

Ya-Wen He Resume

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

06/2010-present, 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):

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) Synthetic Biology for Biopesticides.

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.

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

Papers published in international journals

- 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 (in press).
- 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.
- Song K, Chen B, Cui Y, Zhou L, Chan KG, Zhang HY, **He Ya-Wen**. The Plant Defense Signal Salicylic Acid Activates the RpfB-Dependent Quorum Sensing Signal Turnover via Altering the Culture and Cytoplasmic pH in the Phytopathogen *Xanthomonas campestris*. **mBio**. 2022 13(2): e0364421.
- Azad SM, Jin Y, Ser HL, Goh BH, Lee LH, Thawai C, **He Ya-Wen**. Biological insights into the piericidin family of microbial metabolites. **Journal of Applied Microbiology**. 2022, 132(2): 772-784.
- Fang YL, Cui Y, Zhou L, Thawai C, Naqvi TA, Zhang HY, **He Ya-Wen**. H-NS family protein MvaU downregulates phenazine-1-carboxylic acid (PCA) biosynthesis via binding to an AT-rich region within the promoter of the phz2 gene cluster in the rhizobacterium *Pseudomonas* strain PA1201. **Synthetic and Systemic Biotechnology**. 2021, 6(4): 262-271.
- 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.
- Chen B, Li RF, Zhou L, Qiu JH, Song K, Tang JL, **He Ya-Wen**. The phytopathogen *Xanthomonas campestris* utilizes the divergently transcribed pobA/pobR locus for 4-hydroxybenzoic acid recognition and degradation to promote virulence. **Molecular Microbiology**, 2020 Nov;114(5):870-886.
- Jin ZJ, Zhou L, Sun S, Cui Y, Song K, Zhang X, **He Ya-Wen**. Identification of a Strong Quorum Sensing- and Thermo-Regulated Promoter for the Biosynthesis of a New Metabolite Pesticide Phenazine-1-carboxamide in *Pseudomonas* strain PA1201. **ACS Synthetic Biology**. 2020 Jul 17;9(7):1802-1812.
- He Ya-Wen^{*,#}**, Cao XQ, Poplawsky AR[#]. Chemical structure, biological roles, biosynthesis and regulation of the yellow xanthomonadin pigments in the phytopathogen *Xanthomonas*. **Molecular Plant Microbe Interactions**. 2020,

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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.
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- Law JW, Chan KG, **He Ya-Wen**, Khan TM, Ab Mutalib NS, Goh BH, Lee LH. Diversity of Streptomyces spp. from mangrove forest of Sarawak (Malaysia) and screening of their antioxidant and cytotoxic activities. *Scientific Reports*. 2019 Dec 3;9(1):15262.
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