

College of Biological Science and Medical Engineering

NAME OF THE PROGRAM

Biomedical Engineering

生物医学工程

RESEARCH DIRECTIONS:

Based on the first-level discipline of Biomedical Engineering, the discipline/research directions cover biomaterials, tissue engineering, micro and nanomedicine, as well as all the other self-designed areas of the College of Biological Science and Medical Engineering.

研究生培养方案基于生物医学工程一级学科，其学科/研究方向涵盖生物材料、组织工程、微纳医学以及其它生物与医学工程学院自设所有方向。

TYPE OF THE DEGREE: Academic Degree

DEGREE CONFERRED: Master of Engineering

SCHOOLING: 3 years

1. BRIEF INTRODUCTION
2. PROGRAM OBJECTIVES
3. CURRICULUM
4. SUPERVISOR INFORMATION

1、 BRIEF INTRODUCTION

Biomedical engineering aims to study and settle issues related to biology and medicine by engineering methods. It is a new interdisciplinary discipline integrating materials science, biology, medicine, and engineering (including computer science and information science). The biomedical engineering program of Donghua University currently offers research directions such as biomaterials and tissue engineering, nanomedicine and pharmacology, drug delivery technology, bioinformatics, biomedical textiles and biomechanics, clinical molecular diagnostics, etc. Moreover, the program has embarked on the cultivation of new research directions such as biomedical electronics, novel medical devices, and biosystems engineering. By taking the traditional advantages of the Textile and Material discipline of Donghua University, this discipline aims to build a distinctive biomedical engineering program for the purpose of cultivating R&D talents with multidisciplinary professionalism in life sciences, biomaterials, and medicine.

The faculty of the discipline includes 40 full-time teachers, in which 35 senior teachers having a doctoral degree and overseas study experience, and 15 doctoral supervisors, over 60% of them selected for various talent programs. We have three R&D bases: State Key Laboratory of Fiber Material Modification, Innovation Intelligence Base for Textile Biomaterials Science and Technology of Ministry of Education, Shanghai Research Center of Nanobiomaterials and Regenerative Medicine Engineering Technology.

2、 PROGRAM OBJECTIVES

The objectives of the Master's program of Biomedical Engineering at Donghua University is to cultivate high-level, versatile and academic research talents who are not only having extensive knowledge of biomedical engineering, but also having the ability to engage in scientific research independently, having excellent professional ethics, and are competent to undertake significant and complex scientific research work, as well as having strong planning, organizing, implementing and decision-making abilities. Moreover, the students are expected to acquire solid basic theories and systematic expertise in the fields of biomaterials, tissue engineering and nanomedicine, to have the ability to engage in scientific research and undertake specialized technical work independently.

3、 CURRICULUM

1. The 1st & 2nd semesters: courses study
2. November of the 3rd semester: thesis proposal submission and report
3. March of the 6th semester: thesis draft and Pre-defense
4. March of the 6th semester: concealed evaluation on the thesis
5. May of the 6th semester: oral defense on thesis

Main Courses

1. Polymer Chemistry and Physics 高分子化学与物理

Polymer Chemistry and Physics introduces brief history of polymer development, synthesis of polymer, chemical reaction of polymer, basic concepts, theories, and basic research methods concerning multi-level structures and major physical and mechanical properties.

2. Biomaterials 生物材料学

Biomaterials is an emerging interdisciplinary that involves multiple disciplines such as materials science, life science and medicine. Meanwhile, it is also one of the most active research fields at home and abroad over recent years. This course is primarily designed for senior undergraduate students majoring in Functional Materials. It systematically introduces the basic concepts and principles related to biomaterials, with an emphasis on narrating and analyzing basic structure, performance characteristics, and interactions with tissues of living organisms and biocompatibilities of medical metal materials, medical ceramic materials, medical polymer materials and natural biomaterials, as well as research and application achievements in the fields of the repair and replacement of damaged tissue and organ, tissue engineering scaffolds, tissue induction and drug delivery.

3. Tissue Engineering 组织工程

This course enables students to understand the highly intersectional nature of tissue engineering (involving life sciences, materials science, and engineering science), as well as its special role in the fields of biomedical engineering and biotechnology, thereby fostering and enhancing the interest and sense of social responsibility of students in learning and application.

4. Introduction to Biomedical Engineering 生物医学工程导论

This course aims to teach the basic concepts and theories of Biomedical Engineering, including introduction, biomedical materials, biomechanics, artificial organs, and medical devices, etc. By studying this course, students can gain an understanding of the development history, discipline features, current development status regarding Biomedical Engineering and its significant leading role in the development of modern science and technology industry, master basic knowledge in branch fields, be well versed in its application characteristics, understand the emerging trends and frontiers in the related research and applications, as well as have the initial ability to apply the theories to design and study the biomedical engineering projects.

5. Nanomedicine 纳米医学

This course mainly introduces the cutting-edge research progress of nanomaterials in the biomedical fields, including the properties, synthesis, and characterization of nanomaterials, as well as their applications in the multiple medical fields, such as drug delivery, diagnostic labeling, and tissue engineering.

6. Scientific Reading and Writing 科技论文阅读与写作

This course consists of two major parts: reading and writing scientific papers. It introduces the methods of acquiring and reading scientific literature and teaches students how to read and understand scientific research papers from the perspective of scientific logical thinking. By studying this course, students can write scientific research papers correctly and normatively, improve the expression ability, have excellent written and oral communication skills, and be able to clearly express their opinions, put forward scientific problems, and design manuscripts, thereby lay a solid foundation for writing academic papers and thesis.

7. Advanced Cell Biology 高级细胞生物学

Based on the basic theories of cell biology and molecular biology, Advanced Cell Biology provides an in-depth analysis of the chemical nature of eukaryotic cells and the molecular basis and mechanisms of cell movement, metabolism, material transfer, and information exchange between cells and the external environment, as well as exchange among cells. The course also presents the latest research trends, findings, and techniques in cell biology, and trains graduate students in biology-related fields with scientific analysis and innovation ability for their future research.

8. Biomedical Polymer Materials 医用高分子材料

Medical Polymers are a type of functional polymer materials widely used in biomedical field. The primary purpose of this course is to enable students to understand the basic concepts and theories of biomedical polymers, to be familiar with special requirements and biocompatibility evaluation methods of biomedical polymers, to extend applications of biomedical polymers in the fields of medical diagnosis and detection, drug delivery, artificial organs and tissues regeneration, to expand their horizons, and to cultivate and enhance their interest in learning interdisciplinary knowledge and their capabilities to conduct scientific research related to bioengineering.

9. Protein Structure and Function 蛋白质结构与功能

This course aims to understand cutting-edge protein research, master structural features of proteins, and know the relationship between protein structure and function. This course enables students to be familiar with the basic analysis methods of proteins, understand and use the software and websites related to protein structure prediction, and ultimately analyze the structure of unknown proteins and predict their potential functions based on the known relationship between protein structure and function. During the study of the course, students can also master the basic concepts of scientific development, comprehend the significance and the basic literacy of research from the classical experiments of protein research, and enhance the self-confidence in research and strengthen the determination to overcome the difficulties from the outstanding contributions made by Chinese scientists in protein science.

10. Advanced Inorganic Chemistry 高等无机化学

11. Clinical medicine outline 临床医学概论

This course aims to introduce medical knowledge to non-medical graduate students. The main content contains human anatomy, physiology, pathology, clinical medicine, etc. By

studying this course, students can have basic concepts of physiology and pathology and related medical knowledge, know pathogenesis of common diseases, treatment principles and preventive measures, and then have a comprehensive understanding of modern medicine, thereby laying a solid foundation for future biomedical-related work.

12. Genetic Engineering 基因工程

This course focuses on the operating technology of genetic engineering, elaborates the principles and applications of genetic engineering, with an emphasis on the application strategies and ideas of genetic engineering technologies.

