

Curriculum Vitae

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EDUCATION

- 2008 Ph.D. (Biochemistry), The Chinese University of Hong Kong, Hong Kong
- 2002 M.Sc. (Microbial and Biochemical Pharmacology), Jilin University, China
- 1999 B.S. (Biotechnology), Jilin University, China

PROFESSIONAL EXPERIENCE

- 2021.8-present, Associate Professor
Faculty of Health Sciences, University of Macau, Macau
- 2016.4-2021.7, Assistant Professor
Faculty of Health Sciences, University of Macau, Macau
- 2013.6-2016.4, Principle Investigator
Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China
- 2012.8-2013.6, Research Associate
Memorial Sloan-Kettering Cancer Center, USA
- 2011.12-2012.8, Research Fellow
Memorial Sloan-Kettering Cancer Center, USA
- 2008.12-2011.12, Postdoctoral Fellow
National Cancer Institute/NIH, USA

HONORS AND AWARDS

- Dr. Stanley Ho Medical Development Foundation “Set Sail for New Horizons, Create the Future” Grant, 2023
- FHS Best Paper Award 2022, University of Macau
- Peacock Talent Award , Shenzhen Government, 2014
- Federal Technology Transfer Award, NIH, USA, 2011

PUBLICATIONS

1. Cao B, Liu M, Wang L, Zhu K, Cai M, Chen X, Feng Y, Yang S, Fu S, Zhi C, Ye X, Zhang J, Zhang Z, Yang X, Zhao M, Wu Q, Xu L, Yang L, Lian H, **Zhao Q#**, Zhang Z#. Remodelling of tumour microenvironment by microwave ablation potentiates immunotherapy of AXL-specific CAR T cells against non-small cell lung cancer. *Nat Commun.* 2022 Oct 19;13(1):6203.
2. Zhu L#, Li J, Guo Z, Kwok HF, **Zhao Q#**. Synergistic combination of targeted nano-nuclear-reactors and anti-PD-L1 nanobodies evokes persistent T cell immune activation for cancer immunotherapy. *Journal of Nanobiotechnology.* 2022 Dec;20(1):1-24.
3. Ng H, Li Y, Zhang T, Lu Y, Wong C, Ni J#, **Zhao Q#**. Association between multiple meteorological variables and seasonal influenza A and B virus transmission in Macau. *Heliyon.* 2022 Nov 1;8(11):e11820.
4. Wu L, Zhang T, Luo W, Zheng X, Zhang H, Ren H, Huang D, Li G, Wei C, Dong L, Sun X, Zhang R, Wang Y, Hu P, Chen Y, **Zhao Q#**, Hao C#, Sun B#. Rhinitis symptom in patients with self-reported allergic rhinitis is influenced by sensitization pattern: A cross-sectional study of China. *Int Forum Allergy Rhinol.* 2022 Oct 24. doi: 10.1002/alr.23098. Epub ahead of print.
5. Yang H, Jia H, **Zhao Q**, Luo KQ#. Visualization of natural killer cell-mediated killing of cancer cells at single-cell resolution in live zebrafish. *Biosens Bioelectron.* 2022 Nov 15;216:114616.
6. Zhang T, Zeng Y, Lin R, Xue M, Liu M, Li Y, Zhen Y, Li N, Cao W, Wu S, Zhu H, **Zhao Q#**, Sun B#. Incorporation of Suppression of Tumorigenicity 2 into Random Survival Forests for Enhancing Prediction of Short-Term Prognosis in Community-ACQUIRED Pneumonia. *J Clin Med.* 2022 Oct 12;11(20):6015.
7. Fu S, **Zhao Q#**. Quantitation and Identification of Therapeutic Anti-CD22 Monoclonal Antibodies in a Cell-Based ELISA Method. *Antibodies (Basel).* 2022 Aug 16;11(3):53.
8. Liu J, Zhang F, Yu J, **Zhao Q#**. Programmed death-ligand 1 expression on CD22-specific chimeric antigen receptor-modified T cells weakens antitumor potential. *MedComm (2020).* 2022 May 29;3(2):e140.
9. Peng Y, Fu S, **Zhao Q#**. 2022 update on the scientific premise and clinical trials for IL-15 agonists as cancer immunotherapy. *J Leukoc Biol.* 2022 Oct;112(4):823-834.
10. Liu M, Huang W, Guo Y, Zhou Y, Zhi C, Chen J, Li J, He J, Lian H, Zhou J, Ye X, Hu Y, Hu H, Liu Z, Huang J, Lin L, Cai M, Wang X, Huang J, Zhang Z#, Zhu K#, Zhao Q#, Cao B#. CAR NK-92 cells targeting DLL3 kill effectively small cell lung cancer cells in vitro and in vivo. *J Leukoc Biol.* 2022 Oct;112(4):901-911.

