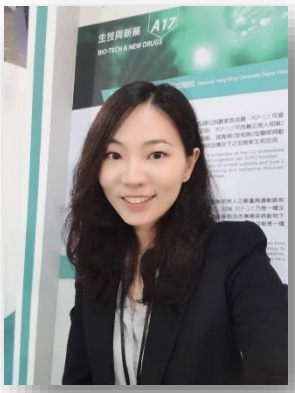
張婷婷 副教授



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- **Educational Attainment**
  - *2015* Ph.D., Institute of Pharmacology, National Yang-Ming University, Taipei, Taiwan

- **Professional services**
  - *2022- present* Associate Professor, Department and Institute of Pharmacology, National Yang Ming Chiao Tung University, Taipei, Taiwan
  - *2020-2022* Assistant Professor, Department and Institute of Pharmacology, National Yang Ming Chiao Tung University, Taipei, Taiwan
  - *2015-2020* Post-doctoral Research, Institute of Pharmacology, National Yang-Ming University, Taipei, Taiwan

- **Research Interests**
  - Vascular Medicine and Molecular Biology
  - Kidney Disease
  - Diabetes Mellitus
  - Experimental Animal Model Design
  - New Drug Development

- **Society Membership**
  - Full Membership of Sigma Xi
  - Taiwan Society of Lipid and Atherosclerosis
  - Taiwan Society of Atherosclerosis and Vascular Diseases
  - The Pharmacological Society in Taiwan
  - The European Atherosclerosis Society
  - Japan Atherosclerosis Society

- **Publications**

1. Chen C, **Chang TT*** and Chen JW. Mechanistic role of CXCL5 in cardiovascular disease, diabetes mellitus, and kidney disease. Life Sciences. 2023;9:122018. ***(IF 6.1; RANK 12.2%)***
2. Chen C, Lin LY, Chen JW and **Chang TT***. CXCL5 suppression recovers neovascularization and accelerates wound healing in diabetes mellitus. Cardiovascular diabetology. 2023; 22:172. ***(IF 9.3; RANK 6.9%)***
3. Chiang CH, Chen C, Fang SY, Lin SC, Chen JW and **Chang TT***. Xanthine oxidase/NADPH oxidase inhibition by hydralazine attenuates acute kidney injury and prevents the transition of acute kidney injury to chronic kidney disease. Life Sciences. 2023;16:121863. ***(IF 6.1; RANK 12.2%)***
4. Lin ZH, Yeh H, Lo HC, Hua WJ, Ni MY, Wang LK, **Chang TT** and Lin TY. GMI, a fungal immunomodulatory protein, ameliorates SARS-CoV-2 envelope protein-induced inflammation in macrophages via inhibition of MAPK pathway. International Journal of Biological Macromolecules. 2023;28;241:124648. ***(IF 8.2; RANK 5.8%)***
5. **Chang TT***, Li SY, Lin LY, Chen C and Chen JW. Macrophage inflammatory protein-1β as a novel therapeutic target for renal protection in diabetic kidney disease. Biomedicine & Pharmacotherapy. 2023;161:114450. ***(IF 7.5; RANK 7.9%)***
6. **Chang TT*** and Chen JW. Potential impacts of hydralazine as a novel antioxidant on cardiovascular and renal disease-beyond vasodilation and blood pressure lowering. Antioxidants. 2022;11:2224. ***(IF 7.0; RANK 9.2%)***
7. **Chang TT***, Chen C and Chen JW. CCL7 as a novel inflammatory mediator in cardiovascular disease, diabetes mellitus, and kidney disease. Cardiovascular diabetology. 2022;21:185. ***(IF 9.3; RANK 6.9%)***
8. **Chang TT***, Chen C, Lin LY and Chen JW. CCL4 deletion accelerates wound healing by improving endothelial cell functions in diabetes mellitus. Biomedicines. 2022;10:1963. ***(IF 4.7; RANK 24.5%)***
9. **Chang TT***, Chiang CH, Chen C, Lin SC, Lee HJ and Chen JW. Antioxidation and Nrf2-mediated heme oxygenase-1 activation contribute to renal protective effects of hydralazine in diabetic nephropathy. Biomedicine & Pharmacotherapy. 2022;151:113139. ***(IF 7.5; RANK 7.9%)***
10. **Chang TT** and Chen JW. Direct CCL4 inhibition modulates gut microbiota, reduces circulating trimethylamine N-oxide, and improves glucose and lipid metabolism in high-fat-diet-induced diabetes mellitus. Journal of Inflammation Research. 2021;14:6237-6250. ***(IF 4.5; RANK 47.2%)***
11. **Chang TT**, Liao LY and Chen JW. Inhibition on CXCL5 reduces aortic matrix metalloproteinase 9 expression and protects against acute aortic dissection. Vascular Pharmacology. 2021;12:106926. ***(IF 4.0; RANK 35.7%)***
12. **Chang TT**, Lin LY and Chen JW. A novel resolution of diabetes: C-C chemokine motif ligand 4 is a common target in different types of diabetes by protecting pancreatic islet cell and modulating inflammation. Frontiers in Immunology. 2021;12:650626. ***(IF 7.3; RANK 21.7%)***
13. YW Wu, **Chang TT**, Chang CC and Chen JW. Fatty-acid-binding protein 4 as a novel

