

Curriculum Vitae

LI Ting

Professor, Ph.D.

Macau Institute for Applied Research in Medicine and Health

State Key Laboratory of Quality Research in Chinese Medicines

Macau University of Science and Technology, Macau

Mobile: +853 63589082; Office: +853 88972401

Email: tli@must.edu.mo

I obtained my Ph.D. from Hong Kong Baptist University in 2010, followed by one year of postdoctoral training at School of Chinese Medicine, Hong Kong Baptist University from 2010 to 2011. In Sept. 2011, I joined the State Key Laboratory of Quality Research in Chinese Medicines and the Macau Institute for Applied Research in Medicine and Health, Macau University of Science and Technology as an Assistant Professor and was promoted to Associate Professor in 2016. I have obtained 7 grants as principal investigator and 1 grant as Co-principal investigator from the Science & Technology Development Fund (FDCT) and of Macao, and 1 grant from the Macao Foundation of Macao. I have published more than 50 peer-reviewed articles in *Pharmacological Research*, *Free Radical Biological Medicine*, *Acta Pharmaceutica Sinica B (Cover story)*, and *Angew Chem Int Ed Engl.*, and total citation is 2044 (according to the record of Web of Science). I have been granted 10 international patents and 1 Chinese patent. I have been awarded the First prize of the Nature and Science Category of 2014 and 2018 Ministry of Education Higher Education Outstanding Scientific Research Output Awards, the First and Second prize of Natural Science Award of Macau of 2016 and 2022, Third Prize of Chinese Biophysical Society Female Scientists Outstanding Scientific Research Achievements of 2023, and twice individual research awards of Macau University of Science and Technology.

My major research interests and areas include: 1) Application of multi-omics technology to investigate the pathogenesis of inflammation and autoimmune diseases; 2) Investigation of the molecular targets and mechanisms of the active compounds from Chinese medicines to treat inflammation and autoimmune diseases; 3) Study on the synergistic effects and underlying mechanisms of the interaction between natural products and western drugs to treat inflammation and autoimmune diseases. 4) Drug discovery.

Academic Career

- 2013.7- **Professor**
Macau Institute for Applied Research in Medicine and Health, State Key Laboratory of Quality Research in Chinese Medicine, Macau University of Science and Technology, Macau, China
- 2016.7- 2023.6 **Associate Professor**
Macau Institute for Applied Research in Medicine and Health, State Key Laboratory of Quality Research in Chinese Medicine, Macau University of Science and Technology, Macau, China
- 2011.9- 2016.6 **Assistant Professor**
Macau Institute for Applied Research in Medicine and Health, State Key Laboratory of Quality Research in Chinese Medicine, Macau University of Science and Technology, Macau, China
- 2010.6- 2011.8 **Postdoctoral Training**
School of Chinese Medicine, Hong Kong Baptist University, Kowloon Tong, Hong Kong, China
- 2005.9- 2006.12 **Research Assistant**
School of Chinese Medicine, Hong Kong Baptist University, Kowloon Tong, Hong Kong, China

Awards

- 1) Chinese Biophysical Society Female Scientists Outstanding Scientific Research Achievements Third Prize of 2023 (Individual Award)
- 2) Second prize of Natural Science Award of Macau, 2022, Macau.
- 3) First prize of the Nature and Science Category of 2018 Ministry of Education Higher Education Outstanding Scientific Research Output Awards for Studies on the novel mechanism of inhibition on abnormal proliferation and differentiation of the cells, the Ministry of Education of China 2018, Beijing, China.
- 4) The first prize of Zhongzhu Medical Life Science Research of 2017, Macau University of Science and Technology (Individual Research Award)
- 5) BOC Excellent Research Award of 2017, Macau University of Science and Technology (Individual Research Award)
- 6) First prize of Natural Science Award of Macau, 2016, Macau.
- 7) First prize of the Nature and Science Category of 2014 Ministry of Education Higher Education Outstanding Scientific Research Output Awards for Studies on the network-based modulatory

mechanism of the holistic therapy of traditional Chinese medicine, the Ministry of Education of China, 2014, Beijing, China.

