

## 張 偉



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**教學科目：**分析化學 (BP12203/ BPAZ0012)；分析化學實驗 (BP12204)；基礎化學實驗(BP12103)；ME1012 中藥藥代動力學；ME1002 儀器分析；DCMSZ02 中藥專題導讀；藥物分析

**研究方向：**化學計量學在分析化學中的應用；基於現代分析技術的中藥成分分析及質量控制；核苷酸及脫氧核苷酸代謝與 DNA 修復

**簡介：**張偉博士，2008 年獲得中國藥科大學哲學學位。2008-2012 于美國耶魯大學藥理系從事博士後研究工作。2012 年 8 月受聘于澳門科技大藥物與健康應用研究所任助理教授。2017 年 8 月升職為副教授。張偉博士一直從事中藥質量控制及複方藥劑研究，將化學計量學理論應用于中藥分析過程，形成簡單、成熟、可控的中藥質量控制模式，具有較強的實用性。博士後研究期間，參與中藥複方 PHY906 降低化療藥物胃腸道毒副作用的作用機理研究，發表于 *Science Translational Medicine*，多家世界知名期刊和機構對此研究成果給予了高度肯定。此外張偉博士還系統研究了 DNA 損傷及修復過程中核糖核酸及去氧核糖核酸的變化，及在癌細胞與正常細胞之歧異性，進而以此為基礎並結合化學計量學手段尋找新的抗癌分子標記物。以核苷酸及去氧核苷酸的平衡為指標，尋找到具有明顯協同作用的中藥有效成份。張偉副教授近五年來主持了澳門科學技術發展基金重大研究項目、澳門科學技術發展基金-國家基金委聯合資助項目等課題，在 SCI 收錄刊物上發表近 50 篇學術論文，擁有澳大利亞創新專利 6 項。

**學歷：**

2003年7月-2008年7月 中国药科大学药物分析专业硕博连读攻读博士学位

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#### 工作經歷：

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#### 學術成果

部分發表的SCI期刊論文：(\*Corresponding author )

[1] W. Zhang, J. He, S. Liu, W. Niu, P. Liu, Y. Zhao, F. Pang, W. Xi, M. Chen, W. Zhang, S.S. Pang, Y. Ding, Atomic origins of high electrochemical CO<sub>2</sub> reduction efficiency on nanoporous gold, *Nanoscale*, 10 (2018) 8372-8376.

[2] Q.Q. Zhang, W.Q. Huang, Y.Q. Gao, Z.D. Han, W. Zhang, Z.J. Zhang, F.G. Xu, Metabolomics Reveals the Efficacy of Caspase Inhibition for Saikosaponin D-Induced Hepatotoxicity, *Front Pharmacol*, 9 (2018) 732.

[3] M.P. Liu, W. Li, C. Dai, C.W.K. Lam, Z. Li, J.F. Chen, Z.G. Chen, W. Zhang \*, M.C. Yao \*, Aqueous extract of *Sanguisorba officinalis* blocks the Wnt/-catenin signaling pathway in colorectal cancer cells, *Rsc Advances*, 8 (2018) 10197-10206.

[4] X. Ling, Y. Xiang, F. Chen, Q. Tang, W. Zhang\*, X. Tan\*, Intestinal absorption differences of major bioactive compounds of Gegenqinlian Decoction between normal and bacterial diarrheal mini-pigs in vitro and in situ, *J Chromatogr B Analyt Technol Biomed Life Sci*, 1083 (2018) 93-101.

[5] J. Guo, Y. Li, C.W.K. Lam, C. Wang, M. Yao\*, W. Zhang\*, ZH-1 enhances the anticancer activity of gemcitabine via deoxyribonucleotide synthesis and apoptotic pathway against A549 cells, *Food Chem Toxicol*, (2018).

[6] X.M. Dai, D.N. Cui, J. Wang, W. Zhang, Z.J. Zhang, F.G. Xu, Systems Pharmacology Based Strategy for Q-Markers Discovery of HuangQin Decoction to Attenuate Intestinal Damage, *Front Pharmacol*, 9 (2018) 236.