Requirements for Thesis Work and Publication of Academic Results

The degree thesis must be a systematic and complete academic paper with well-defined concepts, correct arguments, rigorous narration, correct calculation, and reliable data, as well as clear hierarchy and standardized writing. The degree thesis must provide new insights into the research topic, indicate that the author has the ability to engage in scientific research, reflecting that the author has mastered a solid theories and systematic and in-depth professional knowledge in this discipline.

In addition to completing the required credits and grades, one research paper must also be published (or be accepted for publication) as the first author in the SCI(E) or EI-indexed source journal, and the content of the research paper must be closely related to the graduation thesis. The institutional affiliation of the first author must be Donghua University and paper jointly signed by the graduate student himself/herself and the supervisor.

4、SUPERVISOR INFORMATION

1. Prof. Xuanyong Liu 刘宣勇 工学博士，博士生导师，教授

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Brief Introduction:

国际生物材料科学与工程学会联合会 Fellow，国家杰出青年科学基金获得者，国家万人计划科技创新领军人才，科技部中青年科技创新领军人才，上海市领军人才，上海优秀学术带头人，上海青年科技英才。

Research Areas:

1. 生物材料表/界面特性及其生物学效应
2. 骨植入材料表面改性
3. 创面修复材料
4. 抗菌材料
5. 抗肿瘤材料
6. 纳米诊疗材料

Main Papers published:

1. Mei Li, Xiao Chu, Donghui Wang*, Linjia Jian, Lidan Liu, Mengyu Yao, Dongdong Zhang, Yufeng Zheng, Xuanyong Liu*, Yu Zhang*, Feng Peng*, Tuning the surface potential to

- reprogram immune microenvironment for bone regeneration, *Biomaterials* 282 (2022) 121408
2. Dongdong Zhang, Shi Cheng, Ji Tan, Juning Xie, Yu Zhang**, Shuhan Chen, Huihui Du, Shi Qian, Yuqing Qiao, Feng Peng***, Xuanyong Liu*, Black Mn-containing layered double hydroxide coated magnesium alloy for osteosarcoma therapy, bacteria killing, and bone regeneration, *Bioactive Materials* 17 (2022) 394–405
 3. Baohui Chen, Haifeng Zhang, Jiajun Qiu,* Shaoyun Wang, Liping Ouyang, Yuqin Qiao, Xuanyong Liu*, Mechanical Force Induced Self-Assembly of Chinese Herbal Hydrogel with Synergistic Effects of Antibacterial Activity and Immune Regulation for Wound Healing, *Small* 2022, 18, 2201766
 4. Yang Liu, Shaojie Zhai, Xingwu Jiang,* Yanyan Liu, Kun Wang, Chaochao Wang, Meng Zhang, Xuanyong Liu* and Wenbo Bu*, Intracellular Mutual Promotion of Redox Homeostasis Regulation and Iron Metabolism Disruption for Enduring Chemodynamic Therapy, *Advanced Functional Materials* 2021, 2010390
 5. Donghui Wang, Ji Tan, Hongqin Zhu, Yongfeng Mei,* and Xuanyong Liu*, Biomedical Implants with Charge-Transfer Monitoring and Regulating Abilities, *Advanced Science* 2021, 2004393.
 6. Shaoyun Wang, Baohui Chen, Liping Ouyang, Donghui Wang, Ji Tan, Yuqin Qiao, Shengfang Ge, Jing Ruan, Ai Zhuang*, Xuanyong Liu*, Renbing Jia*, A Novel Stimuli-Responsive Injectable Antibacterial Hydrogel to Achieve Synergetic Photothermal/Gene-Targeted Therapy towards Uveal Melanoma, *Advanced Science* 2021, 8, 2004721
 7. Guomin Wang,* Kaiwei Tang, Zheyi Meng, Pei Liu, Shi Mo, Babak Mehrjou, Huaiyu Wang, Xuanyong Liu*, Zhengwei Wu,* and Paul K. Chu*, A Quantitative Bacteria Monitoring and Killing Platform Based on Electron Transfer from Bacteria to a Semiconductor, *Advanced Materials* 2020, 32, 2003616
 8. Yun Liao#, Liping Ouyang#, Lei Ci, Baohui Chen, Dan Lv, Qin Li, Yingxiao Sun, Jian Fei, Shisan Bao*, Xuanyong Liu*, Ling Li,*, Pravastatin regulates host foreign-body reaction to polyetheretherketone implants via miR-29ab1-mediated SLIT3 upregulation, *Biomaterials* 203 (2019) 12–22
 9. Lan Chen, Donghui Wang, Feng Peng, Jiajun Qiu, Liping Ouyang, Yuqin Qiao, and Xuanyong Liu*, Nanostructural Surfaces with Different Elastic Moduli Regulate the Immune Response by Stretching Macrophages, *Nano Letters* 2019, 19, 6, 3480-3489
 10. Donghui Wang#, Naijian Ge#, Tingting Yang#, Feng Peng, Yuqin Qiao, Qianwen Li, Xuanyong Liu*, NIR-Triggered Crystal Phase Transformation of NiTi-Layered Double Hydroxides Films for Localized Chemothermal Tumor Therapy, *Advanced Sciences*, 2018, 1700782

2. Prof. Zhilong Chen 陈志龙 二级教授、博士生导师

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Brief Introduction:

为第二军医大学药理学学士、医学博士（药学专业），曾先后在中科院上海有机化学研究所、

澳大利亚 Central Queensland University、英国 The University of Liverpool 进行博士后研究。曾任第二军医大学防护医学教研室主任、学科带头人。现为东华大学生物与医学工程学院生物医药研究组课题组长，PI，药物化学与药理学教授，博士生导师。

Research Areas:

1. 人工智能(AI)和计算机辅助 (CADD)新药研发;
2. 光敏新药研发及光动力疗法的基础与应用研究 (如抗肿瘤、抗鲜红斑痣、抗类风湿性关节炎、抗菌抗病毒作用等);
3. 靶向药物研究 (如抗肿瘤靶向新药研究; 降压新药研究; 叶酸、多肽、单克隆抗体等靶向分子导向的新药研究);
4. 多功能、多模态药物纳米靶向制剂研究;
5. 中药与天然药物研究;
6. 药物代谢、药理毒理学及临床药学研究。
7. 医学成像试剂研究。

Main Papers published:

1. Tabbisa Namulinda, Zhi-Long Chen*, et al. Antibacterial and anticancer activities of green synthesized silver nanoparticles using Photinia glabra fruit extract. *Nanomedicine*, 2023, 18, (14): 987-1002. (SCI, Q1)
2. Man- Yi Li, Zhi- Long Chen*, et al. The bromoporphyrins as promising anti-tumor photosensitizers in vitro. *Photochemical & Photobiological Sciences*, 2023, 22, 427-439. (SCI, Q2)
3. Man Yi Li, Zhi Long Chen*, et al, The biological activities of 5,15-diaryl-10,20-dihalogeno porphyrins for photodynamic therapy. *Journal of Cancer Research and Clinical Oncology*, 2022, 148, 2335-2346. (SCI, Q2)
4. Feng Wang, Zhi-Long Chen*, et al. Synthesis and evaluation of new fluorinated pyropheophorbide-a derivatives for photodynamic therapy. *Dyes and Pigments*, 2022, 197, 109932.(SCI, Q1, TOP 期刊)
5. Feng Wang, Zhi-Long Chen*, et al. Synthesis and evaluation of new pyropheophorbide-a derivatives for CAIX-targeted photodynamic therapy. *Dyes and Pigments*, 2022, 203, 110328.(SCI, Q1, TOP 期刊).
6. Faiza Sajjad, Zhi-Long Chen*, et al. Incorporation of green emission polymer dots into pyropheophorbide- α enhance the PDT effect and biocompatibility. *Photodiagnosis and Photodynamic Therapy*, 2022, 37, 102562. (SCI, Q3)
7. Man-Yi Li, Ying-Hua Gao, Zhi-Long Chen*, et al. Synthesis and evaluation of novel fluorinated hematoporphyrin ether derivatives for photodynamic therapy. *Bioorganic Chemistry*, 2021, 107, 104528.(SCI, Q1, TOP 期刊)
8. Faiza Sajjad, Zhi-Long Chen*, et al. Synthesis and invitro PDT evaluation of red emission polymer dots (R-CPDs) and pyropheophorbide- α conjugates. *Scientific Reports*. 2021, 11, 10013. (SCI, Q2)
9. Zhuo Wu, Zhi-Long Chen*, et al. Design, synthesis and biological evaluation of novel fluoro-substituted benzimidazole derivatives with anti-hypertension activities. *Bioorganic Chemistry*, 2020, 101, 104042. (SCI, Q1, TOP 期刊)

