

伍建林博士



職稱：副教授

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一、個人專長

1. 課題組一共發表 SCI 論文 125 篇，總影響因子 969 分，平均影響因子 7.8。2016 以來以第一和通訊作者（含共同）在 *Cell Res, Gastroenterology, Psychiatry Clin Neurosci, Pediatr Allergy Immunol, J Pharm Anal, Med Res Rev, Anal Chem, Food Chem, J Agric Food Chem* 等 Q1 Top，及合作在 *PNAS, Nat Commun, J Hepatol, Gut* 等雜誌上發表 SCI 論文 103 篇。影響因子大於 10 分的 21 篇，大於 20 的 7 篇，總影響因子 887 分，平均影響因子 8.6。
2. 主持和參與競爭性基金 19 項，經費總額超過 6000 萬元人民幣；
3. 先後參與籌建了香港大學“代謝組學與先端分析實驗室”，澳門科技大學中藥質量研究國家重點實驗室“組學技術與創新藥物研究中心”和“澳門質譜及核磁共振光譜測試中心”；
4. 擔任中國醫藥生物技術協會藥物分析專業委員會常務委員、亞太醫學生物免疫學會基礎免疫分會常務委員等多個學術組織職務；
5. 擔任 *Journal of Pharmaceutical Analysis, Journal of Analytical Testing*、色譜雜誌青年編委，*Frontiers in Pharmacology* 主題編輯 (Topic editor), *Nutrients* 特刊編輯 (Special Issue Editor)；
6. 課題組已畢業的全部 9 個研究生（5 個博士、4 個碩士）中共有 4 個獲得澳門政府科技發展基金會研究生科技研发獎。

二、研究方向

基於問題導向的質譜多組學 (POMIMS) 在生物醫學領域的應用，包括臨床疾病診斷與機制研究、食品和藥物功能成分發現和機制研究、食藥同源中藥複雜體系全成分解析關鍵技術及產品開發等。

三、教育背景

2005.11-2009.11 香港浸會大學化學系 分析化學專業，哲學博士

2002.09-2004.07 日本新潟大學工學部 天然藥物化學專業，工學碩士

四、工作經歷

2018.07-至今 澳門科技大學中藥質量研究國家重點實驗室 副教授，博士生導師

2011.11-2018.06 澳門科技大學中藥質量研究國家重點實驗室 助理教授，博士生導師

2010.04-2011.11 香港大學李嘉誠醫學院病理系 博士後研究員

五、個人簡介

伍建林博士，男，現任中藥質量研究國家重點實驗室（澳門科技大學）副教授，博士生導師；兼任中國醫藥生物技術協會藥物分析專業委員會常務委員、亞太醫學生物免疫學會基礎免疫分會常務委員、廣東省預防醫學會過敏預防與控制專業委員會副主任委員、*J Pharm Anal, J Anal Testing* 和色譜雜誌青年編委等學術職務。建立了包括代謝流 (Metabolic Flux)、羧酸組學 (Carboxylomics)、微生物組學 (Microbiomics)、多肽組學 (Peptidomics) 和蛋白組學 (Proteomics) 的基於問題導向的質譜多組學整合分析技術 (Problem Oriented Multi-omics Integrated analysis technology based on Mass Spectrometry, POMIMS)，解決了複雜體系全成分多維度分析、微量和痕量成分定性定量及效應物質精准動態定位的難題，並廣泛應用在並廣泛應用在臨床疾病診斷、藥物發現和機制研究等方面。截至目前，一共發表學術論文 131 篇，SCI 論文 125 篇，總影響因子 969，平均影響因子 7.8。其中，2016 以來以第一和通訊作者（含共同）在 *Cell Res, Gastroenterology, Psychiat Clin Neuros, Environ Sci Tech, J Hazard Mater, Environ Int, Med Res Rev, Anal Chem, Trends Anal Chem, Food Chem, J Agric Food Chem* 等 Q1 Top，及合作在 *J Hepatol, Gut, PNAS, Nat Commun.* 等雜誌上發表發表 SCI 論文 103 篇，影響因子大於 10 的 21 篇，影響因子大於 20 的 7 篇，平均影響因子 8.6。授權國際國內專利 10 余項，主持和參與各類基金 19 項，經費超過 6000 萬人民幣。