contributor to mononuclear cell activation and endothelial cell dysfunction in atherosclerosis. International journal of molecular sciences. 2020;21:9245. ***(IF 5.6; RANK 23.2%)***

14. **Chang TT**, Chen YA, Li SY and Chen JW. Nrf-2 mediated heme oxygenase-1 activation contributes to the anti-inflammatory and renal protective effects of Ginkgo biloba extract in diabetic nephropathy. Journal of Ethnopharmacology. 2020;266:113474. ***(IF 5.4; RANK 12.1%)***
15. **Chang TT**, Yang HY, Chen C and Chen JW. CCL4 inhibition in atherosclerosis: effects on plaque stability, endothelial cell adhesiveness, and macrophages activation. International journal of molecular sciences. 2020;21:6567. ***(IF 5.6; RANK 23.2%)***
16. **Chang TT** and Chen JW. The role of chemokines and chemokine receptors in diabetic nephropathy. International journal of molecular sciences. 2020;21:3172. ***(IF 5.6; RANK 23.2%)***
17. **Chang TT** and Chen JW. Hydralazine improves ischemia-induced neovasculogenesis via xanthine-oxidase inhibition in chronic renal insufficiency. Pharmacological research. 2020;151:104509. ***(IF 9.3; RANK 5.0%)***
18. **Chang TT**, Lin LY and Chen JW. Inhibition of macrophage inflammatory protein-1beta improves endothelial progenitor cell function and ischemia-induced angiogenesis in diabetes. Angiogenesis. 2019;22:53-65. ***(IF 9.8; RANK 5.9%)***
19. **Chang TT** and Chen JW. Emerging role of chemokine CC motif ligand 4 related mechanisms in diabetes mellitus and cardiovascular disease: friends or foes? Cardiovascular diabetology. 2016;15:117. ***(IF 9.3; RANK 6.9%)***
20. **Chang TT**, Wu TC, Huang PH, Chen JS, Lin LY, Lin SJ and Chen JW. Aliskiren directly improves endothelial progenitor cell function from Type II diabetic patients. European Journal of Clinical Investigation. 2016;46:544-54. ***(IF 5.5; RANK 21.9%)***
21. **Chang TT**, Wu TC, Huang PH, Lin CP, Chen JS, Lin LY, Lin SJ and Chen JW. Direct renin inhibition with aliskiren improves ischemia-induced neovasculogenesis in diabetic animals via the SDF-1 related mechanism. PLoS One. 2015;10:e0136627. ***(IF 3.7; RANK 35.6%)***
22. Lin LY, Huang CC, Chen JS, Wu TC, Leu HB, Huang PH, **Chang TT**, Lin SJ and Chen JW. Effects of pitavastatin versus atorvastatin on the peripheral endothelial progenitor cells and vascular endothelial growth factor in high-risk patients: a pilot prospective, double-blind, randomized study. Cardiovascular diabetology. 2014;13:111. ***(IF 9.3; RANK 6.9%)***