10. Ying-Hua Gao, Zhi-Long Chen*. Synthesis and pharmacological evaluation of chlorin derivatives for photodynamic therapy of cholangiocarcinoma. *European Journal of Medicinal Chemistry*, 2020,189, 112049.(SCI, Q1,TOP 期刊)
11. Ying-Hua Gao, Zhi-Long Chen*, Synthesis and evaluation of novel chlorophyll a derivatives as potent photosensitizers for photodynamic therapy. *European Journal of Medicinal Chemistry*, 2020, 187, 111959.(SCI, Q1,TOP 期刊)
12. Ying-Hua Gao, Vanda Lovreković, Zhi-Long Chen*, et al. The photodynamic activities of dimethyl 131-[2-(guanidinyl)ethylamino] chlorin e6 photosensitizers in A549 tumor. *European Journal of Medicinal Chemistry*, 2019, 177, 144-152. (SCI, Q1,TOP 期刊)
13. Zhuo Wu, Yi-Jia Yan, Zhi-Long Chen*, et al. Design, synthesis and biological evaluation of AT1 receptor blockers derived from 6-substituted aminocarbonyl benzimidazoles. *European Journal of Medicinal Chemistry*, 2019,181,111553. (SCI, Q1,TOP 期刊)
14. Zhuo Wu, Xiao-Lu Bao, Zhi-Long Chen*, et al. Design, synthesis and biological evaluation of 6-benzoxazole benzimidazole derivatives with anti-hypertension activities. *ACS Medicinal Chemistry Letters*, 2019, 10, 40 - 43. (SCI, Q2)
15. Wei Zhu, Ying-Hua Gao, Zhi-Long Chen*, et al. Comparison between porphyrin, chlorin and bacteriochlorin derivatives for photodynamic therapy: Synthesis, photophysical properties, and biological activity. *European Journal of Medicinal Chemistry*, 2018, 160, 146-156. (SCI, Q1,TOP 期刊)
16. Sonja Srdanovic, Davor Margetic*, Zhi-Long Chen*. The photodynamic activity of 131-[2'-(2-pyridyl)ethylamine] chlorin e6 photosensitizer in human esophageal cancer. *Bioorganic & Medicinal Chemistry Letters*. 2018, 28(10): 1785-1791. (SCI, Q2)
17. Wei Zhu, Yi-Jia Yan, Zhi-Long Chen*, et al. Synthesis and biological evaluation of 173-dicarboxylethyl pyropheophorbide-a amide derivatives for photodynamic therapy. *Bioorganic & Medicinal Chemistry Letters*. 2018, 28: 2784-2788. (SCI, Q2)
18. Ping-Yong Liao, Zhi-Long Chen*, et al. Synthesis of 2-morpholinetetraphenylporphyrins and their photodynamic activities. *Bioorganic Chemistry*, 2017, 71: 299 - 304.(SCI, Q1,TOP 期刊)
19. Li Wang, Wei Zhu, Zhi-Long Chen*, et al. Preparation of a chlorophyll derivative and investigation of its photodynamic activities against cholangiocarcinoma. *Biomedicine & Pharmacotherapy*. 2017, 92: 285-292. (SCI, Q1,TOP 期刊)
20. Lei-Lei Bao, Donal F. O'Shea*, Zhi-Long Chen*, et al. In vitro and in vivo evaluation of a pyropheophorbide-a derivative as a potential photosensitizer for age-related macular degeneration. *Biomedicine & Pharmacotherapy*, 2017, 88: 1220-1226. (SCI, Q1,TOP 期刊)
21. Xiaolu Bao, Weibo Zhu, Zhilong Chen*, et al. Design, synthesis and evaluation of novel potent angiotensin II receptor 1 antagonists. *European Journal of Medicinal Chemistry*, 2016, 123,115-127.(SCI, Q1,TOP 期刊)
22. Weibo Zhu, Xiaolu Bao, Zhilong Chen*, et al. N-phenyl indole derivatives as AT1 antagonists with anti-hypertension activities: design, synthesis and biological evaluation. *European Journal of Medicinal Chemistry*, 2016, 115,161-178.(SCI, Q1,TOP 期刊)

23. Xiang-Hua Zhang, Li-Jun Zhang, Zhi-Long Chen*, et al. Photodynamic efficiency of a chlorophyll-a derivative in vitro and in vivo. *Biomedicine & Pharmacotherapy*, 2016, 81, 265-272. (SCI, Q1, TOP 期刊)
24. Li-Jun Zhang, Yi-Jia Yan, Zhi-Long Chen*, et al. Antitumor activity evaluation of meso-tetra (pyrrolidine substituted) pentylporphyrin-mediated photodynamic therapy in vitro and in vivo. *Journal of Photochemistry & Photobiology, B: Biology*. 2016, 163:224-231. (SCI, Q1, TOP 期刊)
25. Ping-Yong Liao, Ying-Hua Gao, Zhi-Long Chen*, et al. Tetraphenylporphyrin derivatives possessing piperidine group as potential agents for photodynamic therapy. *Journal of Photochemistry & Photobiology, B: Biology*. 2016, 165: 213-219. (SCI, Q1)
26. Hongyu Tan, Ioannis Houpis, Zhilong Chen*, et al. Olefin preparation via palladium-catalyzed oxidative de-azotative and de-sulfitative internal cross-coupling of sulfonylhydrazones. *Organic Letters*, 2015, 17(14): 3548-3551. (SCI, Q1, TOP 期刊)
27. Dan Wu, Zhi-Long Chen and Donal F. O'Shea, et al. Synthesis and assessment of a maleimide functionalized BF₂ azadipyrromethene near-infrared fluorochrome. *Chemical Communications*, 2015, 51(93): 16667-16670. (SCI, Q1, TOP 期刊)
28. Li-Jun Zhang, Zhi-Long Chen*, et al. Evaluation of a bacteriochlorin-based photosensitizer's anti-tumor effect in vitro and in vivo. *Journal of Cancer Research and Clinical Oncology*, 2015, 141 (11) : 1921-1930. (SCI, Q2)
29. Hongyu Tan, Zhilong Chen*, et al. Palladium-catalyzed coupling of sulfonylhydrazones with heteroaromatic 2-amino-halides (Barluenga Reaction): exploring the electronics of the sulfonylhydrazone. *Organic Process Research & Development*. 2015, 19(8), 1044-1048. (SCI, Q1)
30. Xiao-Lu Bao, Zhi-Long Chen*, et al. Design, synthesis and evaluation of novel angiotensin II receptor 1 antagonists with antihypertensive activities. *RSC Advances*, 2017, 7: 26401-26410. (SCI, Q2)
31. Pingyong Liao, Zhilong Chen*, et al. Synthesis, characterization and biological evaluation of a novel bis-carboxymethyl-modified tetraphenylchlorin compound for photodynamic therapy. *RSC Advances*, 2016, 6: 26186 - 26191. (SCI, Q2)
32. Mengshi Yang, Zhilong Chen, et al. Photodynamic therapy of drug-resistant human colon adenocarcinoma using verteporfin loaded TPGS nanoparticle with tumor homing and penetrating peptide functionalized. *RSC Advances*, 2016, 6: 100984-100992. (SCI, Q2)
33. Dan Wu, Zhi-long Chen, et al. Strained alkyne substituted near infrared BF₂ azadipyrromethene fluorochrome. *RSC Advances*, 2016, 6: 87373-87379. (SCI, Q2)
34. Wei Zhu, Ying-Hua Gao, Zhi-Long Chen*, et al. Synthesis and evaluation of new 5-aminolevulinic acid derivatives as prodrugs of protoporphyrin for photodynamic therapy. *Photochemical & Photobiological Sciences*. 2017, 16: 1623-1630. (SCI, Q2)
35. Ping-Yong Liao, Xinrong Wang, Zhi-Long Chen*, et al. Synthesis, photophysical properties and biological evaluation of b-alkylaminoporphyrin for photodynamic therapy. *Bioorganic & Medicinal Chemistry*, 2016, 24(22): 6040-6047. (SCI, Q2)
36. Xiaolu Bao, Weibo Zhu, Zhi-Long Chen*, et al. Synthesis and evaluation of novel angiotensin II receptor 1 antagonists as anti-hypertension drugs. *Bioorganic & Medicinal Chemistry*, 2016, 24(9): 2023-2031. (SCI, Q2)