六、標誌性成果

在香港大學李嘉誠醫學院從事博士後研究工作期間，搭建了高精尖的超高效液相色譜、固相萃取、質譜和核磁共振 (UHPLC-SPE-NMR/MS) 線上串聯/離線整合分析系統，參與籌建了“代謝組學與先端分析實驗室 (Metabolomics and Advanced Analytical Laboratory)”。2011 年 11 月加入澳門科技大學以後，搭建了基於包括 10 餘台色譜、質譜和 1 台 600M 核磁共振（超低溫探頭）的 UHPLC-SPE-NMR/MS 線上串聯/離線整合分析系統，在此基礎上參與籌建了“組學技術與創新藥物研究中心”和“澳門質譜及核磁共振光譜測試中心”。基於上述平臺，建立了包括代謝流 (Metabolic Flux)、代謝組學 (Metabolomics)、多肽組學 (Peptidomics) 和蛋白組學 (Proteomics) 的基於問題導向的質譜多組學整合分析技術 (Problem Oriented Multi-omics Integrated analysis technology based on Mass Spectrometry, POMIMS)，並首次提出了 Carboxylomics、Less is more 和 DMPC 雙刀劍的概念，解決了體內外效應物質的複雜體系全成分多維度分析、痕量和微量成分定性定量及效應物質精准動態定位的難題，並廣泛應用在並廣泛應用在臨床疾病診斷、藥物發現和機制研究，食藥同源和植物源農副產品全質化利用技術開發及產業化等方面。

七、教學科目和成果

1. 教學科目：藥物分析、藥物分析實驗、分析化學、分析化學實驗、藥學基礎化學實驗、儀器分析、現代生物技術。
2. 本科和研究生教學方面，幫助學生牢固樹立強烈的藥品質量觀念和意識，同時結合自身科研工作優勢，將科研反哺教學，圍繞科研實踐的核心問題，從實驗技術、實驗方法、實驗流程、資料處理等方面與學生進行深入交流和討論，鼓勵學生多閱讀、多思考、多實踐，從解決問題的實際角度出發，大膽創新，表達觀點，全面提升學生綜合素養，從

而起到導學和導研的作用。

3. 研究生培養方面，鼓勵學生多閱讀、多思考、多實踐，從解決問題的實際角度出發，大膽創新，表達觀點，全面提升學生綜合素養，從而起到導學和導研的作用。截至目前，課題組已畢業的9個研究生（5個博士、4個碩士）中共有4個（卞西清博士、劉梅仙博士、陳盛雙博士和古萬宜碩士）獲得澳門特區政府科技發展基金會研究生科技研發獎。

