

EDUCATION

The Chinese University of Hong Kong, Shenzhen, School of Medicine, Master of Philosophy (MPhil) in Biological Sciences

GPA: 3.42/4.0; Rank: 3/19

Sep 2025-Present

Jilin Medical University and Konyang University, School of Pharmacy, China-Korea Cooperative Program in

Biopharmaceuticals

GPA: 3.6/5.0(86.48/100); Rank: 1/44; Dissertation:94.8; Rank: 1/44

Sep 2020- Jun 2024

Academic scores: *Biopharmaceuticals*(97), *Biological Engineering Equipment*(97), *Microbiology and Immunology*(96), *Chemical principles*(95), *Biopharmaceutical Analysis*(94), *Biochemistry and Molecular Biology*(92), etc.

Languages: TOEFL(96), CET-6(492), TOPIK level1

Honorary title: Outstanding Student, Outstanding Graduate Pacesetter of Jilin Medical University.

2022-2023 National Scholarship, Ministry of Education of the People's Republic of China

RESEARCH EXPERIENCE & EXPERTISE

Mechanistic Pharmacology and Biomedical Research

- **Natural products and redox biology:** Investigated the pharmacological effects of natural products in aging-related models, with particular emphasis on oxidative stress, inflammatory responses, and cellular redox homeostasis, establishing a foundation in mechanism-oriented pharmacological research.
- **Regulated cell death and ferroptosis:** Extended this work toward regulated cell death, with current research focusing on ferroptosis-protective compounds and the molecular mechanisms linking redox regulation, lipid peroxidation, antioxidant systems, and cell survival. Related scholarly work on PANoptosis further broadened this perspective toward the interaction of multiple programmed cell-death pathways in disease.
- **Translational pharmacology and emerging drug-development platforms:** Explored broader therapeutic and methodological questions through studies of druggable biological processes and organ-on-a-chip technologies, developing an interest in connecting molecular mechanisms with disease modeling, drug screening, efficacy evaluation, and next-generation pharmacological research.

Quantitative Modeling and Data-Driven Interdisciplinary Research

- **Relationship characterization and prediction:** Applied statistical and mathematical models to identify multivariable relationships and construct predictive frameworks for real-world problems, progressing from descriptive analysis toward quantitative prediction and risk estimation.
- **Optimization and decision modeling:** Used nonlinear regression, mathematical optimization, and neural-network approaches to solve multivariable problems in which competing factors must be balanced, including process optimization and parameter selection under complex constraints.
- **Classification and problem-specific analytical design:** Extended quantitative research toward complex classification tasks by integrating statistical inference, data transformation, clustering, and machine learning. In compositional-data research, developed analytical strategies that first addressed the intrinsic structure of the data before classification, rather than directly applying conventional algorithms.
- **Biomedical and pharmaceutical data science:** Extending these quantitative capabilities into pharmacological and medical research, with particular interests in multidimensional biomedical data integration, drug-response and phenotype prediction, patient stratification, experimental optimization, and the identification of clinically and pharmacologically meaningful patterns.

PUBLICATIONS

Biomedical and Pharmaceutical Sciences:

Du Y, Xu Y, Tang P*, Meng G*. Organ-on-a-Chip as a Next-Generation Tool in Drug Development: A Bibliometric and Patent Analysis. *Cell Transplantation*. DOI:[10.1177/09636897261462781](https://doi.org/10.1177/09636897261462781).

Tang P, et al. Enhancing experimental teaching of β -interferon synthesis through a virtual simulation platform: Application and effectiveness analysis. *Education for Chemical Engineers*. DOI:[10.1016/j.ece.2025.07.007](https://doi.org/10.1016/j.ece.2025.07.007).

Yao L, Wen Z, Wan J, Hu J, Li Z, Wang L, Zhou X, Huang T, Tang P, et al. When death pathways converge: PANoptosis in the evolution and treatment of female tumors. *Critical Reviews in Oncology/Hematology*. DOI:[10.1016/j.critrevonc.2026.105380](https://doi.org/10.1016/j.critrevonc.2026.105380).

Huang T, Qi T, Yao L, Zhu Z, Li C, **Tang P**, et al. The role of the cardiac lymphatic system in heart failure “reverse remodeling”: From developmental signals to druggable targets. *Frontiers in Immunology*. DOI:[10.3389/fimmu.2026.1795814](https://doi.org/10.3389/fimmu.2026.1795814).

