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教學科目：免疫學與微生物學；現代生物技術；生物化學與分子生物學；現代生物技術與新藥研究；高等藥劑學

Teaching activity: Immunology and Microbiology; Modern Biotechnology; Biochemistry & Molecular Biology; Modern Biotechnology in Novel Drug Development; Advanced Pharmaceutics

研究方向：單域抗體、抗體融合蛋白與重組細胞因子；免疫檢查點抑制劑；抗體-藥物偶聯物；生物轉化與微生物發酵

Research interest: Single-domain antibody, Antibody fusion protein and recombinant cytokine; Immune checkpoint inhibitor; Antibody-drug conjugate; Biotransformation and Microbial Fermentation.

研究課題/Research project:

1. 澳門科學技術發展基金0013/2026/RIB1，基於腫瘤血管正常化的CD93納米抗體及其雙特異性抗體藥物的研發，2026-2029，MOP179.8萬。

2. 澳門科學技術發展基金0019/2024/RIA1，治療肺纖維化的吸入型盤狀蛋白結構域受體1(DDR1)單域抗體的研究與開發, 2024-10-30至2027-10-30，Mop212.5萬/Research and development of an inhalable Discoidin Domain Receptor 1 (DDR1)

single-domain antibody for the treatment of pulmonary fibrosis. FDCT, No. 0019/2024/RIA1.

3. 澳門科學技術發展基金0148/2022/A3，新型抗DDR1納米抗體融合蛋白通過重塑腫瘤微環境及雙重免疫檢查點阻斷治療胃癌的作用和成藥性研究，2023-05-18至2026-05-18，MOP168萬/ The therapeutic effect of a novel anti-DDR1 nanobody fusion protein on gastric cancer through remodeling tumor microenvironment and dual immune checkpoint blockade and its druggability. FDCT, No. 0148/2022/A3.

4. The cancer immunotherapeutical efficacy of immune checkpoint inhibitor SIRPαFc fusion protein targeting tumor stroma collagen, Macau University of Science and Technology Faculty Research Grants (No. FRG-22-090-SP), 2022.10-2023.10

5. 廣東省教育廳科研平臺，2023LSYS001，介入醫學粵港澳高校聯合實驗室，專案負責人（澳門）/ Guangdong-Hong Kong-Macao University Joint Laboratory of Interventional Medicine, Foundation of Guangdong Province (2023LSYS001).

6. 上海菌濟健康科技有限公司合作課題，合成生物學在皮膚和消化道疾病中的應用開發（2023.5-2026.5）/ Application and Development of Synthetic Biology in Skin and Digestive Diseases.

7. 上海市科學技術委員會，生物醫藥科技支撐專項，20S11901600，靶向PD-L1和Wnt信號治療腦膠質瘤的創新抗體-免疫啟動偶聯物研究與開發，2020-10至2023-09/A novel Immune-stimulating Antibody Conjugates (ISAC) targeting PD-L1 and Wnt signaling for the treatment of glioma. Scientific and Innovative Action Plan of Shanghai, No. 20S11901600 (2020-2023).

8. 上海市科學技術委員會，生物醫藥重點專案，18431902800，創新免疫檢查點抑制劑SIRPα-Fc融合蛋白的臨床前研究，2018-04至2021-06/ Preclinical study of a novel immune checkpoint inhibitor SIRPαFc fusion protein. Scientific and Innovative Action Plan of Shanghai, No. 18431902800 (2018-2021).

9. 國家自然科學基金面上專案，81572979，利用非天然氨基酸構建位點特異性IL2/sorafenib偶聯物及其抗腫瘤作用機制研究，2016-01至2019-12/ Construction of site-specific IL-2/Sorafenib conjugates using unnatural amino acids and the antitumor activity and mechanism. National Natural Science Foundation of China, No. 81572979(2016-2019).