Research Grants/Projects

2022-2025	Accurate diagnosis and treatment of colorectal cancer using artificial intelligence technology based on clinical, single-cell and multi-omics data (Science & Technology Development Fund of Macao, 0003/2021/AKP, 7,330,000 MOP, Co-PI)
2021-2022	Study on the therapeutic strategies to suppress 2019-nCoV <i>via</i> targeting the interaction between Spike and ACE2 (Science & Technology Development Fund of Macao, 0058/2020/A, 385,000 MOP, PI)
2020-2022	Special funding for the international training of young scientists (Science & Technology Development Fund of Macao, 011/AIJ/2020, 180,000 MOP, PI)
2019-2022	Precision diagnosis and treatment on rheumatoid arthritis by applying novel diagnostic method and therapeutic strategy (Science & Technology Development Fund of Macao, 003/2019/AKP, 13,000,000 MOP, Co-I)
2018-2021	Biomarkers screening and molecular classification method for precise diagnosis and treatment in rheumatoid arthritis (Science & Technology Development Fund of Macao, 0094/2018/A3, 2,791,000 MOP, Co-I)
2018-2021	Study of proteostasis in inflammation and potential drug targets in IKK β knock-in mice (Science & Technology Development Fund of Macao, 0017/2018/A1, 2,145,000 MOP, PI)
2018-2022	Studies on the effectiveness of ermiao san classified formula for rheumatoid arthritis therapy based on Chinmedomics (Science & Technology Development Fund of Macao, 0032/2018/AFJ, 2,015,000 MOP, Co-I)
2016-2019	Studies on the co-relation among gut microflora, metablomics and MHC of rheumatoid arthritis patients and the new intervention strategy (Science & Technology Development Fund of Macao SAR, 102/2016/A3, 3,403,900 MOP, Co-I)
2015-2016	autoMACS Pro (Science & Technology Development Fund of Macao, 025/2014/SB, MOP612,110, PI)
2014 -2017	R&D of the candidate drug for autoimmune conditions from Chinese herbal medicine targeting on the ROR ligands of Th17 cells (Science & Technology Development Fund of Macao, 081/2013/A3, 1,810,400.00 MOP, PI)
2012 - 2014	Studies of the synergistic anti-inflammatory effect and influence on the immune organs between dexamethasone and flavanones derived from Chinese medicinal herbs (Science & Technology Development Fund of Macao, 065/2011/A3, 1,736,400 MOP, PI)
2011-2013	Identification of the molecular mechanisms and drug action targets of Rh2E2, a new

derivative of ginsenoside, on anti-cancer by using proteomics technology (Science & Technology Development Fund of Macao, 035/2011/A2, 4,799,600 MOP, Co-I)

2012-2013 Shikonin suppresses T lymphocyte activation through inhibition of IKK β -I κ B α -NF- κ B and MAPK signaling pathway (Macao foundation, 0213, MOP 53,000.00, PI)

Academic Membership

- Executive Council Member The Second Board of Committee of Standard Construction of World Federation of Chinese Medicine Societies
- Committee Specialty Committee of Anti-inflammation and Immunopharmacology of Chinese Pharmacological Society
- Committee Specialty Committee of Clinical Pharmacology and Toxicology of Chinese Association of Integrative Medicine
- Committee Immunotherapy Branch of Chinese Society of Biomedical Engineering

Editorships

- 1) Editor, *Frontiers in Immunology*
- 2) Editor, *Microstructures*
- 3) Associate Editor, *MedComm - Future Medicine*

