

伍建林 博士/教授



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研究方向

复杂体系全成分解析 (CCACS) 关键技术及其在生物医学领域的应用，包括临床疾病诊断与机制研究、食品和药物功能成分发现和机制研究、药食同源中药复杂体系全成分解析关键共性技术及产业化等。

教学科目

仪器分析、药物分析、药物分析实验、分析化学、分析化学实验、药学基础化学实验、现代生物技术。

个人简介

伍建林博士，男，现任中药质量研究国家重点实验室 (澳门科技大学) 教授，博士生导师；兼任中国分析测试协会 (CAIA) 理事、中国医药生物技术协会药物分析专业委员会常务委员、亚太医学生物免疫学会基础免疫分会常务委员、中国药学会药物分析专业委员会委员、*Journal of Pharmaceutical Analysis*, *Current Research in Food Science*, *Food Science and Human Wellness*, *Phytochemical Analysis*, *Allergy Medicine*, *Microbiota & Diseases*, *Health and Metabolism* 和 *Phytochem Food Med* 等 10 余个杂志主编和编委等学术职务。建立了包括代谢流 (Metabolic Flux)、羧酸组学 (Carboxylomics)、微生物组学 (Microbiomics)、挥发组学 (Volatilomics)、多肽组学 (Peptidomics)、蛋白组学 (Proteomics) 和糖组学 (Glycomics) 的复杂体系全成分解析 (Comprehensive Components Analyses of Complex Systems, CCACS) 关键共性技术，解决了复杂体系全成分多维度分析、微量痕量和难检测成分定性定量及效应物质精准动态定位的难题，并广泛应用在临床疾病诊断和机制研究、药物发现、药食同源复杂体系全成分解析和产品综合开发等方面。一共发表 SCI 学术论文共 180 多篇，总影响因子超过 1300 分，其中 2020 年以来以第一和

通讯作者(含共同)在 *Gastroenterology*, *Cell Research*, *Journal of Controlled Release*, *Advanced Healthcare Materials*, *Journal of Pharmaceutical Analysis*, *Metabolism*, *Environmental Science & Technology*, *Journal of Hazardous Materials*, *Environment International*, *Medicinal Research Reviews*, *TrAC Trends in Analytical Chemistry*, *Carbohydrate polymers*, *Food Hydrocolloids*, *Food Chemistry* 等影响因子超过 10 分的 Q1 Top, 及合作在 *Gut*, *Nature Communications*, *Proceedings of the National Academy of Sciences* 和 *Signal Transduction and Targeted Therapy* 等杂志上发表发表 SCI 论文 110 篇, 其中 JCR Q1 Top 期刊 80 余篇。授权和申请国际国内专利 30 项。入选 Stanford University 全球前 2% 科学家榜单。在产品开发方面开发了包括果冻、口服液、饮料和颗粒剂在内的具多种活性的药食同源产品 10 余种, 临床疾病诊断试剂盒 3 种。

教育背景

2002.09~2004.09 工学硕士, 日本新潟大学工学部天然药物化学专业

2005.11~2009.11 哲学博士, 香港浸会大学化学系分析化学专业

工作经历

2010.04~2011.10 博士后研究员, 香港大学医学院病理系

2011.11~至今 助理教授、副教授、教授, 澳门科技大学中药机制与质量国家重点实验室

学术论文

一共发表 SCI 学术论文共 180 多篇, 其中 2021-至今代表性 SCI 文章如下:

1. Y. Li, L. Ao, S. Yang, S. Gong, Q. Ouyang, X. Jin, S. Wang, N. Li*, **J.L. Wu***. Covalent inhibition of thioredoxin at K85 underlies Toosendanin's anti-hepatocellular carcinoma effects: a multi-omics perspective. *J Pharm Anal.* **2026**, Accepted. (2025 Impact factor: 11.2, **Q1 top**, 15/356).
2. P. Zheng, Y. Zhang, X. Bian, Y. Wu, Q. Wang, J. Chen, M. Jiang, N. Li, B. Sun*, **J.L. Wu***. A circulating odd-chain fatty acid biomarker signature discriminates pediatric allergic rhinitis with asthma from related allergic airway phenotypes. *Pediatr Allergy Immunol.* **2026**, 37, e70483. (2025 Impact factor: 4.5, **Q1 top**, 8/190).
3. P. Dong, Q. Ouyang, N. Li*, **J.L. Wu***. Alternative Proteins Digestion in vivo: From the Spatiotemporal Dynamics of Molecular Structures to Advanced Analytical Technologies. *Trends Anal Chem.* **2026**, 205, 119119. (2025 Impact factor: 13.5, **Q1 top**, 2/110).
4. M. Zhang, E. He, Y. Xiong, A. Xiong, X. Peng, Y. Wang, Y. Gu*, **J.L. Wu***, P. Liang*. Engineering Advanced Nanomedicine against Depression: From Treatment Challenges to Delivery Strategies. *Adv Healthc Mater.* **2026**, e71545.