10. 上海高水準地方高校創新團隊“原創生物藥發現與轉化”（2021.10-2025.07）

/Shanghai high-level local university innovation team “Cancer metastasis and original biologics”(2021-2025).

學歷/Education

2010 復旦大學，博士學位/PhD, School of Pharmacy, Fudan University, Shanghai, China

2001 復旦大學，碩士學位/Master, School of Pharmacy, Fudan University, Shanghai, China

1992 上海醫科大學，學士學位/Bachelor, School of Pharmacy, Shanghai Medical University, Shanghai, China.

工作經驗/Work experience

2022- 澳門科技大學，教授/ Professor, Macau University of Science and Technology

2011-2022 復旦大學，副教授/Associate professor, Fudan University, Shanghai, China

1997-2011 復旦大學，講師/ Lecturer, Fudan University, Shanghai, China

1992-1997 上海醫科大學，助教/ Assistant, Shanghai Medical University, Shanghai, China

- 中國微生物學會幹擾素與細胞因子專委員會副主任委員；
- 中國藥理學會呼吸藥理專委員會常務委員；
- 科學出版社《生物技術藥物學》和中國醫藥科技出版社《生物技術製藥》教材副主編；科學出版社國際化藥學人才培養核心課程英文教材 *Biotechnological Pharmaceuticals* 編委；人民衛生出版社藥學規劃教材《生物製藥工藝學》編委。

代表性文章/Publications

1. Li Y, Liu X, Zhang F, Fu R, Zhao D, **Ye L***, Zhu YZ*. Antibody-oligonucleotide conjugates: design principles, intracellular delivery, and translational opportunities. *Journal of Hematology & Oncology* (2026) 19:71.(IF 47.8)

2. Wu S, Cui R, Zhao K, Yang Z, Yi Z, Cao W, **Ye L***. Immuno-cytotoxic convergence: integrating antibody–drug conjugates and immunofusion proteins to overcome resistance in gastrointestinal cancers. *Journal of Hematology & Oncology* (2026) 19:32.(IF 47.8)

3. Yan Y, Chen B, Wang Y, Hou Y, Ma Z, Yang Z, Yin X, Chen Y, Huang L, Cai M, Liu X, Zhu YZ, **Ye L***. Therapeutic Peptide-Programmed Liquid-Crystalline Topology Switching for pH-Gated Postoperative Cancer Immunotherapy. *Advanced Science* (2026) 0:e78360. (IF 14.1)

4. Chen Y, Dai Q. **Ye L***. AI-powered generative mRNA design: GEMORNA enables efficient expression and delivery for next-generation RNA therapeutics.

Journal of Pharmaceutical Analysis 16 (2026) 101671. (IF 11.2)

5. Xie X, Xu K, Su X, Zhang Y, Huang Y, Peng X, Yang W, **Ye L***, Zhang Q*. A multifunctional textile coating for high-performance antibacterial application via synergistic effect of photothermal therapy, metal ion sterilization, and superhydrophobic antiadhesion. *Applied Materials Today* 48 (2026) 103057.(IF 7.0)

6. Liu XY, Fan X, Wang Y, Wang L, Lu D, Wang Y, Meng X, Fan L, Zhu W, Liu X*, **Ye L***, Sun P*. Trispecific antibodies in cancer therapy: Mechanisms, clinical progress and future directions. *International Immunopharmacology* 177 (2026) 116503.(IF 5.6)

7. Huang X, Kuerban K, Fan J, Pan D, Chen H, Jiayang Liu, Wang S, Ju D, Zhu YZ, Liu J, **Ye L***. IL-2-loaded liposomes modified with sorafenib derivative exert a synergistic anti-melanoma effect via improving tumor immune microenvironment and enhancing antiangiogenic activity. *Asian J. Pharm. Sci*., 2025, 20:10102. (IF 12.6)