- **International Conference Participations**

1. **Ting-Ting Chang**, Ching Chen, Liang-Yu Lin, and Jaw-Wen Chen (2023). CXCL5 inhibition recovers neovascularization in diabetes mellitus. The American Heart Association's Scientific Sessions, Philadelphia, PA, USA. ***(Poster presentation)***
2. Yen-Wen Wu, Jaw-Wen Chen, and **Ting-Ting Chang*** (2023). Inhibition of fatty-acid-binding protein 4 protects renal tubular epithelial cells and rescues diabetic kidney disease. American Society of Nephrology, Philadelphia, PA, USA. ***(Poster presentation)***
3. **Ting-Ting Chang**, Jaw-Wen Chen (2023). High-density lipoprotein supplementation protects vascular endothelial cells from indoxyl sulfate insults in a uremia-mimic environment. The 55th Annual Scientific Meeting of the Japan Atherosclerosis Society, Utsunomiya, Japan. ***(Oral presentation; Young Scientists Award)***
4. **Ting-Ting Chang**, Ching Chen, Jaw-Wen Chen (2022). CXCL5 inhibition attenuates diabetic kidney disease in a mouse model of type 2 diabetes mellitus. American Society of Nephrology, Orlando, FL, USA. ***(Poster presentation)***
5. Yen-Wen Wu, Jaw-Wen Chen, **Ting-Ting Chang*** (2022). Adipocyte-derived fatty-acid-binding protein 4 impairs human dermal microvascular endothelial cells under hypoxia insults – A mechanistic clue to impaired wound healing in obesity. The American Heart Association's Scientific Sessions, Virtual Congress. ***(Poster presentation)***
6. **Ting-Ting Chang** (2022). The potential beneficial effects of hydralazine via xanthine oxidase inhibition. European Society of Medicine, ESMED General Assembly, Virtual Congress. ***(Invited speaker)***
7. 90th European Atherosclerosis Society Congress 2022, Virtual Congress. ***(CME/CPD Certificate for 22 credits)***
8. Yen-Wen Wu, Jaw-Wen Chen, **Ting-Ting Chang*** (2021). Fatty-acid-binding protein 3 as a novel inducer of adhesion molecules in atherosclerosis. The American Heart Association's Scientific Sessions, Virtual Congress. ***(Poster presentation)***
9. **Ting-Ting Chang**, Jaw-Wen Chen, Yen-Wen Wu (2021). Heart-type fatty acid binding protein impairs angiogenesis via the ERK/STAT1/VEGF signaling pathway. The American Heart Association's Scientific Sessions, Virtual Congress. ***(Poster presentation)***
10. **Ting-Ting Chang**, Jaw-Wen Chen (2020). Inhibition of C-C chemokine motif ligand 4 reduces inflammatory cytokines and stabilizes atheroma plaques in atherosclerosis. The 88th European Atherosclerosis Society Congress, Virtual Congress. ***(Oral & E-Poster presentation; Young Investigator Fellowship Award)***
11. **Ting-Ting Chang**, Yi-An Chen, Jaw-Wen Chen (2020). Ginkgo biloba extract protects diabetic nephropathy via nuclear factor erythroid 2-related factor 2 mediated heme oxygenase-1 activation. Asia Pacific CardioMetabolic Syndrome Congress, Seoul, Korea. ***(Poster presentation)***
12. **Ting-Ting Chang**, Liang-Yu Lin, Jaw-Wen Chen (2019). Inhibition on macrophage inflammatory protein-1β retards the progression of hyperglycemia in experimental diabetes.