- [7] X. Wang, D. N. Cui, X. M. Dai, J. Wang, **W. Zhang**, Z. J. Zhang, F. G. Xu, HuangQin Decoction Attenuates CPT-11-Induced Gastrointestinal Toxicity by Regulating Bile Acids Metabolism Homeostasis, *Front Pharmacol*, 8 (2017) 156.
- [8] D. Z. Shi, M. Y. Xu, M. Y. Re, E. S. Pan, C. H. Luo, **W. Zhang\***, Q. F. Tang\*, Immunomodulatory Effect of Flavonoids of Blueberry (*Vaccinium corymbosum L.*) Leaves via the NF- $\kappa$ B Signal Pathway in LPS-Stimulated RAW 264.7 Cells, *Journal of Immunology Research*, (2017).
- [9] Z. Li, J. R. Guo, Q. Q. Chen, C. Y. Wang, W. J. Zhang, M. C. Yao, **W. Zhang\***, Exploring the Antitumor Mechanism of High-Dose Cytarabine through the Metabolic Perturbations of Ribonucleotide and Deoxyribonucleotide in Human Promyelocytic Leukemia HL-60 Cells, *Molecules*, 22 (2017).
- [10] B. Y. K. Law, F. Gordillo-Martinez, Y. Q. Qu, N. Zhang, S. W. Xu, P. S. Coghi, S. W. F. Mok, J. Guo, **W. Zhang**, E. L. H. Leung, X. X. Fan, A. G. Wu, W. K. Chan, X. J. Yao, J. R. Wang, L. Liu, V. K. W. Wong, Thalidezine, a novel AMPK activator, eliminates apoptosis-resistant cancer cells through energy-mediated autophagic cell death, *Oncotarget*, 8 (2017) 30077–30091.
- [11] Q. Guo, Q. Q. Zhang, J. Q. Chen, **W. Zhang**, H. C. Qiu, Z. J. Zhang, B. M. Liu, F. G. Xu, Liver metabolomics study reveals protective function of *Phyllanthus urinaria* against CC14-induced liver injury, *Chinese Journal of Natural Medicines*, 15 (2017) 525–533.
- [12] J. R. Guo, Z. Li, C. Y. Wang, C. W. K. Lam, Q. Q. Chen, W. J. Zhang, V. K. W. Wong, M. C. Yao, **W. Zhang\***, Profiling of ribonucleotides and deoxyribonucleotides pools in response to DNA damage and repair induced by methyl methanesulfonate in cancer and normal cells, *Oncotarget*, 8 (2017) 101707–101719.
- [13] C. Dai, M. P. Liu, W. J. Zhang, C. W. K. Lam, J. R. Guo, W. Li, J. Wu, J. F. Chen, Z. G. Chen, **W. Zhang\***, M. C. Yao\*, A material-basis study of *Aloe vera* on the wnt/beta-catenin signaling pathway using a knockin/knockout method with high-speed countercurrent chromatography, *Rsc Advances*, 7 (2017) 38819–38829.
- [14] D. N. Cui, X. Wang, J. Q. Chen, B. Lv, P. Zhang, **W. Zhang**, Z. J. Zhang, F. G. Xu, Quantitative Evaluation of the Compatibility Effects of Huangqin Decoction on the Treatment of Irinotecan-Induced Gastrointestinal Toxicity Using

Untargeted Metabolomics, Front Pharmacol, 8 (2017) 211.

- [15] Q.Q. Chen, H.L. Xi, C.Y. Wang, F.G. Xu, **W. Zhang\***, Quantitation of camellianin A in HepG2 cells using a high performance liquid chromatography-electrospray ionization tandem mass spectrometric method, Chin J Nat Med, 15 (2017) 234–240.
- [16] J.F. Chen, S.D. Li, M.P. Liu, C.W.K. Lam, Z. Li, X.J. Xu, Z.G. Chen, **W. Zhang\***, M.C. Yao\*, Bioconcentration and Metabolism of Emodin in Zebrafish Eleutheroembryos, Frontiers in Pharmacology, 8 (2017).
- [17] V.K.W. Wong, H. Dong, X. Liang, L.-P. Bai, Z.-H. Jiang, Y. Guo, A.-N.T. Kong, R. Wang, R.K.T. Kam, B.Y.K. Law, W.W.L. Hsiao, K.M. Chan, J. Wang, R.W.K. Chan, J. Guo, **W. Zhang**, F.G. Yen, H. Zhou, E.L.H. Leung, Z. Yu, L. Liu, Rh2E2, a novel metabolic suppressor, specifically inhibits energy-based metabolism of tumor cells, Oncotarget, 7 (2016) 9907–9924.
- [18] J.R. Guo, Q.Q. Chen, C.W.K. Lam, C.Y. Wang, F.G. Xu, B.M. Liu, **W. Zhang\***, Effect of Phyllanthus amarus Extract on 5-Fluorouracil-Induced Perturbations in Ribonucleotide and Deoxyribonucleotide Pools in HepG2 Cell Line, Molecules, 21 (2016).
- [19] J.R. Guo, Q.Q. Chen, C.W.K. Lam, C.Y. Wang, V.K.W. Wong, Z.F. Chang, **W. Zhang\***, Profiling ribonucleotide and deoxyribonucleotide pools perturbed by gemcitabine in human non-small cell lung cancer cells, Scientific Reports, 6 (2016) 9.
- [20] H.M. Guo, J.Q. Chen, Y. Huang, **W. Zhang**, F.G. Xu, Z.J. Zhang, A pseudo-kinetics approach for time-series metabolomics investigations: more reliable and sensitive biomarkers revealed in vincristine-induced paralytic ileus rats, Rsc Advances, 6 (2016) 54471–54478.
- [21] Q.Q. Chen, J.R. Guo, S.M. Feng, C.Y. Wang, **W. Zhang\***, Quantitation of ligupururosides B and C in rat plasma using HPLC-MS/MS, Chinese Journal of Natural Medicines, 14 (2016) 473–480.
- [22] J. Wang, H. Fan, Y. Wang, X. Wang, P. Zhang, J. Chen, Y. Tian, **W. Zhang**, F. Xu, Z. Zhang, Metabolomic study of Chinese medicine Huang Qin decoction as an effective treatment for irinotecan-induced gastrointestinal toxicity, Rsc

