ph.D., National University of Singapore, Molecular Microbiology

March 2000, M.Sc., National University of Singapore, Plant Science

July 1995, M.Sc., South China Institute of Botany, CAS, Plant Physiology

July 1992, B.Sc., Central China Normal University, Biology

Post-doctoral Training

2007-2010, Research Fellow, Institute of Molecular and Cell Biology, Singapore.

Professional Experiences

07/2023-present, tenured Professor, School of Life Sciences & Biotechnology, Shanghai Jiao Tong University, Shanghai, P. R. China

07/2017-07/2023, Professor, School of Life Sciences & Biotechnology, Shanghai Jiao Tong University, Shanghai, P. R. China

06/2010-07/2017, tenure-tracked Associate Professor, School of Life Sciences & Biotechnology, Shanghai Jiao Tong University, Shanghai, P. R. China

10/2006-05/2010, Research Fellow, Institute of Molecular and Cell Biology (IMCB), Singapore

07/2001-09/2006, Junior Research Fellow, IMCB, Singapore

12/1999-06/2001, Assistant Research Officer, IMCB, Singapore

08/1995-08/1997, Research Assistant, South China Institute of Botany, Chinese Academy of Science, Guangzhou, China

Research interests

1) Microbial Quorum Sensing (QS) in *Xanthomonas*:
   How the plant pathogen *Xanthomonas campestris* pv. *campestris* (Xcc) regulates virulence factor production via QS mechanisms; how Xcc exits from the QS stage; how the host plant deals with the QS during Xcc infection.
2) Yellow pigment xanthomonadin biosynthesis and roles in *Xanthomonas* epiphytic survival and virulence
3) Synthetic Biology for Biopesticides and Xanthan Gum.
   Identification and characterization of the active metabolites, which have inhibitory effects on plant pathogen growth or induce immunity response in crop plants, from the plant growth-promoting rhizobacteria; Elucidation of the biosynthetic pathway and regulatory network of the active

metabolites; Synthetic biology to enhance the fermentation titer of the target metabolites for R & D of new metabolite biopesticides.

4) Bionics wild cultivation of Chinese Medicine Herbs and development of new products.

Papers published in international journals

Li S, Song K, Cui Y, Li L, Zhang M, **He Ya-Wen**. Xanthomonas campestris utilizes IAA to regulate its viability and virulence by altering the production of BCAAs and ROS. **mLife**. 2025 Oct 27;4(5):551-566.

Hu WD, Chen B, Zheng Z, Cao XQ, Song K, Poplawsky AR, **He Ya-Wen**. The structural diversity of xanthomonadin aryl polyenes and functional analysis of the genes required for their synthesis by *Xanthomonas* phytopathogens. **Phytopathology Research**. 2025, 7: 25.

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Song K, Cui Y, Li L, Wang JY, Li SN, Gu YC, **He Ya-Wen**, Zhou L. Xanthomonas campestris Employs the RND Family Pump HepABCD for Phenolic Acid Efflux and Enhancing Viability and Antioxidant Activity. **J Agric Food Chem.** 2025 Jul 16;73(28):17458-17470.

Song K, Li RF, Cui Ying, Chen Bo, Zhou Lian, Han WY, Jiang BL[#], and **He Ya-Wen**[#]. The phytopathogen *Xanthomonas campestris* senses and effluxes salicylic acid via a sensor HepR and an RND family efflux pump to promote virulence in host plants. **mLife**. 2024 Sep 16;3(3):430-444.

Chen B, Zhou L, Song K, Thawai C, **He Ya-Wen**. Host plant-derived benzoic acid interferes with 4-hydroxybenzoic acid degradation in the phytopathogen *Xanthomonas campestris* by competitively binding to PobR. **Phytopathology Research**. 2024, 6: 40.

Yi R, Yang B, Zhu H, Sun Y, Wu H, Wang Z, Lu Y, **He Ya-Wen**[#], Tian J[#]. Quorum-Sensing Signal DSF Inhibits the Proliferation of Intestinal Pathogenic Bacteria and Alleviates Inflammatory Response to Suppress DSS-Induced Colitis in Zebrafish. **Nutrients**. 2024 May 22;16(11):1562.

He Ya-Wen*[,#], Jin Z-J*, Cui Y, Song K, Chen B, Zhou L. RsaL is a self-regulatory switch that controls alternative biosynthesis of two AHL-type quorum sensing signals in *Pseudomonas aeruginosa* PA1201. **mLife**. 2024; 3: 74–86.

He Ya-Wen*[,#], Deng Y*****, Miao Y*****, Chatterjee S, Tran TM, Tian J, Lindow S. DSF-family quorum sensing signal-mediated intraspecies, interspecies, and inter-kingdom communication. **Trends in Microbiology**, 2023 Jan;31(1):36-50.

Cui Y, Song K, Jin ZJ, Lee LH, Thawai C, **He Ya-Wen**. Fructose promotes pyoluteorin biosynthesis via the CbrAB-CrcZ-Hfq/Crc pathway in the biocontrol strain Pseudomonas PA1201. **Synthetic and Systemic Biotechnology.** 2023 Sep 21;8(4):618-628.

Chen B, Li RF, Zhou L, Song K, Poplawsky AR, **He Ya-Wen***. The phytopathogen *Xanthomonas campestris* scavenges hydroxycinnamic acids in planta via the hca cluster to increase virulence on its host plant. **Phytopathology Research**,2022, 4：12.

Zhu H, Wang Z, Wang W, Lu Y, **He Ya-Wen***, Tian J*****. Bacterial Quorum-Sensing Signal DSF Inhibits LPS-Induced Inflammations by Suppressing Toll-like Receptor Signaling and Preventing Lysosome-Mediated Apoptosis in

Zebrafish. **International Journal of Molecular Science**. 2022, 23(13): 7110.

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Hui ML, Tan LT, Letchumanan V, **He Ya-Wen**, Fang CM, Chan KG, Law JW, Lee LH. The Extremophilic Actinobacteria: From Microbes to Medicine. **Antibiotics (Basel)**. 2021 Jun 8;10(6):682.

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Cao XQ, Ouyang XY, Chen B, Song K, Zhou L, Jiang BL, Tang JL, Ji G, Poplawsky AR, **He Ya-Wen**. Genetic Interference Analysis Reveals that Both 3-Hydroxybenzoic Acid and 4-Hydroxybenzoic Acid Are Involved in Xanthomonadin Biosynthesis in the Phytopathogen *Xanthomonas campestris* pv. *campestris*. ***Phytopathology***. 2020 Feb;110(2):278-286.

Keswani C, Singh HB, García-Estrada C, Caradus J, **He Ya-Wen**, Mezaache-Aichour S, Glare TR, Borriss R, Sansinenea E. Antimicrobial secondary metabolites from agriculturally important bacteria as next-generation pesticides. ***Applied Microbiology and Biotechnology.*** 2020 Feb;104(3):1013-1034.

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Thawai C, Bunbamrung N, Pittayakhajonwut P, Chongruchiroj S, Pratuangdejkul J, **He Ya-Wen**, Tadtong S, Sareedenchai V, Prombutara P, Qian Y. A novel diterpene agent isolated from *Microbispora hainanensis* strain CSR-4 and its *in vitro* and *in silico* inhibition effects on acetylcholine esterase enzyme. ***Scientific Reports***. 2020 Jul 6;10(1):11058.

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R, Vinale F, Sansinenea E. Antimicrobial secondary metabolites from agriculturally important fungi as next biocontrol agents. ***Applied and Microbiological Biotechnology.*** 2019 Dec;103(23-24):9287-9303.

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