8. Wang S, Huang L, Zhang X, Fan J, Zou J, Hong W, Tuerdi A, Zhu YZ, Hu P, **Ye L***. Anti-angiogenesis enhances the tumor immunotherapeutical effect of recombinant CD80 fusion protein. *Int. J. Biol. Macromol.*, 2025, 321:146350.(IF 8.7)

9. Cai M, Zhou X, Wang S, Huang X, Chen W, Chen Y, Huang L, Yan Y, Zhu YZ, **Ye L***. CD93 in Health and Disease: Bridging Physiological Functions and Clinical Applications. *Int. J. Mol. Sci.* 2025,26,8617. (IF 5.6)

10. Huang X, Jing G, Kuerban K, Fan J, Yu M, Yang S, Chen W, Huang L, Ju D, Zhu YZ, **Ye L***. DDR1 Drives Collagen Remodeling and Immune Exclusion: Pan-Cancer Insights and Therapeutic Targeting in Pancreatic Ductal Adenocarcinoma. *Int. J. Mol. Sci.* 2025, 26, 7731.(IF 5.6)

11. Yan Y, Chen Y, Huang L, Cai M, Yin X, Zhu YZ, Y**e L***. Bioengineered In Situ-Forming Hydrogels as Smart Drug Delivery Systems for Postoperative Breast Cancer Immunotherapy: From Material Innovation to Clinical Translation. *J. Funct. Biomater.* 2025, 16, 381. IF5.9

12. Zhou X, Qu YM, Cui YM, Zhou WF, Wang Q, Yang HW, Hong J, **Ye L***, Yin ZN*.

The many faces of Interleukin-27 in liver diseases: from immune regulator to metabolic player. *Life Sciences*, 2025,383: 124059. (IF 6.4)

13. Wang A, Wang X, Li D, Li A, He M, Yuan Y, **Ye L***, Liu J*. A superior method for antitumor therapy and application: dualligand nanomedicine. *J.Mater.Chem.B*, 2025, DOI: 10.1039/D5TB00044K.

14. Wang S, Hu P, Zhang X, Fan J, Zou J, Hong W, Huang X, Pan D, Chen H, Ju D, Zhu YZ, **Ye L***. Recombinant CD80 fusion protein combined with discoidin domain receptor 1 inhibitor for cancer treatment. *Appl. Microbiol. Biotechnol*. 2025, 109:39

15. Pan D, Du L, Liu J, Kuerban K, Huang X, Wang Y, Guo Q, Chen H, Wang S, Wang L, Zhou P, Meng Z*, **Ye L***. In Situ Vaccination with a Vpr-Derived Peptide Elicits Systemic Antitumor Immunity by Improving Tumor Immunogenicity. *Vaccines*. 2025; 13, 710.

16. Pan D, Liu J, Huang X, Wang S, Kuerban K, Yan Y, Zhu YZ, **Ye L***. Challenges and New Directions in Therapeutic Cancer Vaccine Development. *Vaccines*. 2024; 12, 1341.

17. Liu J, Xu T, Pan D, Fan J, Fu Y, Huang X, Zhao W, Dong X, Zhang S, Kuerban K, Huang X, Wang S, Chen H, He Y, Zhu YZ, Wang C, **Ye L***. A collagen-binding SIRPαFc fusion protein for targeted cancer immunotherapy. *International Immunopharmacology*. 2023,124:110951.

18. Li J, Zhang Y, Ye F, Qian P, Qin Z, Li D, **Ye L***, Feng L*. DKK1 Promotes Epithelial–Mesenchymal Transition and Cisplatin Resistance in Gastric Cancer via Activation of the PI3K/AKT Pathway. *Cancers*. 2023, 15, 4756.

19. Liu J, Pan D, Huang X, Wang S, Chen H, Zhu YZ, **Ye L***. Targeting collagen in tumor extracellular matrix as a novel targeted strategy in cancer immunotherapy. *Frontiers in Oncology*. 2023, 13:1225483.