八、學術論文

一共發表學術論文共 131 篇，2016 年-至今代表性文章如下：

1. Q. Li, W. Hu, W.X. Liu, L.Y. Zhao, D. Huang, X. Liu, H. Chan, Y. Zhang, J. Zeng, O.O. Coker, W. Kang, S.S.M. Ng, L. Zhang, S.H. Wong, T. Gin, M.V. Chan*, **J.L. Wu***, J. Yu*, W.K.K. Wu*. Streptococcus thermophilus inhibits colorectal tumorigenesis through secreting β -galactosidase. *Gastroenterology* **2021**, 160, 1179-1193. (Impact factor: 29.4, Q1 top, 3/93). Top 1% Highly Cited Paper (前 1% 高被引論文)
2. K. Li#, **J.L. Wu#**, B.Qin, Z. Fan, Q. Tang, W. Lu, H. Zhang, F. Xing, M. Meng, S. Zou, W. Wei, H. Chen, J. Cai, H. Wang, H. Zhang, J. Cai, L. Fang, X. Bian, C. Chen, P. Lan, B. Ghesquière, L. Fang*, M.H. Lee*. ILF3 is a substrate of SPOP for regulating serine biosynthesis in colorectal cancer. *Cell Res.* **2020**, 30, 163-178. (#These authors contributed equally to this work). (Impact factor: 44.1, Q1 top, 4/194).
3. X. Hu, S. Gong, Q. He, **J.L. Wu***, N. Li*. Less is More: A New Perspective for Toxicity of Emerging Contaminants by Structures, Protein Adducts and Proteomics. *Trends Anal Chem.* **2023**, 167, 117289. (Impact factor: 13.1, Q1 top, 1/86).
4. J. Han, S. Gong, X. Bian, Y. Qian, G. Wang, N. Li*, **J.L. Wu***. Polarity-regulated derivatization-assisted LC-MS method for amino-containing metabolites profiling in gastric cancer. *J Pharm Anal.* **2023**, in press (doi.org/10.1016/j.jpha.2023.06.009). (Impact factor: 8.8, Q1 top, 9/279).
5. Y. Gao, Y. Fu, N. Li, Y. Jiang, X. Liu, C. Gao, L. Wang, **J.L. Wu***, T. Zhou*. Carboxyl-containing Components Delineation via Feature-based Molecular Networking: A Key to Processing Conditions of Fermentation Soybean. *Food Chem.* **2023**, 423, 136321. (Impact factor: 8.8, Q1 top, 9/142).
6. Y. Ge, X. Li, M. Huang, Z. Huang, M. Wu, B. Sun, L. Wang, **J.L. Wu***, N. Li*. Aroma correlation assisted volatilome coupled network analysis strategy to unveil main aroma-active volatiles of Rosa roxburghii. *Food Res Int.* **2023**, 169, 112869. (Impact factor: 7.7, Q1 top, 13/144).
7. X. Bian, Y. Zhang, N. Li, M. Shi, X. Chen, H. Zhang, J. Liu*, **J.L. Wu***. Ultrasensitive quantification of trace amines based on N-phosphorylation labeling chip 2D LC-QQQ/MS. *J Pharm Anal.* **2023**, 13, 315. (Impact factor: 8.8, Q1 top, 9/279).
8. X. Bian, N. Zhou, Y. Zhao, Y. Fang, N. Li, X. Zhang, X. Wang, Y. Zhang, **J.L. Wu***, T. Zhou*. Identification of proline, 1-pyrroline-5-carboxylate and glutamic acid as biomarkers of depression reflecting brain metabolism using carboxylomics, a new metabolomics method. *Psychiatr Clin Neuros.* **2023**, 77, 196. (Impact factor: 11.9, Q1 top, 8/212). Editor's Choice Article (編輯推薦文章).
9. A. Serag, M.A. Salem, S. Gong, **J.L. Wu*** M.A. Farag*. Decoding Metabolic Reprogramming in Plants under Pathogen Attacks, a Comprehensive Review of Emerging Metabolomics