Representative Publications

- 1) Liu J, Zhuang YX, Wu J, Wu Q, Liu MX, Zhao Y, Liu ZQ, Wang CY, Lu LL, Meng YJ, Lei KW, Li XJ, Wu QB, Leung ELH, Guo ZY, Liu L[#], **Li T[#]**, IKK β mediates homeostatic function in inflammation *via* competitively phosphorylating AMPK and I κ B α . *Acta Pharm Sin B*. 2022 Feb;12(2):651-664. (#co-corresponding author, *cover story*) [IF: 14.907, ranked 8th in 279 journals (2.69%) of category PHARMACOLOGY & PHARMACY]
- 2) Liao K, Su X, Lei K, Liu Z, Lu L, Wu Q, Pan H, Huang Q, Zhao Y, Wang M, Cai J, Liu L[#], **Li T[#]**. Sinomenine protects bone from destruction to ameliorate arthritis *via* activating p62^{Thr269/Ser272}-Keap1-Nrf2 feedback loop. *Biomed Pharmacother*. 2021 Jan 1;135:111195. (#co-corresponding author) [IF: 7.419, ranked 24th in 361 journals (6.51%) of category PHARMACOLOGY & PHARMACY]
- 3) Chen Q, Liu J, Zhuang Y, Bai LP, Yuan Q, Zheng S, Liao K, Khan MA, Wu Q, Luo C, Liang L, Wang H[#], **Li T[#]**. Identification of an IKK β inhibitor for inhibition of inflammation *in vivo* and *in vitro*. *Pharmacol Res*. 2019 Aug 31;104440. (#co-corresponding author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]
- 4) **Li T^{*}**, Yan F^{*}, Meng X, Wang J, Ting Kam RK, Zeng X, Liu Z, Zhou H, Yang F, Ren R, Liao K, Liu L. Improvement of glucocorticoid-impaired thymus function by dihydromyricetin *via* up-regulation of PPAR γ -associated fatty acid metabolism. *Pharmacol Res*. 2018 Nov;137:76-88. (*co-first author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]

5) Huang L.F., Dong Y., Wu J. L., Wang P.X., Zhou H., **Li T[#]** and Liu L[#], Sinomenine-induced histamine release-like anaphylactoid reactions are blocked by tranilast *via* inhibiting NF- κ B signaling. *Pharmacol Res.* 2017 Nov;125(Pt B):150-160. (#co-corresponding author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]

Publications

Peer-reviewed publications

1) Liu J, Zhuang YX, Wu J, Wu Q, Liu MX, Zhao Y, Liu ZQ, Wang CY, Lu LL, Meng YJ, Lei KW, Li XJ, Wu QB, Leung ELH, Guo ZY, Liu L[#], **Li T[#]**, IKK β mediates homeostatic function in inflammation *via* competitively phosphorylating AMPK and I κ B α . *Acta Pharm Sin B.* 2022 Feb;12(2):651-664. (#corresponding author, *cover story*) [IF: 14.907, ranked 8th in 279 journals (2.69%) of category PHARMACOLOGY & PHARMACY]

2) Xiao RP, Lei KW, Kuok HH, Deng WD, Zhuang YX, Tang YQ, Guo ZY, Qin HY[#], Bai L-P[#], **Li T[#]**, Synthesis and identification of lithocholic acid 3-sulfate as ROR γ t ligand to inhibit Th17 cell differentiation. *J Leukoc Biol.* 2022 Feb 21. doi: 10.1002. (#corresponding author) [IF: 6.011, ranked 23th in 78 journals (28.85%) of category HEMATOLOGY]

3) Liao K, Su X, Lei K, Liu Z, Lu L, Wu Q, Pan H, Huang Q, Zhao Y, Wang M, Cai J, Liu L[#], **Li T[#]**. Sinomenine protects bone from destruction to ameliorate arthritis via activating p62Thr269/Ser272-Keap1-Nrf2 feedback loop. *Biomed Pharmacother.* 2021 Jan 1;135:111195. (#co-corresponding author) [IF: 7.419, ranked 24th in 361 journals (6.51%) of category PHARMACOLOGY & PHARMACY]