20. Cai M, Huang X, Huang X, Ju D, Zhu YZ, **Ye L***. Research progress of interleukin-15 in cancer immunotherapy. *Front. Pharmacol*. 2023, 14:1184703.

21. Wang S, Hu P, Fan J, Zou J, Hong W, Huang X, Pan D, Chen H, Zhu YZ, **Ye L***. CD80-Fc fusion protein as a potential cancer immunotherapy strategy.

Antibody Therapeutics. 2024, 7(1): 28-36.

22. Wang S, Fu Y, Kuerban K, Liu J, Huang X, Pan D, Chen H, Zhu YZ, **Ye L***. Discoidin domain receptor 1 (DDR1) is a potential target correlated with tumor invasion and immune infiltration in gastric cancer. *Front. Immunol.* 2022; 13:933165.

23. Liu J, Meng Z, Xu T, Kuerban K, Wang S, Zhang X, Fan J, Ju D, Tian W, Huang X, Huang X, Pan D, Chen H, Zhao W and **Ye L***. A SIRPaFc Fusion Protein Conjugated with the Collagen-Binding Domain for Targeted Immunotherapy of Non-Small Cell Lung Cancer. *Front. Immunol.* 2022;13:845217.

24. 張慧, 陳華寧, 庫德萊迪·庫爾班, 王松娜, 趙縝，**葉麗***. Wnt/β-catenin信號通路與癌症發生發展. *中國生物工程雜誌*. 2022;42:47-54.

25. Li J, Zhang H, Bei S, Zhang X, Li H, **Ye L***, Feng L* Disruption of Wnt/β-catenin pathway elevates the sensitivity of gastric cancer cells to PD-1 antibody. *Curr Mol Pharmacol.* 2022, 15, 557-569.

26. Zhang H, Bi Y, Wei Y, Liu J, Kuerban K, **Ye L***. Blocking Wnt/β-catenin Signal Amplifies Anti-PD-1 Therapeutic Efficacy by Inhibiting Tumor Growth, Migration, and Promoting Immune Infiltration in Glioblastomas. *Molecular cancer therapeutics.* 2021;20(7):1305-1315.

27. Kuerban K, Gao X, Zhang H, Liu J, Dong M, Wu L, Ye R, Feng M, **Ye L***. Doxorubicin-loaded bacterial outer-membrane vesicles exert enhanced anti-tumor efficacy in non-small-cell lung cancer. *Acta Pharmaceutica Sinica B.* 2020;10(8): 1534-1548.

28. Wang K, Kuerban K, Wan Q, Yu Z, **Ye L***, Chen Y*. Introduction of Mercaptoethyl at Sorafenib Pyridine-2-Amide Motif as a Potentially Effective Chain to Further get Sorafenib-PEG-DGL. *Molecules*. 2020;25: 573.

29. Dong M, Ye T, Bi Y, Wang Q, Kuerban K, Li J, Feng M, Wang K, Chen Y, **Ye L***. A novel hybrid of 3-benzyl coumarin seco-B-ring derivative and phenylsulfonylfuroxan induces apoptosis and autophagy in non-small-cell lung cancer. *Phytomedicine*. 2019;52: 79-88.

30. Ji Y, Wang Q, Zhao Q, Zhao S, Li L, Sun G, **Ye L*.** Autophagy suppression

enhances DNA damage and cell death upon treatment with PARP inhibitor Niraparib in laryngeal squamous cell carcinoma. *Applied Microbiol Biotechnol.* 2019;103:9557-9568.

31. Zhang X#, Wang Y#, Fan J, Chen W, Luan J, Mei X, Wang S, Li Y, **Ye L**, Li S, Tian W, Yin K*, Dianwen Ju*. Blocking CD47 efficiently potentiated therapeutic effects of anti-angiogenic therapy in non-small cell lung cancer. *J Immunother Cancer*. 2019;7:346.