3. Prof. Rui Guo 郭睿 教授

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Brief Introduction:

2008年毕业于南京大学，2015-2016年美国密歇根大学医学院访学一年。

Research Areas:

1. 高分子纳米药物输送体系的制备与抗肿瘤效果评价。
2. 有机/无机纳米复合材料的合成及其在肿瘤诊疗中的应用。

Main Papers Published:

1. Hao, Y.; Gao, Y.; Fan, Y.; Zhang C.; Zhan M.; Cao, X.; Shi, X.*; Guo, R.*, A Tumor Microenvironment-responsive Poly(amidoamine) Dendrimer Nanoplatfor for Hypoxia-responsive Chemo/chemodynamic Therapy, *Journal of Nanotechnology*, 2022, 20, 43.
2. Zhang, L.; Li, G.; Ouyang, Z.; Yang, R.; Cao, X.; Istvan B.; Shi, X.*; Guo, R.*, Intelligent Design of iron-doped LDH Nanosheets for Cooperative Chemo-chemodynamic Therapy of Tumors, *Biomaterials Science*, 2022, 10, 2029-2039.
3. Liu, R.; Xu, F.; Wang, L.; Liu, M.; Cao, X.; Shi, X.*; Guo, R.*, Polydopamine-Coated Laponite Nanoplatfor for Photoacoustic Imaging-Guided Chemo-Phototherapy of Breast Cancer. *Nanomaterials* 2021, 11, 394.
4. Liu, R.; Guo, H.; Ouyang, Z.; Fan, Y.; Cao, X.; Xia, J.; Shi, X.*; Guo, R.*, Multifunctional Core-Shell Tecto Dendrimers Incorporated with Gold Nanoparticles for Targeted Dual Mode CT/MR Imaging of Tumors. *ACS Applied Bio Materials* 2021, 4, 1803-1812.
5. Zhang, N.; Wang, Y.; Zhang, C.; Fan, Y.; Li, D.; Cao, X.; Xia, J.; Shi, X.; Guo, R.*, LDH-Stabilized Ultrasmall Iron Oxide Nanoparticles as a Platform for Hyaluronidase-Promoted MR Imaging and Chemotherapy of Tumors. *Theranostics* 2020, 10, 2791-2802.
6. Wu, Y.; Li, K.; Kong, L.; Tang, Y.; Li, G.; Jiang, W.; Shen, M.; Guo, R.*; Zhao, Q.*; Shi, X.*, Functional Laponite Nanodisks Enable Targeted Anticancer Chemotherapy in Vivo. *Bioconjugate Chemistry* 2020, 31, 2404-2412.
7. Ding, L.; Wang, R.; Hu, Y.; Xu, F.; Zhang, N.; Cao, X.; Wang, X.; Shi, X.; Guo, R.*, Folic Acid-Modified Laponite (R)-Stabilized Fe₃O₄ Nanoparticles for Targeted T₂-Weighted MR Imaging of Tumor. *Applied Clay Science* 2020, 186, 105447.
8. Liu, M.; Zhang, J.; Li, X.; Cai, C.; Cao, X.; Shi, X.*; Guo, R.*, A Polydopamine-Coated Laponites-Stabilized Iron Oxide Nanoplatfor for Targeted Multimodal Imaging-Guided Photothermal Cancer Therapy. *Journal of Materials Chemistry B* 2019, 7, 3856-3864.
9. Xu, F.; Liu, M.; Li, X.; Xiong, Z.; Cao, X.; Shi, X.*; Guo, R.*, Loading of Indocyanine Green within Polydopamine-Coated Laponite Nanodisks for Targeted Cancer Photothermal and Photodynamic Therapy. *Nanomaterials* 2018, 8, 347.
10. Zhuang, Y.; Zhou, L.; Zheng, L.; Hu, Y.; Ding, L.; Li, X.; Liu, C.; Zhao, J.; Shi, X.*; Guo, R.*, Laponite-Polyethylenimine Based Theranostic Nanoplatfor for Tumor-Targeting CT Imaging and Chemotherapy. *ACS Biomaterials Science & Engineering* 2017, 3, 431-442.

4. Prof. Chuanglong He 何创龙 教授, 博士生导师

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Brief Introduction:

2004 年获重庆大学生物医学工程专业博士学位, 并先后在同济大学和美国密歇根大学进行博士后研究。主要从事生物材料、组织工程、纳米医学等领域的研究。

Research Areas:

1. 骨、软骨、关节、血管修复材料
2. 生物打印与人体类器官
3. 创面修复材料
4. 骨和关节疾病诊疗材料与技术
5. 可穿戴智能材料与器件

Main Papers Published:

1. Lu ZY, Du S, Li JX, Zhang M, Nie HL, Zhou XJ, Li FL, Wei XW, Wang JQ, Liu FY, He CL*, Yang G*, Gu Z*. Langmuir-Blodgett-mediated formation of antibacterial microneedles for long-term transdermal drug delivery. *Advanced Materials*, 2023, DOI: 10.1002/adma.202303388.
2. Guo ST, He CL*. Bioprinted scaffold remodels the neuromodulatory microenvironment for enhancing bone regeneration, *Advanced Functional Materials*, 2023, 2304172.
3. Zhou XJ, Qian YH, Chen L, Li T, Sun X, Ma XJ*, Wang JW*, He CL*. Flowerbed-inspired biomimetic scaffold with rapid internal tissue infiltration and vascularization capacity for bone repair. *ACS Nano*, 2023, 17(5): 5140-5156.
4. Shi TT, Lu HZ, Zhu JY, Zhou XJ, He CL*, Li FL*, Yang G*. Naturally derived dual dynamic crosslinked multifunctional hydrogel for diabetic wound healing. *Composites Part B: Engineering*, 2023, 257: 110687.
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5. Prof. Feng Hong 洪枫 工学博士，生化与分子生物学、生物与医药学科教授和博士生导师

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Brief Introduction:

曾在美国康奈尔大学（Cornell University）生物医学项目下作访问学者（2016-2017）、瑞典隆德大学（Lund University）应用微生物系博士后（1999—2001）。

Research Areas:

1. 生物医用材料（重点开发细菌纳米纤维素基新型医用敷料、止血材料、人工血管、神经导管、人工角膜，以及血透膜等医用产品）

2. 工业生物技术（发酵与酶工程、纺织与造纸工业生物技术）
3. 可再生生物质资源生物转化制备高附加值产品（细菌纤维素、工业用酶、活性低聚糖、有机酸等）
4. 微生物资源与药物
5. 环境生物技术

Main Papers Published:

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3. Gaoquan Hu, Lin Chen, Shengyin Zhao, Feng F. Hong*. Mercerization of Tubular Bacterial Nanocellulose for Control of the Size and Performance of Small-caliber Vascular Grafts. *Chemical Engineering Journal*, 2022, 428, 131104. DOI: 10.1016/j.cej.2021.131104.
4. Lu Gao, Yue Zhou, Lulu Li, Lin Chen, Luwei Peng, Jinli Qiao*, Feng F. Hong*. In-situ assembly of Cu/Cu₂O composite with CNT/Bacterial Cellulose matrix as a support for efficient CO₂ electroreduction reaction to CO and C₂H₄. *Separation and Purification Technology*, 2022, 280, 119832. <https://doi.org/10.1016/j.seppur.2021.119832>.
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- prostheses including artificial blood vessels. *Journal of Chemical Technology and Biotechnology*, 2017, 92 (6): 1218-1228.
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6. Prof. Naiqiang Li 李乃强 发酵工程博士, 教授级高级工程师

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Brief Introduction:

东华大学纺织科技创新中心高级研究员。

Research Areas:

利用合成生物学、生物制造等技术、手段，开发生物基化学品、生物基材料。

Main Papers Published:

1. Zhenhua Pang, Naiqiang Li, Xiucan Liu, Stabilized recombinant expression plasmid vector in *Hafnia alvei* and applications thereof. 美国 US14992412, 2015-5-21.
2. Howard Chou, Naiqiang Li, Xiucan Liu. Expression of *Klebsiella oxytoca* polypeptides involved in lysine decarboxylation and methods and applications thereof. 美国 US15547,323 2015-1-30.
3. Howard Chou, Naiqiang Li, Xiucan Liu. Expression of polypeptides involved in lysine decarboxylation, and methods and applications thereof. 美国 US15321800, 2014-6-26.
4. Charlie Liu, Jinxiu Liao, Jianglin Wang, Haibin Qing, Naiqiang Li. *Candida sake* strain for producing long chain dicarboxylic acids. 美国 US14384154, 2012-3-9.
5. Xiucan Liu, Charlie Liu, Duanfang Dai, Bingbing Qin, Naiqiang Li. Purification of Cadaverine Using High Boiling Point Solvent. 美国 US15418,052, 2013-1-28.
6. Xiucan Liu, Chareli Liu, Duanfang Dai, Bingbing Qin, Naiqiang Li. Preparation of cadaverine, 美国 US15406,900 2017-1-16.
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15. 刘驰,李乃强,廖锦绣,刘文山,汪江林.一种长链二元酸生产菌株及其应用.中国 CN102839133B, 2011.06.21.
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7. Prof. Jingchao Li 李静超 东华大学特聘研究员，博士生导师

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Brief Introduction:

2017 年于日本筑波大学获得博士学位，2017 年至 2020 年于新加坡南洋理工大学从事博士后研究。

Research Areas:

1. 可激活多模态探针的构建用于生物标记物检测和疾病早期诊断；
2. 近红外光响应型纳米调节器的开发与光调控应用；
3. 多功能有机/无机纳米颗粒的构建及其肿瘤等疾病多模态治疗应用；
4. 可注射水凝胶的制备用于细胞功能的调控和组织损伤修复。

Main Papers Published:

1. Jingchao Li#, Yu Luo#, Ziling Zeng, Dong Cui, Jiaguo Huang, Chenjie Xu, Liping Li, Kanyi Pu*, Ruiping Zhang*. Precision cancer sono-immunotherapy using deep-tissue activatable semiconducting polymer immunomodulatory nanoparticles. *Nature Communications*, 2022, 13, 4032.
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3. Jingchao Li, Xiangrong Yu, Yuyan Jiang, Shasha He, Yan Zhang*, Yu Luo*, Kanyi Pu*. Second near-infrared photothermal semiconducting polymer nanoadjuvant for enhanced cancer immunotherapy. *Advanced Materials*, 2021, 33(4), 2003458.
4. Jingchao Li, Yu Luo*, Kanyi Pu*. Electromagnetic nanomedicines for combinational cancer immunotherapy. *Angewandte Chemie International Edition*, 2021, 60, 12682-12705.
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7. Jingchao Li, Dong Cui, Jiaguo Huang, Shasha He, Zebin Yang, Yan Zhang*, Yu Luo*, Kanyi Pu*. Organic semiconducting pro-nanostimulants for near-infrared photoactivatable cancer immunotherapy. *Angewandte Chemie International Edition*, 2019, 58, 12680-12687.
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8. Prof. Changrui Lu 陆昌瑞 博士，教授，上海高校特聘教授

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Brief Introduction:

美国科尔盖特大学 (Colgate University) 全额奖学金分子生物学学士、高等荣誉 (2005 年)，美国康奈尔大学 (Cornell University) 生命科学研究院生物化学、生物物理学博士 (2010 年)，美国密西根大学 (University of Michigan) 医学院博士后 (2011 年)，2012 年入职东华大学。

Research Areas:

从事 RNA 的结构与功能、基因的表达与调控等研究：核糖核酸开关和其他非编码 RNA 的结构、机理和功能；Packaging RNA (pRNA) 的晶体结构与复合体的包装机理；外切体复合物的晶体结构与机理；昆虫胚胎耐冻性的分子机理，其成果发表于 NSMB、PNAS、NAR、JMB 等国际著名杂志。研究方向为 RNA 的结构和功能、mRNA 的疫苗研发等。截至目前，已主持或参与了包括国家自然科学基金等多个省部级项目，总项目金额超过 4000 万元。

Main Papers Published:

1. Zhang, M., et al. (2022). The Second Class of Tetrahydrofolate (THF-II) Riboswitches Recognizes the Tetrahydrofolic Acid Ligand via Local Conformation Changes. *International Journal of Molecular Sciences*23(11): 5903.
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8. Lu, C., et al. (2010). Crystal structure of the *S. solfataricus* archaeal exosome reveals conformational flexibility in the RNA-binding ring. *PLoS One*5(1): e8739.
9. Lu, C., et al. (2008). Crystal structures of the SAM-III/SMK riboswitch reveal the SAM-dependent translation inhibition mechanism. *Nature structural & molecular biology*15(10): 1076-1083.

9. Prof. Xiumei Mo 莫秀梅 二级教授, 博导

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Brief Introduction:

曾为京都大学博士后、新加坡国立大学研究院、亚琛工业技术大学访问教授。

Research Areas:

1. 静电纺纳米纤维用于组织再生, 包括在神经、小血管、皮肤、肌腱、骨和软骨上的应用。
2. 快速成型三维支架用于骨和软骨再生。
3. 医用水凝胶的制备及组织修复应用

Main Papers Published:

1. Ahmed A. El-Shanshory*, Mona M. Agwa, Ahmed I. Abd-Elhamid, Hesham M. A. Soliman, Xiumei Mo and El-Refaie Kenawy*, Metronidazole Topically Immobilized Electrospun Nanofibrous Scaffold: Novel Secondary Intention Wound Healing Accelerator, *Polymers* 2022, 14, 454. <https://doi.org/10.3390/polym14030454>
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9. Jun Li, Chao Xue, Hao Wang, Shiyan Dong, Zhaogang Yang, Yuting Cao, Binan Zhao, Biao Cheng, Xianrui Xie, Xiumei Mo, Wen Jiang,* Hengfeng Yuan,* and Jianfeng Pan*, Hybrid Nanofibrous Composites with Anisotropic Mechanics and Architecture for Tendon/Ligament Repair and Regeneration, *Small*2022, 2201147
10. Mingyue Liu, Muhammad Shafiq, Binbin Sun, Jinglei Wu, Wei Wang, Mohamed EL-Newehy, Hany EL-Hamshary, Yosry Morsi, Onaza Ali, Atta ur Rehman Khan, and Xiumei Mo*, Composite Superelastic Aerogel Scaffolds ContainingFlexible SiO₂Nanofibers Promote Bone Regeneration, *Adv. Healthcare Mater.*2022, 2200499
11. Di Jiang, Yuxin Jiang**, Kaili Wang, Zhe Wang, Yifei Pei, Jinglei Wu, Chuanglong He, Xiumei Mo, Hongsheng Wang*, Binary ethosomes-based transdermal patches assisted by metal microneedles significantly improve the bioavailability of carvedilol, *Journal of Drug Delivery Science and Technology*2022, 74, 103498
12. Yujie Chen, ·Xutao Dong, · Muhammad Shafq, · Gregory Myles, · Norbert Radacsi, · Xiumei Mo*, Recent Advancements on Three- Dimensional Electrospun Nanofber Scaffolds for Tissue Engineering, *Advanced Fiber Materials*, 16, May, 2022
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21. Gomaa El Fawal*, Marwa M. Abu-Serie, Xiumei Mo, Hongsheng Wang, Diethyldithiocarbamate/silk fibroin/polyethylene oxide nanofibrous for cancer therapy: Fabrication, characterization and in vitro evaluation, *International Journal of Biological Macromolecules*, 2021, 193, 293–299
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23. Gomaa El Fawal*, Huoyan Hong, Xiumei Mo, Hongsheng Wang, Fabrication of scaffold based on gelatin and polycaprolactone (PCL) for wound dressing application, *Journal of Drug Delivery Science and Technology* 2021, 63, 102501
24. Xianrui Xie, Dan Li, Yujie Chen, Yihong Shen, Fan Yu, Wei Wang, Zhengchao Yuan, Yosry Morsi, Jinglei Wu*, and Xiumei Mo*, Conjugate Electrospun 3D Gelatin Nanofiber Sponge for Rapid Hemostasis, *Adv. Healthcare Mater.* 2021, 2100918, 标注排序第一
25. Xiaoyu Wang, Mingyue Liu, Haiyan Li, Anlin Yin, Changlei Xia, Xiangxin Lou, Hongsheng Wang, Xiumei Mo, Jinglei Wu*, MgO-incorporated porous nanofibrous scaffold promotes osteogenic differentiation of pre-osteoblasts, *Materials Letters* 2021, 299, 130098
26. Liren Wang, Yuhao Kang, Sihao Chen, Xiumei Mo, Jia Jiang, Xiaoyu Yan, Tonghe Zhu*, and Jinzhong Zhao*, Macroporous 3D Scaffold with Self-Fitting Capability for Effectively Repairing Massive Rotator Cuff Tear, *ACS Biomaterials Science & Engineering* 2021, 7, 3, 904-915
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- oxide-incorporated electrospun membranes inhibit bacterial infections and promote the healing process of infected wounds, *J. Mater. Chem. B*, 2021, 9, 3727–3744
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 35. Atta ur Rehman KHAN, Yosry MORSI, Tonghe ZHU, Aftab AHMAD, Xianrui XIE, Fan YU, and Xiumei MO*, Electrospinning: An emerging technology to construct polymer-based nanofibrous scaffolds for diabetic wound healing, *Front. Mater. Sci.* 2021, 15(1): 10–35
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antibacterial nano wound dressing encapsulating oregano essential oil: Fabrication, characterization and biological evaluation, *Colloids and Surfaces B: Biointerfaces* 2020, 196, 111352 标注排序第二

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Brief Introduction:

2001年毕业于清华大学,获工学博士。2008年回国前,在美国密歇根大学历任访问学者和副研究员。

Research Areas:

基于功能化树状大分子的纳米医学,新型高分子载体系统的设计与构建以及有机/无机杂化纳米材料的肿瘤诊疗应用。

Main Papers Published:

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11. Prof. Xiangyang Shi 史向阳 博士生导师, 校特聘教授

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Requirements for the future international students:

欢迎感兴趣的具有化学、化工、生物医学、材料、纺织等相关研究背景的博士生申请博士后研究职位, 同时欢迎感兴趣的具有相同背景的本科生和硕士生报考加入本课题组。

Brief Introduction:

1998 年于中科院感光化学研究所获博士学位。2008 年回国前, 在美国密歇根大学历任博士后研究员、第二级副研究员、研究员和研究助理教授。

Research Areas:

基于树状大分子及其它类高分子的纳米医学、生物材料研究, 主攻方向为肿瘤和炎症(包括肺炎、关节炎、脑卒中、帕金森等)诊疗和预防的纳米药物基础及应用基础研究。

Main Papers Published:

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- Gemcitabine and miR-21 Inhibitor by Dendrimer-Entrapped Gold Nanoparticles for Pancreatic Cancer Therapy. *Theranostics* 2018, 8(7), 1923-1939.
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12. Prof. Junhua Xiao 肖君华 分子遗传课题组长、教授、博导

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Brief Introduction:

本科、研究生、博士毕业于复旦大学遗传专业，美国德州大学人类遗传中心博后。曾在华东理工大学任教。目前担任东华大学生物与医学工程学院，分子遗传课题组长、教授、博导。

Research Areas:

1. 复杂性状相关基因的遗传学研究；
2. 野生小家鼠遗传资源的挖掘和利用；
3. 临床分子诊断技术的开发

Main Papers Published:

1. Guozhu Sun, Hui Cao, Yang bai, Jueheng Wang, Yuxun Zhou, Kai Li, Jun-hua Xiao. A novel multiplex qPCR method for assessing the comparative lengths of telomeres. *J Clin Lab Anal.* 2021;00:e23929.
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5. Xiaoning Li, Junhua Xiao, Yating Fan, Kan Yang, Kai Li, Xin Wang, Yanhua Lu, Yuxun Zhou (2019). miR-29 family regulates the puberty onset mediated by a novel Gnrh1 transcription factor TBX21. *J Endocrinol*, 242(3), 185-197.
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10. Xiaoning Li, Sijia Wang, Yanhua Lu, Huanhuan Yin, Junhua Xiao, Kai Li, Lei Ma and Yuxun Zhou*, A dual fluorescence reporter system for high throughput screening of effectors of Kiss1 gene expression. *FEBS Bio Open*. doi:10.1002/2211-5463.12476.

13. Prof. Yanzhong Zhang 张彦中 生物医学工程学科教授 (III 级)、博士生导师, 生物与医学工程学院 (原生物科学与技术研究所) “仿生材料与再生医学 (BMRM)” 课题组组长 (PI)

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Brief Introduction:

本科毕业于西北工业大学, 博士毕业于新加坡国立大学 (NUS), 英国布里斯特大学和 NUS 博士后经历, 出国前曾在北京航空材料研究院从事纤维增强的高分子复合材料科研工作近 7 年。2009 年 11 月作为海外引进人才回国到东华大学工作, 创立了“仿生材料与再生医学 (BMRM)”研究室。

Research Projects:

1. 2021.1-2024.12, 国家自然科学基金面上项目, 仿生纤维促细胞重塑基质与形成组织的力学生物学作用机制 (项目号: 32071345), 主持;
2. 2019.1-2021.12, 东华大学中央高校基本科研业务费学科交叉 (理工科) 重点项目, 基于仿生取向纤维的血管组织再生 (项目号: 2232019A3-09), 主持;
3. 2018.1-2021.12, 国家自然科学基金面上项目, 力学主动式骨组织工程支架的生物力学效应与机制研究 (项目号: 31771050), 主持;
4. 2016.10-2021.10, 科技部国家重点研发计划专项, 生物材料化学信号、微纳米结构及力学特性对非骨组织再生诱导作用及其机制研究 (项目号: 2016YFC1100200), 子课题负责人;
5. 2016.1-2019.12, 国家自然科学基金面上项目, 仿生超细“中性纤维”的设计制备与修复肌腱损伤功效评价 (项目号: 31570969), 主持;
6. 2014.9-2017.8, 上海市科学技术委员会“科技创新行动计划”基础研究重点项目, 用于原位骨组织工程的多功能仿生纳米纤维支架的构建 (项目号: 14JC1490100), 主持;
7. 2011.10-2013.10, 东华大学中央高校基本科研业务费 (追加) 重点项目, 壳-芯结构超细单向复合纤维的设计制备及仿生构建组织工程化肌腱 (项目号: 11D10540), 主持;
8. 2011.1-2011.12, 教育部留学回国人员科研启动专项基金, 仿生复合材料纳米纤维羟基磷灰石/壳聚糖对骨髓间质干细胞的诱导成骨作用研究 (项目号: 11W10523), 主持;
9. 2011.1-2013.12, 国家自然科学基金面上项目, 超细定向壳聚糖纤维的电流驱动法纺丝及其应用于肌腱组织工程的研究 (项目号: 51073032), 主持;
10. 2010.7-2012.6, 上海市科学技术委员会“浦江人才计划”项目, 基于仿生复合材料纳米纤维羟基磷灰石/壳聚糖与骨髓间质干细胞的骨组织工程的研究 (项目号: 10PJ1400200), 主持。

