

Lijuan Ma



Title : Associate professor

Department: Dr. Neher's Biophysics Laboratory for Innovative Drug Discovery/State Key Laboratory of Mechanism and Quality of Chinese Medicine

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Ph.D. in Biochemistry and Molecular Biology, Associate Professor at the Dr. Neher's Biophysics Laboratory for Innovative Drug Discovery/State Key Laboratory of Mechanism and Quality of Chinese Medicine, Macau University of Science and Technology. Earned a Ph.D. in Biochemistry and Molecular Biology from Sun Yat-sen University, Guangzhou in 2010. Subsequently served as a visiting scholar at the Division of Life Sciences, Hong Kong University of Science and Technology, conducting research on DNA replication initiation and cancer. Completed a six-year postdoctoral fellowship at the Gerald Smith Laboratory, Fred Hutchinson Cancer Research Center, Seattle, USA, focusing on the molecular mechanisms of meiotic homologous recombination. Dr. Ma specializes in investigating cell cycle regulation, anticancer drug targets, and mechanisms using modern molecular and cellular biology approaches. Regardless of cancer type, cancer cells must undergo DNA replication and cell division to complete a cell cycle and proliferate. Active compounds derived from traditional Chinese medicine can block the mitotic cell cycle, thereby controlling cancer cell proliferation and achieving antitumor effects. Gametes undergo a specialized cell cycle—meiosis—to produce sperm or eggs with halved chromosome numbers. Regulation of this process is closely linked to diseases such as infertility, reduced fertility, and birth defects.

The research group's current interests and directions are:

1. Mechanisms of effect for anticancer bioactive components derived from traditional Chinese medicine.
2. Molecular mechanisms underlying female reproductive aging and drug interventions.

Teaching Activities:

Biochemistry and Molecular Biology; Biochemistry and Molecular Biology

Experiments; Microbiology and Immunology; Pharmacology and Clinical Pharmacy
III—Clinical Pharmacology and Pharmacotherapy

Research Interests:

1. Mechanisms of Antitumor Effects of Natural Product-derived Drugs.
2. Female Reproductive Aging and Fertility Preservation.

Education:

2003-2009 phD, Molecular Biology and Biochemistry, Sun Yat-sen University,
Guangzhou, China

1999-2003 Bachelor, Biological Science, Shanxi Normal University, Shanxi, China

Research Experience:

2017-present Associate Professor/Assistant Professor, Macau University of Science
and Technology, Macau, China

2011-2017 Postdoc, Fred Hutchinson Cancer Research Center, Seattle, USA

2009-2011 Visiting Scholar, Hong Kong University of Science and Technology,
Hong Kong, China

Publication (*corresponding author):

1. Jian N., Ren H., Huang Y., **Ma L.**, Zhou Y., Yu L., Huang W. The tRNA landscape in cancer: from pathogenesis to therapeutic interventions. *Acta Biochim Biophys Sin (Shanghai)*. 2026, 58(6):1187-1212.
2. Wu W., Zhang R., Chen G., Chen Z., Lin Z., Chen Y., Li J., Liao W., Wang J., Wang X., Huang J., **Ma L.***, Yu H. Sappanchalcone suppresses NSCLC by oxidative stress-driven DNA damage and ER stress activation through PIEZO1 modulation. *Iscience*. 2025, 28(12): 114057.
3. Zhong L., Lin X., Cheng X., Wan S., Hua Y., Nan W., Hu B., Peng X., Zhou Z., Zhang Q., Yang H., Noé F., Yan Z., Jiang D., Zhang H., Liu F., Xiao C., Zhou Z., Mou Y., Yu H., **Ma L.**, Huang C., Wong V.K.W., Chung S.K., Shen B., Jiang Z., Neher E., Zhu W., Zhang J., Hou P. Secondary structure transitions and dual PIP2 binding define cardiac KCNQ1-KCNE1 channel gating. *Cell Research*. 2025, 35(11):887.
4. Jian N., Yu L., **Ma L.**, Zheng B., Huang W. BCG therapy in bladder cancer and its tumor microenvironment interactions. *Clinical Microbiology Reviews*. 2025, 38(2): e0021224
5. Zhang R., Liao W., Chen X., Wang J., Li J., Chen G., Wu W., Wang X., Zhang Y., Chen Z., Zhu X., Lin Z., Zhu Y., **Ma L.***, Yu H.*. PKC α regulates the secretion of