(2025 Impact factor: 11.0, **Q1 top**, 12/130).

5. Y. Ban, W. Miao, X. Jin, S. Chen, X. Lou, **J.L. Wu***, N. Li*. The underappreciated diversity of functional pigments in red yeast rice revealed by an integrated multi-engine mining strategy (IMMS). *Food Chem.* **2026**, 525, 150424. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
6. Z Ning, J Han, N Li, X Li, X Hu*, **J.L. Wu***. Roasting-Induced Hazardous Aldehydes in Nuts: Systematic Profiling, Formation Dynamics, and Food Safety Implications. *Food Control* **2026**, 190, 112366. (2025 Impact factor: 7.0, **Q1**).
7. J. Han, Y. Li, L. Ao, L. Zhang, T. Zhou, N. Li*, **J.L. Wu***. Expanded coverage of N-acyl amino acids using one-pot micro synthesis-chemical derivatization-LC-MS strategy: A key to bioactive compounds analysis in fermented soybean. *Food Chem.* **2026**, 517, 149520. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
8. M. Liu, Z. Zheng, Y. Zhang, X. Bian, Y. Zhuo, H. Wu, **J.L. Wu***, N. Li*. Chemical proteomics reveals sinomenine's anti-inflammatory mechanism through serum protein covalent modification. *Chin Med.* **2026**, 21, 124. (2025 Impact factor: 7.4, **Q1 top**, 29/356).
9. L. Ao, Y. Li, L. Zheng, X. Chen, H. Zeng, W. Miao, S. Yang, T. Zhou, N. Li*, **J.L. Wu***. Self-assembling gardenia pectin gel for cholestatic liver injury: Dual mechanisms of hepatoprotection via PPAR α activation and gut microbial modulation. *Carbohydr Polym.* **2026**, 384, 125332. (2025 Impact factor: 13.2, **Q1 top**, 1/58).
10. L. Zheng, S. Gong, X. Wang, T. Zhou, M. Zhang, N. Li*, **J.L. Wu***. Preparation and characterization of pectin polysaccharides-containing Gardenia extract with dual functionality in food gel formation and coloring for 3D printing application. *Int J Biol Macromol.* **2026**, 344, 150528. (2025 Impact factor: 8.7, **Q1 top**, 6/96).
11. Y. Ge, L. Zhang, W. Miao, S. Gong, L. Zhng, W. Bai, **J.L. Wu***, N. Li*. FPS_P/N: A two-dimensional mass spectrometry utilization program with precursor ion determination for accurately distinguishing anthocyanin from other flavonoids. *J Pharm Anal.* **2026**, 16, 101385. (2025 Impact factor: 11.2, **Q1 top**, 15/356).
12. W. Miao, N. Li*, L. Ao, Y. Li, Y. Liu, Y. Zhao, X. Chen, Y. Wu, **J.L. Wu***. Integrative metabolomics-assisted comprehensive components analysis of complex system (CCACS) revealed functional potential: Valorization of gourd fruit (*Trichosanthes kirilowii maxim.*). *Food Res Int.* **2026**, 225, 118128. (2025 Impact factor: 8.8, **Q1 top**, 14/187).
13. M. Zhang, P. Liang, L. Wu, L. Zheng, Q. Qin, X. Peng, J. Fan, Q. Wang*, P. Luo*, **J.L. Wu***. Replacing cholesterol in liposomes by an Astragaloside IV derivative prolongs the circulation time and improves drug delivery to the fibrotic heart. *J Control Release* **2026**, 389, 114486. (2025 Impact factor: 12.4, **Q1 top**, 12/356).
14. Q. He, X. Hu*, X. Li, N. Li, **J.L. Wu***. Covalently Active Metabolites of Bisphenol A Analogs by Mass Spectrometry Diagnostic Ions: Possible Mechanisms of Their