32. Gu Z, Fu A, **Ye L,** Kuerban K, Wang Y, Cao Z. Ultra-Sensitive Chemiluminescence Biosensor for Nuclease and Bacteria Determination Based on Hemin-Encapsulated Mesoporous Silica Nanoparticle. *ACS Sensors* (2019), DOI:10.1021/acssensors.9b01303.

33. Qi F, Zhang C, Jiang S, Wang Q, Kuerban K, Luo M, Dong M, Zhou X, Wu L, Jiang B, **Ye L***. S-ethyl ethanethiosulfinate, a derivative of allicin, induces metacaspase-dependent apoptosis through ROS generation in Penicillium chrysogenum. *Biosci Rep*, 2019(39): BSR20190167.

34. Wang Y, Wang Q, Kuerban K, Dong M, Qi F, Li G, Ling J, Qiu W, Zhang W, **Ye L*.** Colonic electrical stimulation promotes colonic motility through regeneration of myenteric plexus neurons in slow transit constipation beagles. *Biosci Rep*, 2019(39): BSR20182405.

35. Dong M, Meng Z, Kuerban K, Qi F, Liu J, Wei Y, Wang Q, Jiang S, Feng M, **Ye L*.** Diosgenin promotes anti-tumor immunity and PD-1 antibody efficacy against melanoma by regulating intestinal microbiota. *Cell Death Dis.* 2018;9:1039.

36. Wang Q, Guo Y, Jiang S, Dong M, Kuerban K, Li J, Feng M, Chen Y, **Ye L***. A hybrid of coumarin and phenylsulfonylfuroxan induces caspase-dependent apoptosis and cytoprotective autophagy in lung adenocarcinoma cells. *Phytomedicine*. 2018;39:160-167.

37. Song G, Yang D, Wang Y, Chris de Graaf, Zhou Q, Jiang S, Liu K, Cai X, Dai A, Lin G, Liu D, Wu F, Wu Y, Zhao S, **Ye L**, Han GW, Lau J, Wu B, Hanson MA, Liu Z, Wang M & Stevens RC. Human GLP-1 receptor transmembrane domain structure in complex with allosteric modulators. *Nature*. 2017;546: 312-315. doi:10.1038/nature22378.

38. Song P, Wang Z, Zhang X, Fan J, Li Y, Chen Q, Wang S, Liu P, Luan J, **Ye L***, Ju D*. The role of autophagy in asparaginase-induced immune suppression of macrophages. *Cell Death & Dis.* 2017;8: e2721.

39. Jiang S, Wang Q, Feng M, Li J, Guan Z, An D, Dong M, Peng Y, Kuerban K, **Ye L*.** C2-ceramide enhances sorafenib-induced apoptosis via Caspase-dependent and PI3K/AKT/mTOR siginaling pathways in HCC cells. *Appl. Microbiol Biotechnol*. 2017;101:1535-1546.

40. Hu X, Shi S, Wang H, Yu X, Wang Q, Jang S, Ju D, **Ye L***, Feng M*. Blocking autophagy improves the anti-tumor activity of afatinib in lung adenocarcinoma with activating EGFR mutations in vitro and in vivo. *Sci Rep.* 2017;7:4559.

41. Chen Q#, **Ye L#**, Fan J, Zhang X, Song P, Wang Z, Wang S, Li Y, Luan J, Wang Y, Chen W, Zai W, Yang P, Cao Z, Ju D. Autophagy suppression potentiates the anti-glioblastoma effect of asparaginase in vitro and in vivo. *Oncotarget*. 2017;8(53):91052-91066.

42. Li J, Wang W, Han L, Feng M, Lu H, Yang L, Hu X, Shi S, Jiang S, Wang Q, **Ye L*.** Human apolipoprotein A-I exerts a prophylactic effect on high fat diet-induced atherosclerosis in a rabbit model via inflammation inhibition. *Acta Biochimica et Biophysica Sinica*. 2017, 49(2), 149-158.