- Technologies to Maximize Their Applications. *Metabolites* **2023**, *13*, 424. (Impact factor: 4.1).
- 10. W. Miao, X. Liu, N. Li, X. Bian, Y. Zhao, J. He, T. Zhou*, **J.L. Wu***. Polarity-extended composition profiling via LC-MS-based metabolomics approaches: A key to functional investigation of Citrus aurantium L. *Food Chem.* **2023**, *405*, 134988. (Impact factor: 8.8, Q1 top, 9/142).
 - 11. Y. Zhang, X. Bian, G. Yan, B. Sun, W. Miao, M. Huang, N. Li*, **J.L. Wu***. Discovery of novel ascorbic acid derivatives and other metabolites in fruit of Rosa Roxburghii Tratt through untargeted metabolomics and feature-based molecular networking. *Food Chem.* **2023**, *405*, 134807. (Impact factor: 8.8, Q1 top, 9/142).
 - 12. L. Zhang, N. Li*, S. Chen., X. Bian., M.A. Farag., Y. Ge., J. Xiao, **J.L. Wu***. Carboxyl-containing compounds in food: Category, functions, and analysis with chemical derivatization-based LC-MS. *Trends Anal Chem.* **2022**, *157*, 116818. (Impact factor: 13.1, Q1 top, 1/86).
 - 13. X. Hu, **J.L. Wu***, W. Miao, F. Long, H. Pan, T. Peng, X. Yao, N. Li*. Covalent Protein Modification: An Unignorable Factor for Bisphenol A-induced Hepatotoxicity. *Environ Sci Tech.* **2022**, *56*, 9536-9545. (Impact factor: 11.4 Q1 top, 19/274).
 - 14. S. Gong, X. Hu, S. Chen, B. Sun, **J.L. Wu***, N Li*. Dual roles of drug or its metabolite protein conjugate (DMPC): cutting-edge strategy of drug discovery using shotgun proteomics. *Med Res Rev.* **2022**, *42*, 1704-1734. (Impact factor: 13.3 Q1 top, 8/277).
 - 15. W. Miao, N. Li, **J.L. Wu***. Food-polysaccharide utilization via in vitro fermentation: microbiota, structure, and function. *Curr Opin Food Sci.* **2022**, *48*, 100911. (Impact factor 9.9 Q1 top, 7/143)
 - 16. MS-FINDER Assisted Understanding the Flavonoids Profile in Temporal Dimension during Fermentation of Pu-erh Tea. X. Wang, N. Li*, S. Chen1, Y. Ge, Y. Xiao, M. Zhao, **J.L. Wu***. *J Agric Food Chem.* **2022**, *70*, 7085. (Impact factor: 6.1, Q1 top, 6/59). Front Cover (封面文章)
 - 17. Q. Zhu, Y. Ge, N. An, N. Li, Y. Xiao, G. Huang, L. Zhang Y. Feng *, **J.L. Wu***. Profiling of Branched Fatty Acid Esters of Hydroxy Fatty Acids in Teas and Their Potential Sources in Fermented Tea. *J Agric Food Chem.* **2022**, *70*, 5369. (Impact factor: 6.1, Q1 top, 6/59). Supplementary Cover (封面文章)
 - 18. L. Zhang, **J.L. Wu***, P. Xu, S. Guo, T. Zhou, N. Li*. Soy protein degradation drives diversity of amino-containing compounds via *Bacillus subtilis natto* fermentation. *Food Chem.* **2022**, *388*, 133034. (Impact factor: 8.8, Q1 top, 9/142).
 - 19. X. Bian, W. Miao, M. Zhao, Y. Zhao, Y. Xiao, N. Li*, **J.L. Wu***. Microbiota Drive Insoluble Polysaccharides Utilization via Microbiome-Metabolome Interplay during Pu-erh Tea Fermentation. *Food Chem.* **2022**, *377*, 132007. (Impact factor: 8.8, Q1 top, 9/142).
 - 20. X. Bian, X. Xie, Y. Zhao, W. Miao, X. Chen, Y. Xiao, N. Li*, **J.L. Wu***. Dynamic Changes of Phenolic Acids and Antioxidant Activity of *Citri Reticulatae Pericarpium* during Aging Processes. *Food Chem.* **2022**, *373*, 131399. (Impact factor: 8.8, Q1 top, 9/142).
 - 21. S. Chen, Y. Fu, X. Bian, M. Zhao, Y. Zuo, Y. Ge, Y. Xiao, J. Xiao, N. Li*, **J.L. Wu***. Investigation and dynamic profiling of oligopeptides, free amino acids and derivatives during Pu-erh tea fermentation by ultra-high performance liquid chromatography tandem mass spectrometry. *Food Chem.* **2022**, *371*, 131176. (Impact factor: 8.8, Q1 top, 9/142).