- Toxicity. *Chem Res Toxicol.* **2026**, 39, 157. (2025 Impact factor: 4.1, **Q2**).
15. Y. Lin, Y. Zhao, C. Gao, H. Zeng, Y. Zhuo, Y. Z. Zhu, N. Li, **J.L. Wu***, X Bian*. A novel derivatization reagent for ultra-sensitive determination of free fatty acids in complex matrices by UHPLC-QQQ-MS. *Talanta* **2026**, 299, 129104. (2025 Impact factor: 6.7, **Q1**).
 16. Z. Wang, S. Han, X. Cai, M. Li, J. Qian, Q. Jiang, X. Bian*, **J.L. Wu***, Y. Zhuo*. Chemical Proteomics-Based Reactive Metabolites and Protein Adducts: The New Perspective on the Metabolism of Food Furanocoumarins. *Food Sci Human Well.* **2025**, doi.org/10.26599/FSHW.2025.9250900. (2025 Impact factor: 7.3, **Q1 top**, 11/113).
 17. T. Tian, C. Yang, **J.L. Wu***, S. Liu*. Zn²⁺ supplementation-mediated *IZH4* enhances acid tolerance in *Saccharomyces cerevisiae* via membrane lipid remodeling: A multi-omics study. *Food Chem (Oxf).* **2025**, 11, 100324. (2025 Impact factor: 4.8, **Q2**).
 18. P. Dong, L. Ao, Y. Li, H. Zeng, Y. Zhang, H. Zou, J. Leng, N. Li*, **J.L. Wu***. Food Gelatin-Derived Neuroprotective Cyclic Dipeptides Atlas In Vivo Using Peptidomics and Feature-Based Molecular Networking. *J Agric Food Chem.* **2025**, 73, 28811. (2025 Impact factor: 6.7, **Q1 top**). Cover story.
 19. X. Hu, J. Liu, **J.L. Wu***, Z. Xiong, N. Li*. Chemical Proteomics Unraveling the Contribution of Covalent Protein. Modifications to Antidepressant Effects of Ketamine. *J Anal Test.* **2025**, 9, 668. (2025 Impact factor: 9.4, **Q1 top**, 6/110).
 20. X. Bian*, Y. Zhuo, L. Zhou, Y. Zhu, N. Li, **J.L. Wu***. Carboxylic acid metabolism in cancer: Mechanisms, microenvironment interactions, and therapeutic opportunities. *Metabolism* **2025**, 171, 156334. (2025 Impact factor: 16.7, **Q1 top**, 9/198).
 21. L. Zhang, S. Gong, Y. Zuo, L. Zhang, J. Chen, Y. Xu, Y. Wu, Y. Zhao, **J.L. Wu***, N. Li*. Soybean fermentation drives the production of native neuroprotective peptides based on a peptidomics strategy. *Curr Res Food Sci.* **2025**, 10, 101082. (2025 Impact factor: 7.7, **Q1 top**, 18/187).
 22. X. Wang, T. Tian, N. Li*, L. Zheng, Y. Wu, W. Bian, **J.L. Wu***, T. Zhou*. Characterization and gelling properties of pectin extracted from Gardenia fruit. *Food Hydrocolloid.* **2025**, 163, 111055. (2025 Impact factor: 13.8, **Q1 top**, 5/187).
 23. Y. Gao, T. Tian, X. Liu, Y. Zhang, P. Hai, W. Zhang, Y. Zhai, .C Wang*, **J.L. Wu***, J. Wen*, T. Zhou*. Spatial metabolomics and feature-based molecular networking to unveiling in-situ quality markers landscape and reflecting geographic origins of pomegranate seeds. *Food Chem.* **2025**, 471, 142761. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
 24. J. Chen, W. Yuan, W. Miao, S. Gong, J. Zhou, Y. Liu, **J.L. Wu***, N. Li*. In vitro and in vivo immune-enhancing effects of polysaccharides with different molecular weights and structural characteristics from *Gastrodia elata* Blume. *Int J Biol*