Main Papers Published:

1. X.R. Guo, X.L. Wang, H. Tang, Y.J. Ren, D.H. Li, B.C. Yi, Y.Z. Zhang*. Engineering a mechanoactive fibrous substrate with enhanced efficiency in regulating stem cell tenodifferentiation, *ACS Appl. Mater. & Interfaces* 2022, 14(20): 23219-23231.
2. B.C. Yi, L. Yu, H. Tang, W.B. Wang*, W. Liu*, Y.Z. Zhang*. Lysine-doped polydopamine coating enhances antithrombogenicity and endothelialization of an electrospun aligned fibrous vascular graft, *Appl. Mater. Today* 2021, 25: No. 101198.
3. Y.B. Shen, Y. Xu, B.C. Yi, X.L. Wang, H. Tang, C. Chen*, Y.Z. Zhang*. Engineering a highly biomimetic chitosan-based cartilage scaffold by using short fibers and a cartilage-decellularized matrix, *Biomacromolecules* 2021, 22(5): 2284-2297.
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6. T. Tu, Y.B. Shen, X.S. Wang, W.J. Zhang, G.D. Zhou, Y.Z. Zhang*, W.B. Wang*, W. Liu*. Tendon ECM modified bioactive electrospun fibers promote MSC tenogenic differentiation and tendon regeneration, *Appl. Mater. Today* 2020, 18: No. 100495.
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13. H.H. Yuan, J.B. Qin, J. Xie, B.Y. Li, Z.P. Yu, Z.Y. Peng, B.C. Yi, X.X. Lou, X.W. Lu*, Y.Z. Zhang*. Highly aligned core-shell structured nanofibers for promoting phenotypic expression of vSMCs for vascular regeneration, *Nanoscale* 2016, 8(36): 16307-16322.

14. M. Bao, X.L. Wang, H.H. Yuan, X.X. Lou, Q.H. Zhao, Y.Z. Zhang*. HAp incorporated ultrafine polymeric fibers with shape memory effect for potential use in bone screw hole healing, *J. Mat. Chem. B* 2016, 4(31): 5308-5320.
15. J. Xie, C. Peng, Q.H. Zhao, X.L. Wang, H.H. Yuan, L.L. Yang, K. Li, X.X. Lou*, Y.Z. Zhang*. Osteogenic differentiation and bone regeneration of iPSC-MSCs supported by a biomimetic nanofibrous scaffold, *Acta Biomater.* 2016, 29: 365-379.
16. H.H. Yuan, Q.H. Zhou, B.Y. Li, M. Bao, X.X. Lou, Y.Z. Zhang*. Direct printing of patterned three-dimensional ultrafine fibrous scaffolds by stable jet electrospinning for cellular ingrowth, *Biofabrication* 2015, 7(4): No. 045004.
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26. Q.H. Zhou, M. Bao, H.H. Yuan, S.F. Zhao, W. Dong, Y.Z. Zhang*. Implication of stable jet length in electrospinning for collecting well-aligned ultrafine PLLA fibers, *Polymer* 2013, 54(25): 6867-6876.

27. H.J. Peng, Z. Yin, H.H. Liu, X. Chen, B. Feng, H.H. Yuan, B. Su, H.W. Ouyang*, Y.Z. Zhang*. Electrospun biomimetic scaffold of hydroxyapatite/chitosan supports enhanced osteogenic differentiation of mMSCs, *Nanotechnology* 2012, 23(48): No. 485102.
28. B. Feng, H.B. Tu, H.H. Yuan, H.J. Peng, Y.Z. Zhang*. Acetic-acid-mediated miscibility toward electrospinning homogeneous composite nanofibers of GT/PCL, *Biomacromolecules* 2012, 13(12): 3917-3925.
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42. 汤晓涵, 唐寒, 郭煦然, 李东红, 李慧娟, 张彦中*. 基于电纺 PNIPAA/PCL 纤维基底的细胞膜片制备[J], 功能高分子学报 2022, 35(5): 1-10.
43. 薛苏桐, 王先流, 易兵成, 郭煦然, 唐寒, 沈炎冰, 张彦中*. 氧化石墨烯改性形状记忆纤维的片层尺寸相关性[J], 功能高分子学报 2022, 35(2): 146-154.
44. 沈勇, 易兵成, 沈炎冰, 唐寒, 周璟, 薛苏桐, 张彦中*. 仿生取向纤维的刚度变化对巨噬细胞极化特性的影响[J], 东华大学学报 (自然科学版) 2022, 48(2): 1-9.
45. 周璟, 唐寒, 易兵成, 沈炎冰, 沈勇, 薛苏桐, 张彦中*. 基于不同仿生纤维密度的细胞响应行为研究[J], 中国细胞生物学学报 2021, 43(4): 747-758.
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47. 刘畅, 易兵成, 王先流, 沈炎冰, 秦春萍, 张彦中*. Lys-GO 对 PLCL 形状记忆纤维的力学增强和成骨诱导作用[J], 功能高分子学报 2020, 33(5): 483-491.
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49. 霍影, 王先流, 易兵成, 沈炎冰, 张彦中*. 形状记忆取向纤维膜的形状回复力调控[J], 功能高分子学报 2020, 33(1): 46-53.
50. 周颖, 王先流, 易兵成, 余哲泡, 杨上莹, 沈炎冰, 张彦中*. 具有形状记忆效应的仿生复合纳米纤维的制备与性能评价[J], 高等学校化学学报 2018, 39(7): 1554-1563.
51. 杨上莹, 袁卉华, 易兵成, 王先流, 周颖, 张彦中*. 柠檬酸改性壳聚糖水凝胶的制备与性能[J], 功能高分子学报 2018, 31(3): 232-240.
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55. 董文, 包敏, 李碧云, 袁卉华, 娄向新, 张彦中*. 含石墨烯的聚乳酸复合纳米纤维的制备及细胞相容性[J], 功能高分子学报 2014, 27(2): 147-156.
56. 包敏, 周雅慧, 袁卉华, 娄向新, 张彦中*. Lys 调节 PLGA 纳米纤维的体外降解产物酸度的研究[J], 高分子学报 2014, 5: 604-612.
57. 袁卉华, 屠红斌, 李碧云, 李芹, 张彦中*. 稳定射流电纺丝法制备定向排列的壳聚糖超细纤维[J], 高分子学报 2014, 1: 131-140.
58. 娄向新, 袁卉华, 包敏, 张彦中*. 模拟干细胞生长微环境以促进间充质干细胞的扩增[J], 中国细胞生物学学报 2013, 35(11): 1681-1688.
59. 包敏, 周宇峰, 周祺惠, 董文, 张彦中*. 超声可控释药体系研究进展[J], 中国生物医学工程学报 2013, 32(6): 731-740.
60. 赵仕芳, 袁卉华, 张彦中*. 静电纺纳米纤维基组织工程大孔支架的研究进展[J], 中国生物医学工程学报 2012, 31(1): 129-140.