22. L. Zhang, **J.L. Wu**^{*}. Less is more: Vital roles of bioactive equivalency in assessing food Quality. *eFood* **2022**, 3, e49.
23. M. Liu, H. Huang, X. Bian, Z. Zheng, N. Li, B. Sun^{*}, **J.L. Wu**^{*}. A prospective cohort study of the presence of SARS-CoV-2 in clinical samples from multiple bodily sites: implications for transmission routes of COVID-19. *J Bio-X Res.* **2022**, 5, 27.
24. P. Zheng, X. Bian, Y. Zhai, C. Li, C. Hao, H. Huang, W. Luo, Z. Huang, C. Liao, M. Xue, N. Li, M.Q. Guo, B. Sun^{*}, **J.L. Wu**^{*}. Metabolomics reveals a correlation between hydroxyeicosatetraenoic acids (HETEs) and allergic asthma: evidence from three years' immunotherapy. *Pediatr Allergy Immunol.* **2021**, 32, 1654. (Impact factor: 4.4, Q1 top, 13/130). Editor's Choice Article (編輯推薦文章).
25. Y. Ge, N. Li, Y. Fu, X. Yu, Y. Xiao, Z. Tang, J. Xiao, **J.L. Wu**^{*}, Z.H. Jiang^{*}. Deciphering superior quality of Pu-erh tea from thousands of years' old trees based on chemical profile. *Food Chem.* **2021**, 358, 129602. (Impact factor: 8.8, Q1 top, 9/142).
26. S. Chen, G. Huang, W. Liao, S. Gong, J.B. Xiao, J. Bai, W.L.W. Hsiao, N. Li^{*}, **J.L. Wu**^{*}. Discovery of the bioactive peptides secreted by *Bifidobacterium* using integrated MCX coupled with LC-MS and feature-based molecular networking. *Food Chem.* **2021**, 347, 129008. (Impact factor: 8.8, Q1 top, 9/142).
27. Y. Zhuo, Y. Zhang, M. Li, H. Wu, S. Gong, X. Hu, Y. Fu, X. Shen, B. Sun, **J.L. Wu**^{*}, N. Li^{*}. Hepatotoxic Evaluation of Toosendanin via Biomarker Quantification and Pathway Mapping of Large-Scale Chemical Proteomics. *Food Chem Toxicol.* **2021**, 153, 112257. (Impact factor: 4.3, Q1 top, 15/94).
28. Y. Luo, F. Gao, R. Chang, X. Zhang, J. Zhong, J. Wen^{*}, **J.L. Wu**^{*}, T. Zhou^{*}. Metabolomics based comprehensive investigation of *Gardeniae Fructus* induced hepatotoxicity. *Food Chem Toxicol.* **2021**, 153, 112250. (Impact factor: 4.3, Q1 top, 15/94).
29. X. Hu, X. Bian, W.Y. Gu, B. Sun, X. Gao, **J.L. Wu**^{*}, N. Li^{*}. Stand out from matrix: Ultra-sensitive LC-MS/MS method for determination of histamine in complex biological samples using derivatization and solid phase extraction. *Talanta* **2021**, 225, 122056. (Impact factor: 6.1, Q1, 9/86).
30. P. Zheng, G. Yan, Y. Zhang, H. Huang, W. Luo, M. Xue, N. Li, **J.L. Wu**^{*}, B. Sun^{*}. Metabolomics reveals process of allergic rhinitis patients with 2 single-and double-species mite subcutaneous immunotherapy. *Metabolites* **2021**, 11, 613. (Impact factor: 4.1)
31. S. Gong, Y. Zhuo, S.S. Chen, X. Hu, X.X. Fan, **J.L. Wu**^{*}, N. Li^{*}. Quantification of Osimertinib and Metabolite-Protein Modification Reveals its High Potency and Long Duration of Effects on Target Organ. *Chem Res Toxicol.* **2021**, 34, 2309. (Impact factor: 4.1).
32. 李健民, 卓越, 張毅達, 李娜, 伍建林^{*}. 尺寸排阻-反相液相色譜-質譜聯用技術在大鼠腎臟翻譯後修飾蛋白質鑑定中的應用. 色譜 **2021**, 39, 87-95.
33. M. Liu, N. Li^{*}, Y. Zhang, Z. Zheng, Y. Zhuo, B. Sun, L.P. Bai, M. Zhang, M.Q. Guo, **J.L. Wu**^{*}. Characterization of Covalent Protein Modification by Triclosan in vivo and in vitro via Three-Dimensional Liquid Chromatography-Mass Spectrometry: New Insight into Its Adverse Effects. *Environ Int.* **2020**, 136, 105423. (Impact factor: 11.8, Q1 top, 17/274).
34. M.Z. Zhu, N. Li, F. Zhou, J. Ouyang, D.M. Lu, W. Xu, J. Li, H.Y. Lin, Z. Zhang, J.B. Xiao, K.B. Wang, J.A. Huang, Z.H. Liu^{*}, **J.L. Wu**^{*}. Microbial bioconversion of the chemical components in dark tea. *Food Chem.* **2020**, 312, 126043. (Impact factor: 8.8, Q1 top, 9/142).