- PDL1-carrying small extracellular vesicles in a p53-dependent manner. *Cell Death and Disease*. 2025, 16(1):19.
6. Wang M.F., Li M., Yang Y., Chuang Y., Tsai C. Binder M. N., **Ma L.**, Lin S., Li H., Smith G. R., and Chi P. Mug20–Rec25–Rec27 binds DNA and enhances meiotic DNA break formation via phase-separated condensates. *Nucleic Acids Research*. *Nucleic Acids Research*. 2025, doi.org/10.1093/nar/gkaf123
 7. Jiang C., Chen Z., Xiong H., Yang X., Liao W., Chen G., Huang C., Zhu G., Yu H.*, **Ma L.***. *Lycium barbarum* berry extract improves female fertility against aging-related oxidative stress in the ovary. *Food & Function*. 2024 Sep 30;15(19):9779-9795.
 8. Jiang C., Chen Z., Liao W., Zhang R., Chen G., **Ma L.***, Yu H.*. The Medicinal Species of the Lycium Genus (Goji Berries) in East Asia: A Review of Its Effect on Cell Signal Transduction Pathways. *Plants* (Basel). 2024 May 31;13(11):1531.
 9. Liao W., Zhang R., Chen G., Zhu X., Wu W., Chen Z., Jiang C., Lin Z., **Ma L.**, Yu H*. Berberine synergises with ferroptosis inducer sensitizing NSCLC to ferroptosis in p53-dependent SLC7A11-GPX4 pathway. *Biomed Pharmacother*. 2024 Jul;176:116832.
 10. Wang J., Lu L., He X., **Ma L.**, Chen T., Li G.*, Yu H.*. Identification of SULF1 as a Shared Gene in Idiopathic Pulmonary Fibrosis and Lung Adenocarcinoma. *Zhongguo Fei Ai Za Zhi*. 2023 Sep 20;26(9):669-683.
 11. Qin X., Xie Z., Chen X., Wang X., **Ma L.***. Network pharmacology and molecular docking-based study on exploring the potential mechanism of *Lycium barbarum* L: In the treatment of atherosclerosis. *Medicine* (Baltimore). 2023 Nov 3;102(44):e35734.
 12. Qin X., Zhang Y., Yu H., **Ma L.***. Progress in the Study of Spindle Assembly Checkpoint in Lung Cancer. *Zhongguo Fei Ai Za Zhi*. 2023 Apr 20;26(4):310-318.
 13. Li J., Wu Z., Chen G., Wang X., Zhu X., Zhang Y., Zhang .R, Wu W., Zhu Y., **Ma L.**, Yu H.*. Formosanin C inhibits non-small-cell lung cancer progression by blocking MCT4/CD147-mediated lactate export. *Phytomedicine*, 2023 Jan, 109:154618.
 14. Chen X., Li J., Zhang R., Zhang Y., Wang X., Leung E.L., **Ma L.**, Wong V.K.W.*, Liu L.*, Neher E.*, Yu H.*. Suppression of PD-L1 release from small extracellular vesicles promotes systemic anti-tumor immunity by targeting ORAI1 calcium channels. *Journal of Extracellular Vesicles*, 2022. Dec;11(12):e12279.
 15. Chen G., Zhu X., Li J., Zhang Y., Wang X., Zhang R., Qin X., Chen X., Wang J., Liao W., Wu Z., Lu L., Wu W., Yu H.*, **Ma L.***. Celastrol inhibits lung cancer growth by triggering histone acetylation and acting synergically with HDAC

- inhibitors. *Pharmacol Res.* 2022 Oct 3:106487.
16. Leung E.L.*, Huang J., Zhang J., Zhang J., Wang M., Zhu Y., Meng Z., Yu H., Neher E., **Ma L.***, Yao X.*. Novel Anticancer Strategy by Targeting the Gut Microbial Neurotransmitter Signaling to Overcome Immunotherapy Resistance. *Antioxid Redox Signal.* 2022, Nov 1. doi: 10.1089/ars.2021.0243.
 17. Wang X., Liu Z., **Ma L.**, Yu H*. Ferroptosis and its emerging role in tumor. *Biophysics Reports*, 2021, 7(4): 280-294.
 18. Li J., Zhang Y., Chen X., **Ma L.**, Li P.*, Yu H.*. Protein phase separation and its role in chromatin organization and diseases. *Biomed Pharmacother.* 2021 Jun;138:111520
 19. **Ma L.#**, Fowler K. R., Martín-Castellanos C. and Smith. G.R*. Functional organization of protein determinants of meiotic DNA break hotspots. *Scientific Reports*, 2017 May 3;7(1):1393
 20. **Ma L.#**, Milman N., Nambiar M. and Smith G.R.* Two separable functions of Ctp1 in the early steps of meiotic DNA double-strand break repair. *Nucleic Acids Research*, 2015 43(15): 7349-7359
 21. **Ma L.#**, Zhai Y.#, Feng D., Chan T., Lu Y., Fu X., Wang J., Chen Y., Li J., Xu K., and Liang C.*. Identification of Novel Factors Involved in or Regulating Initiation of DNA Replication by a Phenotypic Screen in *Saccharomyces cerevisiae*. *Cell Cycle*, 2010 9(21): 4399-410

Patent:

1. 抗腫瘤組合物及其應用。馬麗娟，于海杰，陳格爾。CN 114632159 A，2023. 8 授權。

Product:

1. The product **GOJI POWER** has been launched for sale in Macau in 2025.