- Macromol.* **2025**, 295, 139526. (2025 Impact factor: 8.7, Q1 top, 6/96).
25. S. Gong, G Bai, Y. Ban, M. Liu, Y. Liu, Y. Wu, N Li*, **J.L. Wu***. The underappreciated diversity of furanocoumarins in grapefruits revealed by MassQL filtered molecular networking. *Food Chem X* **2025**, 25, 102233. (2025 Impact factor: 9.2, **Q1 top**, 12/187).
 26. W. Miao, N. Li* J. Chen, **J.L. Wu***. Composition-dependent MRM transitions and structure-indicative elution segments (CMTSES)-based LC-MS strategy for disaccharide profiling and isomer differentiation. *Anal Chim Acta* **2025**, 1337, 343562. (2025 Impact factor: 6.1, **Q1**).
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 29. M. Liu, Z. Ning, Y. Cheng, Z. Zheng, X. Yang, T. Zheng, N. Li*, **J.L. Wu***. The key to 2, 6-dichloro-1, 4-benzoquinone reproductive toxicity and green tea detoxification: Covalent binding and competitive binding. *Ecotoxicol Environ Saf.* **2024**, 286, 117239. (2025 Impact factor: 6.6, **Q1 top**, 9/106).
 30. W. Li, Q. Zhou, B. Lv, N. Li, X. Bian, L. Chen, M. Kong, Y. Shen, W. Zheng, J. Zhang, F. Luo, Z. Luo, J. Liu*, **J.L. Wu***. Ganoderma lucidum Polysaccharide Supplementation Significantly Activates T-Cell-Mediated Antitumor Immunity and Enhances Anti-PD-1 Immunotherapy Efficacy in Colorectal Cancer. *J Agric Food Chem.* **2024**, 72, 12072. (2025 Impact factor: 6.7, **Q1 top**).
 31. J. Chen, W. Miao, Y. Liu, J. Zhou, J. Han, L. Zhang, X. Bian, T. Zhong, **J.L. Wu***, N. Li*. Structural characterization, molecular dynamic simulation, and conformational visualization of a water-soluble glucan with high molecular weight from *Gastrodia elata* Blume. *Int J Biol Macromol.* **2024**, 263, 130207. (2025 Impact factor: 8.7, **Q1 top**, 6/96).
 32. X. Wang, X. Bian, P. Dong, L. Zhang, L. Zhang, C. Gao, H. Zeng, N. Li*, **J.L. Wu***. Food processing drives the toxic lectin reduction and bioactive peptide enhancement in *Pinellia ternate*. *Curr Res Food Sci.* **2024**, 9, 100895. (2025 Impact factor: 7.7, **Q1 top**, 18/187).
 33. J. Zhou, J. Chen, S. Gong, Y. Ban, L. Zhang, Y. Liu, **J.L. Wu***, N. Li*. Isolation, Bioactivity, and Molecular Docking of a Rare Gastrodin Isocitrate and Diverse Parishin Derivatives from *Gastrodia elata* Blume. *ACS Omega* **2024**, 9, 14520. (2025 Impact factor: 5.2, Q2).
 34. Y. Zuo, S. Gong, L. Zhang, J. Zhou, **J.L. Wu***, N. Li*. A Deep Mining Strategy

- for Peptide Rapid Identification in *Lactobacillus reuteri* Based on LC–MS/MS Integrated with FBMN and De Novo Sequencing. *Metabolites* **2024**, *14*, 467. (2025 Impact factor: 4.5, Q2).
35. 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. (2025 Impact factor: 13.5, **Q1 top**, 2/110).
 36. 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**, *13*, 1353. (2025 Impact factor: 11.2, **Q1 top**, 15/356).
 37. 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. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
 38. 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. (2025 Impact factor: 8.0, **Q1 top**, 13/181). (2025 Impact factor: 8.8, **Q1 top**, 14/187).
 39. 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. (2025 Impact factor: 11.2, **Q1 top**, 15/356).
 40. 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. *Psychiat Clin Neuros.* **2023**, *77*, 196. (2025 Impact factor: 5.9, **Q1 top**, 28/293). Editor's Choice Article
 41. 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. (2025 Impact factor: 4.5, Q2).
 42. 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. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
 43. 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. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
44. 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. (2025 Impact factor: 13.5, **Q1 top**, 2/110).
 45. 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. (2025 Impact factor: 12.2, **Q1 top**, 20/395).
 46. 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. (2025 Impact factor: 13.6, **Q1 top**, 1/72).
 47. 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. (2025 Impact factor 9.1 **Q1 top**, 9/181).
 48. 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. (2025 Impact factor: 6.7, **Q1 top**). [Front Cover](#)
 49. 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. (2025 Impact factor: 6.7, **Q1 top**). [Supplementary Cover](#)
 50. 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. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
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 53. 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.

- (2025 Impact factor: 10.4, **Q1 top**, 6/114).
54. 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. (2025 Impact factor: 29.7, **Q1 top**, 4/153). Top 1% Highly Cited Paper (282 Citations).
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 56. 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. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
 57. 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. (2025 Impact factor: 10.4, **Q1 top**, 6/114).
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