Zhang X, Qiang W, Guo Y, Gong J, Yu H, Wu D, **Tang P**, et al. Fucoxanthin alleviates renal aging by regulating the oxidative stress process and the inflammatory response in vitro and in vivo models. *Redox Report*. DOI:[10.1080/13510002.2025.2511458](https://doi.org/10.1080/13510002.2025.2511458).

Zhu J, Sun X, Zhang L, Wang H, **Tang P**. A nomogram for predicting contralateral femoral head collapse after unilateral replacement of bilateral femoral head necrosis. *Scientific Reports*. DOI:[10.1038/s41598-025-88057-6](https://doi.org/10.1038/s41598-025-88057-6).

Wang M, **Tang P**, Gong J. Research hotspots and visualization analysis of the pharmacological effects of paeonol based on CiteSpace. *Frontiers in Pharmaceutical Sciences(Chinese)*. 2025.

Mathematical Modeling and Interdisciplinary Applications:

Tang P, Li H, Zhang X, Sun X. A mathematical model of catalyst combination design and temperature control in the preparation of C4 olefins through ethanol coupling. *RSC Advances*. DOI: [10.1039/D3RA01363D](https://doi.org/10.1039/D3RA01363D)

Tang P, Gan X, Tang J. Ancient Chinese glass heritage classification based on compositional data and machine learning. *npi Heritage Science*. 2026;14:125. DOI: [10.1038/s40494-026-02370-5](https://doi.org/10.1038/s40494-026-02370-5)

Tang P, et al. Prediction and regulation of ore processing quality based on multivariate nonlinear regression and BP neural network. *Microcomputer Applications(Chinese CSTPCD)*. 2025.

Tang P, Zhang X. Prediction and analysis of the number of pension service beds in China. *Modern Computer(Chinese)*. 2022.

TECHNICAL SKILLS

Cell & Molecular Biology: Mammalian cell culture; cell viability and pharmacological intervention assays; Western blotting; protein quantification; cellular ferroptosis models; CETSA-based target engagement analysis; oxidative stress and lipid peroxidation assays.

Flow Cytometry & Imaging: Flow cytometry for intracellular ROS and lipid-ROS analysis; fluorescence and confocal microscopy; quantitative analysis of cellular phenotypes and oxidative-stress responses.

Quantitative & Computational Research: Statistical analysis; mathematical and nonlinear regression modeling; predictive modeling; multivariable optimization; machine learning and classification; neural-network modeling; compositional data analysis; bibliometric and scientific mapping analysis.

Research Design & Data Interpretation: Experimental design; multivariable data interpretation; integration of phenotypic and molecular evidence; development of problem-specific analytical frameworks for biomedical and interdisciplinary research.

SELECTED AWARDS

2021 Contemporary Undergraduate Mathematical Contest in Modeling(CUMCM)- First Prize in Jilin Province	Team leader
2022 Contemporary Undergraduate Mathematical Contest in Modeling(CUMCM)- Second Prize in Jilin Province	Team leader
The 18th ICAN College Students' Innovation and Entrepreneurship Competition- Third Prize in Jilin Province	Core member
The Ninth Jilin Provincial Association for Science and Technology Postgraduate Forum - Research Progress in Modern Medicine and Health Industry- First Prize	Individual

LEADERSHIP & SERVICE

• Student Mentor, Founding Cohort of the Hongzhi Program - Jilin Medical University

Founded and implemented the inaugural Hongzhi Program for selected outstanding first-year students, providing academic mentorship, learning-strategy guidance, and early research training in collaboration with faculty members. The first cohort has since earned multiple academic honors and produced preliminary research outcomes.

• Vice Minister, Academic Department, Graduate Student Union, The Chinese University of Hong Kong, Shenzhen

As Vice Minister of the Academic Department, I helped establish the Graduate Student Union’s academic service framework, supported university-level seminars and academic events, represented the GSU in external academic exchanges, and assisted graduate students in addressing academic challenges through student–faculty communication and peer support.

• Teaching Assistant, Undergraduate Courses *BIO1001 General Biology*, The Chinese University of Hong Kong, Shenzhen

Served as a Teaching Assistant for *BIO1001 General Biology* and contributed to a faculty-led educational reform project focused on improving undergraduate biology education. Assisted in designing and implementing diagnostic assessments, retrieval practice, adaptive tutorials, and progressive inquiry-based activities to promote students’ conceptual understanding, learning motivation, and independent scientific thinking.