43. Jiang S, Fan J, Wang Q, Ju D, Feng M, Li J, Guan Z, An D, Wang X, **Ye L*.** Diosgenin induces ROS-dependent autophagy and cytotoxicity via mTOR signaling pathway in chronic myeloid leukemia cells. *Phytomedicine*. 2016, 23: 243-252.

44. **Ye L,** Fan J, Shi X, Tao Q, Ye D, Xian Z, Zeng X, Li Y, Feng M, Ju D. Tumor necrosis therapy antibody interleukin-2 fusion protein elicits prolonged and targeted antitumor effects in vivo. *Appl. Microbiol Biotechnol.* 2014, 98: 4053-4061.

45. Song P#, **Ye L#**, Fan J, Li Y, Zeng X, Wang Z, Wang S, Zhang G, Ping Yang, Cao Z, Ju D. Asparaginase induced apoptosis and cytoprotective autophagy in chronic myeloid leukemia cells. *Oncotarget.* 2015, 6(6): 3861-3873.

46. Feng M, Liao Z, Han L, Li J, **Ye L***. Enhancement of microbial hydroxylation of 13-ethylgon-4-ene-3,17-dione by Metarhizium anisopliae using nanoliposome technique. *J. Ind. Microbiol. Biotechnol.* 2014, 41(4): 619-627.

47. **Ye L#,** Zhang C#, Li J, Shi X, Feng M. Effects of external calcium on the biotransformation of ginsenoside Rb1 to ginsenoside Rd by Paecilomyces bainier 229-7. *World J. Microbiol. Biotechnol.* 2012, 28(3): 857-863.

48. **Ye L**, Liu X, Zhou W, Feng M, Shi X, Li J, Chen D, Zhou P. Microbial transformation of astragalosides to astragaloside IV by Absidia corymbifera AS2，*Process Biochem*，2011，46（9）：1724-1730.

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50. Xu T, Biao C, Cui X, Ye L*. Isolation and Characterization of an efficient strain of human intestinal origin for uric acid degradation. *China Biotechnology*, 45(12): 1-13.

授權專利/Licensed Patents

1. The application of *Metarhizium anisopliae* mutant in steroid hydroxylation. ZL 2011 1 0199550.7.
2. Microbial transformation of astragalosides to astragaloside IV by *Absidia corymbifera* AS2. ZL 2010 1 0615265.4
3. Biotransformation of ginsenoside Rb1 to ginsenoside Rd. ZL 2011 1 0207782.2
4. Optimization methods for biotransformation of desogestrel using nano-lipsome technique. ZL 2013 1 048 4977.0

近年專利：

1. 葉麗等，一種多肽、免疫原、疫苗和用途，授權，申請號：CN202411988381.9。
2. 葉麗等，索拉菲尼衍生物修飾的包載IL-2的脂質體的製備方法及應用，申請號：CN202410912272.2。
3. 葉麗等，一種用於治療癌症的藥物組合物，申請號：CN202411806586.0
4. 葉麗等，納米抗體及其序列和應用，申請號：CN2025112082763
5. 葉麗等，納米抗體融合蛋白及其序列和應用，申請號：CN2025112082782
6. 葉麗等，.一種pH回應型溶致液晶藥物遞送系統、其製備方法及應用，申請

號：CN202611006287.8

7. 葉麗等，一種抗CD93單域抗體、其融合蛋白及其在腫瘤治療中的應用，申請號：CN202611026295.9
8. 朱依諄, 葉麗等，抗腫瘤的小分子化合物及其製備方法和應用，授權，申請號：CN202510701591.3

教材/Textbook

《生物技術藥物學》（2025，科學出版社，副主編）

《生物技術製藥》（2026版，中國醫藥科技出版社，副主編）

《生物製藥工藝學》（2016和2022版，人民衛生出版社，編委）