4) Zou B*, Zhang Y*, **Li T***, Liu J, Deng W, Tan Y, Yang Q, Ding Z, Liao K, Xu J, Pan H, Li X, Liu L. A mutation of cysteine 46 in IKK- β promotes mPGES-1 and caveolin-1 expression to exacerbate osteoclast differentiation and osteolysis. *Biochem Pharmacol.* 2019 Dec 13;113:762. (*co-first author). [IF: 6.100, ranked 46th in 279 journals (16.31%) of category PHARMACOLOGY & PHARMACY]

5) Chen Q, Liu J, Zhuang Y, Bai LP, Yuan Q, Zheng S, Liao K, Khan MA, Wu Q, Luo C, Liang L, Wang H, **Li T[#]**. Identification of an IKK β inhibitor for inhibition of inflammation in vivo and in vitro. *Pharmacol Res.* 2019 Aug 31;104:440. (#co-corresponding author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]

6) Liu J, Bai LP, Yang F, Yao XJ, Lei K, Lam, Christopher Wai Kei; Wu QB, Zhuang YX, Xiao RP, Liao KS, Kuok HH, **Li T[#]**, Liu L[#]. Potent antagonists of ROR γ t, cardenolides from *Calotropis gigantea*, exhibit discrepant effects on the differentiation of T lymphocyte subsets. (#co-corresponding author). *Mol Pharm.* 2019 Feb 4;16(2):798-807. (#co-corresponding author). [IF: 5.364, ranked 65th in 279 journals (23.30%) of category PHARMACOLOGY & PHARMACY]

7) **Li T***, Yan F*, Meng X, Wang J, Ting Kam RK, Zeng X, Liu Z, Zhou H, Yang F, Ren R, Liao K, Liu L. Improvement of glucocorticoid-impaired thymus function by dihydromyricetin *via* up-regulation of PPAR γ -associated fatty acid metabolism. *Pharmacol Res.* 2018 Nov;137:76-88. (*co-first author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]

8) Yang F, Su X, Pi J, Liao K, Zhou H, Sun Y, Liu J, Guo X, Jiang J, Jin H, Cai J, **Li T[#]**, Liu L[#], Atomic force microscopy technique used for assessment of the anti-arthritic effect of licochalcone A *via* suppressing NF- κ B activation, *Biomed Pharmacother.* 2018 Jul;103:1592-1601. (#co-corresponding author). [IF: 7.419, ranked 24th in 361 journals (6.51%) of category PHARMACOLOGY & PHARMACY]