Top 1% Highly Cited Paper (前 1% 高被引論文)

35. X. Bian, Y. Qian, B. Tan, K. Li, X. Hong, C.C. Wong, L. Fu, J. Zhang, N. Li*, **J.L. Wu***. In-depth Mapping Carboxylic Acid Metabolome Reveals the Potential Biomarkers in Colorectal Cancer through Characteristic Fragment Ions and Metabolic Flux. *Anal Chim Acta* **2020**, 1128, 62-71. (Impact factor: 6.911, Q1, 10/87).
36. L. Li#, **J.L. Wu**#, X. Bian, G. Wu, P. Zheng, M. Xue, B. Sun. Analysis of serum polyunsaturated fatty acid metabolites in allergic bronchopulmonary aspergillosis. *Respir Res.* **2020**, 21, 205. (#These authors contributed equally to this work). (Impact factor: 5.8, Q1, 15/65).
37. M. Xue, P. Zheng, X. Bian, Z. Huang, H. Huang, Y. Zeng, H. Hu, Xiaoqing Liu, L. Zhou, B. Sun*, **J.L. Wu***, N. Zhong*. Exploration and correlation analysis of changes in Krebs von den Lungen-6 levels in COVID-19 patients with different types in China. *Biosci Trends*. **2020**, 14, 290-6. (Impact factor: 5.5, Q1, 13/92).
38. **J.L. Wu**, F. Ji, H. Zhang, C. Hu, M.H. Wong, D. Hu, Z. Cai*. Formation of dioxins from triclosan with active chlorine: A potential risk assessment. *J Hazard Mater.* **2019**, 367,128-136. (Impact factor: 13.6, Q1 top, 10/274).
39. M. Zhao*, X. Su, B. Nian, L. Chen, D. Zhang, S. Duan, L. Wang, X. Shi, B. Jiang, W. Jiang, C. Lv, D. Wang, Y. Shi, Y. Xiao, **J.L. Wu***, Y. Pan*, Y. Ma*. Integrated meta-omics approaches to understand the microbiome of spontaneous fermentation of traditional Chinese pu-erh tea. *mSystems* **2019**, 4, e00680-19. (Impact factor: 7.324, Q1, 24/135).
40. M. Zhang, Y. Pan, D. Tang, R.G. Dorfman, L. Xu, Q. Zhou, L. Zhou, Y. Wang, Y. Li, Y. Yin, B. Kong, H. Friess, S. Zhao, **J.L. Wu***, L. Wang*, X. Zou*. Low levels of pyruvate induced by a positive feedback loop protects cholangiocarcinoma cells from apoptosis. *Cell Commun Signal.* **2019**, 17, 23. (Impact factor: 8.4, Q1, 34/191).
41. L. Xu, L. Wang, L. Zhou, R.G. Dorfman, Y. Pan, D. Tang, Y. Wang, Y. Yin, C. Jiang, X. Zou, **J.L. Wu***, M. Zhang*. The SIRT2/cMYC Pathway Inhibits Peroxidation-Related Apoptosis In Cholangiocarcinoma Through Metabolic Reprogramming. *Neoplasia* **2019**, 21, 429-441. (Impact factor: 4.8).
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十、學術職務

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