European Association for the Study of Diabetes, Barcelona, Spain. ***(Poster presentation)***

13. **Ting-Ting Chang**, Jaw-Wen Chen (2017). Emerging role of chemokine cc motif ligand 4 related mechanisms in diabetes mellitus and cardiovascular disease: Friends or foes? International congress of cardiology, Singapore. ***(Invited speaker)***
14. **Ting-Ting Chang**, Jaw-Wen Chen (2014). Hydralazine improves ischemia-induced neovasculogenesis and endothelial progenitor cell number in chronic renal insufficient animals. International vascular biology meeting, Kyoto, Japan. ***(Poster presentation)***
15. **Ting-Ting Chang**, Jaw-Wen Chen (2014). Aliskiren augments the beneficial effects of low dose tumor necrosis factor-alpha on human endothelial progenitor cells. International vascular biology meeting, Kyoto, Japan. ***(Poster presentation)***
16. **Ting-Ting Chang**, Tao-Cheng Wu, Po-Hsun Huang, Jia-Shiong Chen, Liang-Yu Lin, Shing-Jong Lin, Jaw-Wen Chen (2012). Direct renin inhibition by aliskiren improves endothelial progenitor cell function and enhances ischemia-induced neovasculogenesis in diabetic animals via vascular endothelial growth factor and stromal cell-derived factor-1 related mechanisms. European Society of Cardiology, Munich, Germany. ***(Oral presentation)***

- **Awards**

校外獎項

- ✧ 2023 年，蔡瑞熊優秀研究論文獎。
- ✧ 2023 年，獲提名為 Full Membership of Sigma Xi
- ✧ 2023 年，日本動脈硬化學會(The 55th Annual Scientific Meeting of the Japan Atherosclerosis Society)：青年優秀論文獎(Young Scientists Award)。
- ✧ 2023 年，中華民國血脂及動脈硬化學會－基礎醫學論文獎。
- ✧ 2022 年，國家生技醫療產業策進會－國家新創精進獎。
- ✧ 2021 年，財團法人沈力揚教授醫學教育獎學紀念基金會－研究與進修獎。
- ✧ 2020 年，台灣藥理學會－杜聰明年輕學者獎。
- ✧ 2020 年，國家生技醫療產業策進會－第 17 屆國家新創獎：學研新創獎 (生技製藥與精準醫療類)。
- ✧ 2020 年，歐洲動脈硬化學會(The 88th European Atherosclerosis Society Congress)：青年研究員獎(Young Investigator Fellowship Award)。
- ✧ 2019 年，科技部－博士後研究人員學術研究獎。
- ✧ 2018 年，台灣動脈硬化暨血管病醫學會－醫學論文獎。

校內獎項

- ✧ 111 年度第二學期，醫學系醫三牙二 PBL 優良教師。
- ✧ 111 年度第一學期，醫學系醫三牙二 PBL 傑出教師。
- ✧ 111 年度，第二季重要論文獎。
- ✧ 110 年度，優良導師。
- ✧ 110 年度第二學期，醫學系醫三牙二 PBL 優良教師。
- ✧ 110 年度第一學期，醫學系醫三牙二 PBL 優良教師。
- ✧ 109 年度第二學期，醫學系醫三牙二 PBL 傑出教師。
- ✧ 109 年度第一學期，醫學系醫三牙二 PBL 傑出教師。

- ✧ **Patents**

- ✧ 巨噬細胞發炎蛋白-1β (MIP-1β) 抑制劑用於促進血管新生以改善組織缺血及糖尿病血管病變的用途。中華民國專利。
- ✧ 巨噬細胞發炎蛋白-1β (MIP-1β) 抑制劑用以保護胰臟及防止血糖升高的用途。中華民國專利。
- ✧ CXCL5 中和抗體用於製備預防或治療周邊動脈阻塞疾病的藥物的用途。中華民國專利。
- ✧ 巨噬細胞發炎蛋白-1β (MIP-1β) 抑制劑的用途。日本專利。
- ✧ 巨噬細胞發炎蛋白-1β (MIP-1β) 抑制劑用於促進血管新生以改善組織缺血及糖尿病血管病變的用途。歐洲專利。