Advances, 5 (2015) 26420–26429.

- [23] N. Tsao, M.-H. Lee, **W. Zhang**, Y.-C. Cheng, Z.-F. Chang, The contribution of CMP kinase to the efficiency of DNA repair, *Cell Cycle*, 14 (2015) 354–363.
- [24] C. Martin Sanchez, J.M. Perez Martin, J.-S. Jin, A. Davalos, **W. Zhang**, G. de la Pena, J. Martinez-Botas, S. Rodriguez-Acebes, Y. Suarez, M. Jose Hazen, D. Gomez-Coronado, R. Bustos, Y.-C. Cheng, M.A. Lasuncion, Disruption of the mevalonate pathway induces dNTP depletion and DNA damage, *Biochimica Et Biophysica Acta-Molecular and Cell Biology of Lipids*, 1851 (2015) 1240–1253.
- [25] J.-R. Guo, Q.-Q. Chen, C.W.-K. Lam, **W. Zhang\***, Effects of karanjin on cell cycle arrest and apoptosis in human A549, HepG2 and HL-60 cancer cells, *Biological Research*, 48 (2015).
- [26] J. Guo, Q. Chen, C. Wang, H. Qiu, B. Liu, Z.-H. Jiang, **W. Zhang\***, Comparison of two exploratory data analysis methods for classification of *Phyllanthus* chemical fingerprint: unsupervised vs. supervised pattern recognition technologies, *Analytical and Bioanalytical Chemistry*, 407 (2015) 1389–1401.
- [27] J. Guo, Q. Chen, C.W.K. Lam, C. Wang, V.K.W. Wong, F. Xu, Z. Jiang, **W. Zhang\***, Application of artificial neural network to investigate the effects of 5-fluorouracil on ribonucleotides and deoxyribonucleotides in HepG2 cells, *Scientific Reports*, 5 (2015).
- [28] H. Fan‡, **W. Zhang‡**, J. Wang, M. Lv, P. Zhang, Z. Zhang, F. Xu, HPLC-MS/MS method for the determination of four lignans from *Phyllanthus urinaria* L. in rat plasma and its application, *Bioanalysis*, 7 (2015) 701–712. (Co-first author)
- [29] Q.Q. Chen, J. Guo, H. Fan, C. Wang, F. Xu, **W. Zhang\***, Determination of corilagin in rat plasma using a liquid chromatography-electrospray ionization tandem mass spectrometric method, *Biomedical Chromatography*, 29 (2015) 1553–1558.
- [30] **W. Zhang**, J. Guo, B. Xiang, H. Fan, F. Xu, Improving the detection sensitivity of chromatography by stochastic resonance, *Analyst*, 139 (2014) 2099–2107.
- [31] **W. Zhang**, J. Guo, H. Qiu, C. Wang, Q.Q. Chen, B. Liu, Quantitation of kudinoside A, kudinoside D and kudinoside F in human plasma using a high

performance liquid chromatography-electrospray ionization tandem mass spectrometric method, *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences*, 972 (2014) 1–5.

[32] X. Lijia, J. Guo, Q. Chen, J. Baoping, **W. Zhang\***, Quantitation of phlorizin and phloretin using an ultra high performance liquid chromatography-electrospray ionization tandem mass spectrometric method, *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences*, 960 (2014) 67–72.