- 9) Su X*, **Li T***, Liu Z, Huang Q, Liao K, Ren R, Lu L, Qi X, Wang M, Chen J, Zhou H, Leung EL, Pan H, Liu J, Wang H, Huang L, Liu L. Licochalcone A activates Keap1-Nrf2 signaling to suppresses arthritis via phosphorylation of p62 at serine 349. *Free Radic Biol Med.* 2017 Dec 9. pii: S0891-5849(17)31236-4. (*co-first author). [IF: 8.101, ranked 22nd in 146 journals (15.07%) of category ENDOCRINOLOGY & METABOLISM]
- 10) Huang L.F., Dong Y., Wu J. L., Wang P.X., Zhou H., **Li T[#]** and Liu L[#], Sinomenine-induced histamine release-like anaphylactoid reactions are blocked by tranilast via inhibiting NF-κB signaling. *Pharmacol Res.* 2017 Nov;125(Pt B):150-160. (#co-corresponding author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]
- 11) Chen J.Y., Zhu G.Y., Su X.H., Wang R., Liu J., **Li T[#]** and Liu L[#], 7-Deceaylgedunin suppresses proliferation of macrophages and inflammation through activation of Keap1/Nrf2/HO-1 signaling. *Oncotarget.* 2017 Jul 5;8(33):55051-55063. (#co-corresponding author). [IF 5.168, ranked 44th in 214 journals (20%) of category ONCOLOGY]
- 12) Chen Y. N., Li H. F., Li M. F., Niu S., B., Wang J. X., Shao H., W., **Li T[#]**, Wang H[#]. Salvia miltiorrhiza polysaccharide activates T Lymphocytes of cancer patients through activation of TLRs mediated -MAPK and -NF-κB signaling pathways. *Journal of Ethnopharmacology.* 2017 Feb 20. pii: S0378-8741(16)31471-4. (#co-corresponding author) [IF: 5.195, ranked 4th in 30 journals (13.33%) of category INTEGRATIVE & COMPLEMENTARY MEDICINE]
- 13) Yan FG, Yang F, Wang R, Yao XJ, Bai LP, Zeng X, Huang JJ, Wong VK, Lam CW, Zhou H, Su XH, Liu J, **Li T[#]**, Liu L[#] Isoliquiritigenin suppresses human T lymphocyte activation via covalently binding cysteine 46 of IκB Kinase. *Oncotarget.* 2017 May 23;8(21):34223-34235. (#co-corresponding author). [IF 5.168, ranked 44th in 214 journals (20%) of category ONCOLOGY]
- 14) Su X, Huang Q, Chen J, Wang M, Pan H, Wang R, Zhou H, Zhou Z, Liu J, Yang F, **Li T[#]**, Liu L[#] Calycosin suppresses expression of pro-inflammatory cytokines via the activation of p62/Nrf2-linked heme oxygenase 1 in rheumatoid arthritis synovial fibroblasts. *Pharmacol Res.* 2016 Nov;113 (Pt A):695-704. (#co-corresponding author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]
- 15) Wang R, Pi J, Su X, Liu J, Zeng X, Wong I, Huang L, Zhou H, Cai J, **Li T[#]**, Liu L[#]. Dihydromyricetin suppresses inflammatory responses in vitro and in vivo through inhibition of IKKβ activity in macrophages. *Scanning.* 2016 Aug 3. (#co-corresponding author). IF: 1.750, ranked 43th in 64 journals (67.19%) of category INSTRUMENTS & INSTRUMENTATION]
- 16) Huang LF, Pi J, Wu JL, Zhou H, Cai JY, **Li T[#]**, Liu L[#], A rapid and sensitive assay based on particle analysis for cell degranulation detection in basophils and mast cells. *Pharmacol Res.* 2016 Jun 21;111:374-383. (#co-corresponding author). [IF: 10.334, ranked 15th in 279 journals (5.38%) of category PHARMACOLOGY & PHARMACY]

Granted Patents

- 1) Novel binding site of IKK-beta. Australian Innovation Patent No. 2013101130; Granted on 5 Sept 2013.

- 2) Development of a new formula overcoming thymus atrophy with concomitantly enhancement of anti-inflammatory effect of dexamethasone, Australian Innovation Patent No. 2014100379; Granted on 1 May 2014.
- 3) Development of a new formula overcoming thymus atrophy with concomitantly enhancement of anti-inflammatory effect of dexamethasone, US Utility Patent No. 9,018,196; Granted on 28 Apr 2015.
- 4) Isoliquiritigenin suppresses human T lymphocyte activation via targeting on cysteine 46 of I κ B α Kinase. Australian Innovation Patent No. 2015100662; Granted on 28 May 2015.
- 5) Limonoids for treating autoimmune diseases. Australian Innovation Patent No. 2017100026; Granted on 9 Jan 2017.
- 6) Method to treat anaphylactoid reaction; Australian Innovation Patent No. 2017100973; Granted on 17 July 2017.
- 7) Method of treating rheumatoid arthritis. Australian Innovation Patent No. 2017101103; Granted on 14 August 2017.
- 8) Method of treating an autoimmune disease. Australian Innovation Patent No. 2017101742; Granted on 12 Dec 2017.
- 9) Limonoids for treating autoimmune diseases. US Utility Patent No 9,901,566; Granted on 27 Feb 2018.
- 10) Transgenic model for delay-type hypersensitivity (DTH) and use thereof, US Utility Patent No 9,955,676; Granted on 2 May 2018.
- 11) Application of limonoids in autoimmune diseases, China Patent Publication No. CN 108371659 B Granted on 28 Oct, 2022