11. Yang S, Huang Y, **Zhao Q#**. Epigenetic Alterations and Inflammation as Emerging Use for the Advancement of Treatment in Non-Small Cell Lung Cancer. *Frontiers in Immunology*. 2022;13:878740
12. Xue M, Zhang T, Cheng Z, Guo B, Zeng Y, Lin R, Zheng P, Liu M, Hu F, Li F, Zhang W, Li L, **Zhao Q#**, Sun B#, Tang X#. Effect of a Functional Phospholipid Metabolome-Protein Association Pathway on the Mechanism of COVID-19 Disease Progression. *International Journal of Biological Sciences*. 2022. Doi: 10.7150/ijbs.72450
13. Xie L, Li J, Wang G, Sang W, Xu M, Li W, Yan J, Li B, Zhang Z, **Zhao Q**, Yuan Z, Fan Q, Dai Y. Phototheranostic Metal-Phenolic Networks with Antiexosomal PD-L1 Enhanced Ferroptosis for Synergistic Immunotherapy. *Journal of the American Chemical Society*. 2022. 144(2):787-797.
14. Ma G, Tan C, Shan Y, Shao N, Wang F, Dimitrov DS, Wang L#, **Zhao Q#**. An insulin growth factor-I/II-neutralizing monoclonal antibody in combination with epidermal growth factor receptor inhibitors potently inhibits tumor cell growth. *Journal of Cancer*. 2022;13(6):1830.
15. Huang, S., Yang, J., Fong, S#. and **Zhao, Q.#**, 2021. Artificial intelligence in the diagnosis of COVID-19: challenges and perspectives. *International Journal of Biological Sciences*, 17(6), p.1581.
16. Chen, C., Chen, Z., Chio, C.L., Zhao, Y., Li, Y., Liu, Z., Jin, Z., Wu, X., Wei, W.*, **Zhao, Q.*** and Li, Y.*, 2021. Higher Expression of WT1 With Lower CD58 Expression may be Biomarkers for Risk Stratification of Patients With Cytogenetically Normal Acute Myeloid Leukemia. *Technology in cancer research & treatment*, 20, p.15330338211052152.
17. Xie, L., Wang, G., Sang, W., Li, J., Zhang, Z., Li, W., Yan, J., **Zhao, Q.** and Dai, Y., 2021. Phenolic immunogenic cell death nanoinducer for sensitizing tumor to PD-1 checkpoint blockade immunotherapy. *Biomaterials*, 269, p.120638.
18. Xu, M., Xue, B., Wang, Y., Wang, D., Gao, D., Yang, S., **Zhao, Q.**, Zhou, C., Ruan, S. and Yuan, Z., 2021. Temperature-Feedback Nanoplatfor for NIR-II Penta-Modal Imaging-Guided Synergistic Photothermal Therapy and CAR-NK Immunotherapy of Lung Cancer. *Small*, 17(43), p.2101397.
19. Zhang, Z., Sang, W., Xie, L., Li, W., Li, B., Li, J., Tian, H., Yuan, Z., **Zhao, Q.** and Dai, Y., 2021. Polyphenol-Based Nanomedicine Evokes Immune Activation for Combination Cancer Treatment. *Angewandte Chemie International Edition*, 60(4), pp.1967-1975.
20. Zhu, L., Dai, Y., Gao, L. and **Zhao, Q.#**, 2021. Tumor Microenvironment-Modulated Nanozymes for NIR-II-Triggered Hyperthermia-Enhanced Photo-Nanocatalytic Therapy via Disrupting ROS Homeostasis. *International Journal of Nanomedicine*, 16, p.4559.
21. Cao B, Liu M, Huang J, Zhou J, Li J, Lian H, Huang W, Guo Y, Yang S, Lin L, Cai M, Zhi C, Wu J, Liang L, Hu Y, Hu H, He J, Liang B#, **Zhao Q#**, Zhu K#. Development of mesothelin-specific CAR NK-92 cells for the treatment of gastric cancer. *Int J Biol Sci*. 2021 Sep 3;17(14):3850-3861.
22. Yang, J., Fong, S., Wang, H., Hu, Q., Lin, C., Huang, S., Shi, J., Lan, K., Tang, R., Wu, Y. and **Zhao, Q.**, 2021. Artificial intelligence in ophthalmopathy and ultra-wide field image: a survey. *Expert Systems with Applications*, p.115068.
23. Zhu, L., Liu, J., Zhou, G., Liu, T.M., Dai, Y., Nie, G., **Zhao, Q.#**, Remodeling of Tumor Microenvironment by Tumor-targeting Nanozymes Enhances Immune Activation of CAR T Cells for Combination Therapy. *Small* 2021. 17 (43), 2102624