[33] **W. Zhang**<sup>‡</sup>, S. Tan<sup>‡</sup>, E. Paintsil, G.E. Dutschman, E.A. Gullen, E. Chu, Y.-C. Cheng, Analysis of deoxyribonucleotide pools in human cancer cell lines using a liquid chromatography coupled with tandem mass spectrometry technique, *Biochemical Pharmacology*, 82 (2011) 411–417. (Co-first author)

[34] **W. Zhang**, G.E. Dutschman, X. Li, Y.-C. Cheng, Quantitation of paclitaxel and its two major metabolites using a liquid chromatography-electrospray ionization tandem mass spectrometry, *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences*, 879 (2011) 2018–2022.

[35] **W. Zhang**, M.W. Saif, G.E. Dutschman, X. Li, W. Lam, S. Bussom, Z. Jiang, M. Ye, E. Chu, Y.-C. Cheng, Identification of chemicals and their metabolites from PHY906, a Chinese medicine formulation, in the plasma of a patient treated with irinotecan and PHY906 using liquid chromatography/tandem mass spectrometry (LC/MS/MS), *Journal of Chromatography A*, 1217 (2010) 5785–5793.

[36] W. Lam, S. Bussom, F. Guan, Z. Jiang, **W. Zhang**, E.A. Gullen, S.-H. Liu, Y.-C. Cheng, The Four-Herb Chinese Medicine PHY906 Reduces Chemotherapy-Induced Gastrointestinal Toxicity, *Science Translational Medicine*, 2 (2010).

[37] **W. Zhang**, G.E. Dutschman, X. Li, M. Ye, Y.-C. Cheng, Quantitation of Irinotecan and its two major metabolites using a liquid chromatography-electrospray ionization tandem mass spectrometric, *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences*, 877 (2009) 3038–3044.

[38] C. Wang, B. Xiang, **W. Zhang**, Application of two-dimensional near-infrared (2D-NIR) correlation spectroscopy to the discrimination of three species of

Dendrobium, Journal of Chemometrics, 23 (2009) 463–470.

- [39] **W. Zhang**, B.-r. Xiang, J. Zhang, High-performance liquid chromatography method for the determination of mycophenolic acid in human plasma and application to a pharmacokinetic study of mycophenolic acid dispersible tablet, Arzneimittel-Forschung–Drug Research, 58 (2008) 348–352.
- [40] **W. Zhang**, B.-r. Xiang, Y. Zhan, L. Yu, T. Wang, C.-Y. Wang, HPLC Method for the Determination of Bezafibrate in Human Plasma and Application to a Pharmacokinetic Study of Bezafibrate Dispersible Tablet, Journal of Chromatographic Science, 46 (2008) 844–847.
- [41] **W. Zhang**, B.-r. Xiang, P.-c. Ma, Determination of oxymatrine in human plasma by LC-MS and study on its pharmacokinetics, Journal of Chromatographic Science, 46 (2008) 529–533.
- [42] **W. Zhang**, B.-r. Xiang, C.-y. Wang, Liquid chromatography–mass spectrometry method for the determination of venlafaxine in human plasma and application to a pharmacokinetic study, Biomedical Chromatography, 21 (2007) 266–272.
- [43] **W. Zhang**, B.-R. Xiang, A Duffing oscillator algorithm to detect the weak chromatographic signal, Analytica Chimica Acta, 585 (2007) 55–59.
- [44] **W. Zhang**, B.R. Xiang, Y.W. Wu, E.X. Shang, Stochastic resonance is applied to quantitative analysis for weak chromatographic signal of roxithromycin in beagle dog plasma, Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences, 831 (2006) 307–312.
- [45] **W. Zhang**, B.-R. Xiang, A new single-well potential stochastic resonance algorithm to detect the weak signal, Talanta, 70 (2006) 267–271.
- [46] **W. Zhang**, B.R. Xiang, Y.W. Wu, E.X. Shang, Stochastic resonance is applied to quantitative analysis for weak chromatographic signal of glyburide in plasma, Analytica Chimica Acta, 550 (2005) 77–81.

## 學術書籍

Wing Lam , Scott Bussom , Zaoli Jiang , **Wei Zhang** , Fulan Guan , Shwu-Huey Liu , and Yung-Chi Cheng , “Inflammation, Oxidative Stress and Cancer: Dietary Approaches for Cancer Prevention” CRC press, INC., (ISBN 9781466503700),

Chapter Number 29, "PHY906, a cancer adjuvant therapy, differentially affects inflammation of different tissues"

### **學術機構及社會任職**

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### **學術獎勵**

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