24. Liu, J., Yang, S., Cao, B., Zhou, G., Zhang, F., Wang, Y., Wang, R., Zhu, L., Meng, Y., Hu, C., Liang, H., Lin, X., Zhu, K., Chen, G., Luo, Q.K., Di, L., **Zhao, Q.#**, Targeting B7-H3 via Chimeric Antigen Receptor T cells and Bispecific Killer Cell Engagers Augments Antitumor Response of Cytotoxic Lymphocytes. *J Hematol Oncol* 2021.**14**: 21 (IF=17)
25. Yang, S., Cao, B. H., Zhou, G. Y., Zhu, L. P., Wang, L., Zhang, L., Kwok, H. F., Zhang, Z. F.#, and **Zhao, Q.#** Targeting B7-H3 Immune Checkpoint with Chimeric Antigen Receptor-Engineered Natural Killer Cells Exhibits Potent Cytotoxicity against Non-Small Cell Lung Cancer. *Front Pharmacol* 2020.**11**, 1089
26. Zhu, L. P., Gao, D. Y., Xie, L. S., Dai, Y. L., and **Zhao, Q.#** NIR II-Excited and pH-Responsive Ultrasmall Nanoplatform for Deep Optical Tissue and Drug Delivery Penetration and Effective Cancer Chemophototherapy. *Mol Pharm.* 2020.**17**(10):3720-3729.
27. Zhou G, **Zhao Q**, Perspectives on therapeutic neutralizing antibodies against the Novel Coronavirus SARS-CoV-2. *International Journal of Biological Sciences.* 2020, 16 (10), 1718.
28. **Zhao Q**, Bispecific Antibodies for Autoimmune and Inflammatory Diseases: Clinical Progress to Date. *BioDrugs*, 2020, 34(2):111-119.
29. Huang S, Yang J, Fong S#, **Zhao Q**,# Artificial intelligence in cancer diagnosis and prognosis: Opportunities and challenges. *Cancer Letters.* 2020, 471:61-71
30. Yang S, Wei W, **Zhao Q#**, B7-H3, a checkpoint molecule, as a target for cancer immunotherapy. *International Journal of Biological Sciences.* 2020, 16 (11), 1767-1773.
31. Zhu L, Liu J, Zhou G, Wu X, Ang IL, Ma G, Liu Y, Yang S, Zhang F, Miao K, Poon TCW, Zhang X, Yuan Z, Deng CX, **Zhao Q#**. Targeting immune checkpoint B7-H3 antibody-chlorin e6 conjugates for spectroscopic photoacoustic imaging and photodynamic therapy. *Chemical Communications.* 2019, 55 (95), 14255-14258
32. **Qi Zhao**, Novel chimeric antigen receptor T cells based on T-cell receptor-like antibodies, *Blood Sciences*, 2019, 1(2), 144-147.
33. Zhu L, Li P, Gao D, Liu J, Liu Y, Sun C. Xu M. Chen X, Sheng Z, Wang R. Yuan Z. Cai L#, Ma Y#, **Zhao Q#**. pH-sensitive loaded retinal/indocyanine green micelles as a “all-in-one” theranostic agent for multi-modal imaging in vivo guided cellular senescence-photothermal synergistic therapy. *Chemical Communications*, 2019. 55 (44), 6209-6212.
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35. Huang S, **Zhao Q#**. Nanomedicine-combined immunotherapy for cancer. *Current Medicinal Chemistry.* 2019, 55 (44), 6209-6212.
36. Liu J, Zhou G, Zhang L, **Zhao Q#**, Building potent chimeric antigen receptor T cells with CRISPR genome editing. *Frontiers in Immunology.* 2019, 10: 456.
37. Huang S, Fong CI, Xu M, Han BN, Yuan Z#, **Zhao Q#**. Nano-loaded natural killer cells as carriers of ICG for synergetic cancer immunotherapy and phototherapy. *Journal of Innovative Optical Health Sciences.* 2019, 12 (03), 1941002
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39. Gao H, Huang S, Du J, Zhang X, Jiang N, Kang W, Mao J, **Zhao Q#**. Comparison of prognostic indices in NSCLC patients with brain metastases after radiosurgery. *International Journal of Biological Sciences.* 2018, 14(14):2065-2072.

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42. Chen Z, Liu J, Chu D, Ma G, Zhang H, Shan Y, Chen Q, Deng C, Chen W, Dimitrov DS, **Zhao Q#**, A dual-specific IGF-I/II human engineered antibody domain inhibits IGF signaling in breast cancer cells. *International Journal of Biological Sciences*. 2018, 14(7):799-806.
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48. Li H, Li Y, Xiang J, Yang X, Li C, Liu C, **Zhao Q**, Zhou L, Gong P, Huang J. Intelligent Bimetallic Nanoagents as Reactive Oxygen Species Initiator System for Effective Combination Phototherapy. *Frontiers in Bioengineering and Biotechnology*. 2020, May8. doi: 10.3389/fbioe.2020.00423
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53. Chu D, Dong X, **Zhao Q**, Gu J, Wang Z. Photosensitization priming of tumor microenvironments improves delivery of nanotherapeutics via neutrophil infiltration. *Advanced Materials*. 2017. 29(27). doi: 10.1002/adma.201701021.
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55. Chen S, Li F, Ding Y, Wang D, **Zhao Q**, Wang Y, Zhou C, Wang Y, Andrographolide derivative as STAT3 inhibitor that protects acute liver damage in mice, Andrographolide derivative as STAT3 inhibitor that protects acute liver damage in mice. *Bioorganic & medicinal chemistry*. 2018;26(18):5053-5061.
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62. Chen C, Jin Y, Lo I, Zhao H, Sun B, **Zhao Q**, Zhang XD Complexity Change in Cardiovascular Diseases. *International Journal of Biological Sciences*. 2017.13: 1320-1328.
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68. Leung SO, Gao K, Wang GY, Cheung BK, Lee KY, **Zhao Q**, Cheung WT, Wang JZ. Surrogate target cells expressing surface anti-idiotypic antibody for the clinical evaluation of an internalizing CD22-specific antibody. *mAbs*. 2015.7(1):66-76
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(carcinoma embryonic antigen) positive tumor cells in vitro efficiently. *Journal of Biochemistry* 2004.135: 555-65.

Patents

- 基因工程化的 NK 细胞、其制备方法和用途，申请号：202010703308.8
- 表达抗 CD22 嵌合抗原受体和 PD-L1 阻断蛋白的细胞的制备方法、表达载体及应用，申请号：202010891848.3
- 中空介孔硫化铜纳米颗粒、其制备方法、其应用及药物组合物，申请号：2019111812373
- 靶向 CD22 的强杀伤性嵌合抗原受体和 T 细胞及其在制备治疗肿瘤的药物中的用途，201610318870.2
- IgG 杂合型抗 TNF 和 IL-17A 双特异性抗体，PCT/CN2015/099847
- 构建 HIV 病毒抗体酵母展示库的方法和筛选病毒广谱中和抗体的方法及其应用. CN104725501A
- 一种用于抗体表达的表达框、表达载体、含该载体的宿主细胞及其制备方法和应用. CN104711253A
- 一种通用型重组表达载体及其构建方法和应用. CN103725705A
- High affinity anti-GD2 antibodies. US2014/029308
- Human monoclonal antibodies to IGF1,2 with picomolar affinity, PCT/US2012/033128
- An engineering recombinant anti-CEA/CD3/CD28 single-chain tri-specific antibody, US 2009/0117108

Grants

1. Multi-year Research Grant from University of Macau (MYRG2022-00143-FHS): Development of an IL-15-dimeric tri-specific antibodies recognizing B7-H3 and CD16, 2023-2024, MOP480,000, PI
2. Multi-year Research Grant from University of Macau (MYRG2019-00069-FHS): Targeting B7-H3 with awakened natural killer cells for therapy of non-small cell lung cancer, 2021-2022, MOP150,000, PI

3. Macao Science and Technology Development Fund (FDCT/0043/2021/A1) : Development of anti-B7-H3 CART and bispecific antibodies against non-small cell lung cancer, 2021-2024 年, MOP 2,100,000, PI
4. National Major Science R&D Program 国家重大研发计划 (2019YFA0904400) : Synthetic synthesis of functional immune molecules and their application in tumor immunotherapy 功能性免疫分子的人工合成及其在肿瘤免疫治疗中的应用, 2020-2024 年, RMB 18,600,000, Co-PI
5. Shenzhen-Hong Kong-Macao Science and Technology Programm 深圳市科技计划-深港澳 (SGDX2020110309280301) , NIR-activated photoacoustic probes monitor changes in tumor-infiltrating lymphocytes in real time in tumor evolution 近红外激活型光声探针实时监测肿瘤演化中肿瘤浸润性淋巴细胞的变化, 2021-2023, RMB 1,000,000, PI
6. Guangzhou Science and Technology Plan for Foreign Science and Technology Cooperation(广州市科技计划对外科技合作) (201807010004) ,2018-2021, Development of targeted regulation of PD-1 to enhance WT1-specific T cell therapy technology for leukemia 靶向调控 PD-1 增强 WT1 特异性 T 细胞治疗白血病技术的研发, 2018-2021, RMB2,000,000, PI
7. Macao Science and Technology Development Fund (FDCT/15/2018/A1) : Development of potent TCR-mimic CAR T cells with multiplex genome editing , 2018-2021, MOP1,790,000, PI
8. Macao Science and Technology Development Fund (FDCT/131/2016/A3) : Multi-targeting therapy of T-cell receptor-mimic antibodies recognizing tumor-specific class I MHC-peptide epitopes , 2017-2019, MOP 2,100,000, PI
9. Novo Nordisk-CAS Joint Fund (NNCAS-2013-9): Novel bispecific antibodies for the treatment of autoimmune diseases, 2014-2015, RMB 500,000, PI
10. National Natural Science Foundation of China 国家自然科学基金项目 (31440041) :In vitro directed evolution of T cell receptor-like antibodies in human germline and their application in T cell therapy 人 germline 中 T 细胞受体样抗体的体外定向进化及在 T 细胞治疗中的应用, 2015, RMB 150,000, PI
11. Natural Science Foundation of Guangdong Province 广东省自然科学基金 (2015A030313741) : Research on novel anti-insulin-like growth factor multifunctional antibodies in the treatment of breast cancer 新型抗类胰岛素生长因子多功能抗体治疗乳腺癌的研究, 2015-2018, RMB100,000, PI
12. The Department of Science and Technology of Guangdong Province focuses on national international cooperation 广东省科技厅重点国家国际合作

(2016A050502034) : Research on insulin-like growth factors as therapeutic targets for tumors 类胰岛素生长因子作为肿瘤治疗靶点的研究, 2016-2018, RMB500,000, PI

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