14. Prof. Xingping Zhou 周兴平 工学博士，研究员，博士生导师

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Brief Introduction:

1990 年获华东师范大学物理化学专业理学硕士学位后，担任中国纺织大学纺化系讲师；1998 年至 2002 年，在日本东北大学攻读工学博士学位，师从国际著名胶体化学家杉本忠夫（Tadao Sugimoto）教授，主要从事均匀的锐钛矿型二氧化钛纳米粒子的水热合成研究。2002 年 10 月起，在日本东北大学学际科学国际高等研究中心担任客座研究员，承担了日本厚生省的研究项目《萌芽的先端医疗技术推进研究(纳米医学领域)》，主持应用于药物传递和疾病诊断的发光纳米材料的制备、性能和生物医学应用研究。

Research Areas:

1. 荧光生物标记（量子点、稀土及碳点等）材料的研制与生物医学应用；
2. 磁性纳米材料与生物医学应用，功能性微纳米靶向药物载体研究；
3. 新型纳米（复合）材料合成方法及表面修饰的研究；溶液化学；
4. 无机/有机杂化的光催化、抗菌等的功能微纳米复合材料研究。

Main Papers Published:

1. Nanting Deng, Xingping Zhou*, Xie Li, Xiaqin Wang, Synthesis of NaYF₄:Yb,Er/NaYF₄ nanoparticles coated with PAM by in-situ polymerization, *Journal of Physics and Chemistry of Solids*, 74: 480-486, 2013.
2. Xiaoyan Huang, Yonggen Liu, Xingping Zhou*, Yongfa Diao, Formation of Oil-soluble Uniform Anatase Titania Nanoparticles and Their Characterization, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 423: 115-123, 2013.
3. Shunan Shan, Xuhua Hu, Siyu Ni, Kai Li, Jing Li, Xingping Zhou*, Developing of A Novel Clinical Kit for Assaying of Alpha-fetoprotein Based on Luminescent and Magnetic Nanoparticles, *Current Nanoscience*, 9 (4): 451-456, 2013.
4. Li Liu, Jingcheng Xue, Xingping Zhou*, Synthesis of Tetragonal Zirconia Nanoparticles by an Oil/Water Interface Method, *Nanoscience and Nanotechnology Letters*, 6 (4): 346-352, 2014.
5. Xueshuang Zheng, Li Liu, Xingping Zhou*, "Formation and Properties of Hydrophobic CeO₂ Nanoparticles", *Colloid Journal*, 76 (5), 558-563, 2014.
6. Taotao Shi, Yutian Cai, LiLiu, and Xingping Zhou*, Formation process of m-ZrO₂ nanoparticles by the oil/water interface method combined with seeding technique, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 469: 83-92, 2015.
7. Jie Jia Qi, Xingping Zhou*, Formation of Tetragonal and Monoclinic-HfO₂ Nanoparticles in the Oil/water Interface, *Colloids and Surfaces A: Physicochem. Eng. Aspects*, 487: 26-34, 2015.
8. Nannan Zheng, Sha Ding, Xingping Zhou*, Monosodium glutamate derived tricolor fluorescent carbon nanoparticles for cell-imaging application, *Colloids and Surfaces B: Biointerfaces*, 142, 123-129, 2016.
9. Limin Han, Xingping Zhou*, Synthesis and characterization of liposomes nano-composite-particles with hydrophobic magnetite as a MRI probe, *Applied Surface Science*, 376: 252-260, 2016.

10. Yingying Wan, Xingping Zhou* , Formation mechanism of hafnium oxide nanoparticles by a hydrothermal route, RSC Advances 7:7763-7773, 2017.
11. Ya Peng, Xinyan Zhou, Nannan Zheng, Lingyu Wang, Xingping Zhou*, Strongly Tricolor-emitting Carbon Dots Synthesized by the Combined Aging-annealing Route and Their Bio-application, RSC Advances, 7, 50802-50811, 2017.
12. Feng Wu, Xingping Zhou*, Xinhai Yu*, Synthesis and Characterization of Novel Star-branched Polyimides Derived from 2,2-bis[4-(2,4-diaminophenoxy)phenyl] hexafluoropropane, RSC Adv.7: 35786-35794, 2017,.
13. Yujuan Fan, Xingping Zhou*, Blue- and Green-Emitting Hydrophobic Carbon Dots: Preparation, Optical Transition, and Carbon Dot-Loading, Nanotechnology,30: 265704-13, 2019.
14. Chena Ma, Chaosun Yin, Yujuan Fan, Xingping Zhou*, Highly Efficient synthesis of N-doped carbon dots with excellent stability through pyrolysis method, J. Mater. Sci. 54: 9372-9384, 2019.
15. Jiaxin Qi, Jinxi Wen, Qin Wang, Xiu Jin, Xingping Zhou*, Preparation and Photocatalytic Properties of Hexagonal and Orthogonal CuS Micro-nanoparticles by An Oil-water Interface Method, Materials Chemistry and Physics 255: 123629-38, 2020.
16. Xuying Liu, Xiu Jin, Hong Deng, Z. Sha, Xingping Zhou*, Formation of Nitrogen-doped Blue- and Green-emitting Fluorescent Carbon Dots via A One-step Solid-phase Pyrolysis, J. Nanoparticle Research, 23 (2): 45-52, 2021.
17. Synthesis of Hydrophobic MoS₂ Micro-nanoparticles and Their Photocatalytic Performance Research, Hong Deng, Xuying Liu, Xiu Jin, Xingping Zhou*, J. Materials Science: Materials in Electronics, 32 (7): 9475-9489, 2021.
18. Manyi Li, Yinghua Gao, Jiahui Zhang, Le Mi, Xuexue Zhu, Feng Wang, Xingping Zhou*, Yijia Yan*, Zhilong Chen*, Synthesis and Evaluation of Novel Fluorinated Hematoporphyrin Ether Derivatives for Photodynamic Therapy, Bioorganic Chemistry, 107: 104528-, 2021
19. Faiza Sajjad, Xuying Liu, Yijia Yan*, Xingping Zhou*, and Zhilong Chen*, The Photodynamic Anti-Tumor Effects of New PPa-CDs Conjugate with pH Sensitivity and Improved Biocompatibility, Anti-Cancer Agents in Medicinal Chemistry, 21, 000-000, 2021.
20. Hui Zhang, Shaohua Yang, Xingping Zhou*, Mn-doped Carbon Dots as A Visible-light-driven Catalyst for Degradation of Acid Fuchsin and Malachite Green, J. Materials Science: Materials in Electronics, accepted, 2022.

15. Prof. Limin Zhu 朱利民 教授, 博导

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Brief Introduction:

1992 年获得英国斯特拉斯克莱德大学 (Strathclyde) 哲学博士学位。东华大学生物医学工程学科教授、博导。现任东华大学特聘教授、博士生导师。2003 年加盟东华大学前, 曾任: 中国科学院长春应用化学研究所实习和助理研究员 (1982-1989); 英国斯特拉斯克莱德大学纯粹和应用化学系生物有机化学研究所研究员 (1992-1994); 英国丹迪大学生物化

学系高级研究员（1994-1996）；英国阿伯泰大学科学和工程学院分子和生命科学系讲师（1996-1999）；英国伦敦城市大学健康和生命科学系终身高级讲师（1999-2003）

Research Areas:

1. 微纳米载药缓控释材料的构建、药物递送的研究与应用
2. 功能和生物材料的研究与应用
3. 药用纺织品与缓释材料的设计与开发研究

Main Papers Published:

1. Niu S., Zhang X., Williams G.R., Wu, J., Gao F., Fu Z., Chen X., Li S*, Zhu L.M.*. (2021). Hollow Mesoporous Silica Nanoparticles Gated by Chitosan-Copper Sulfide Composites as Theranostic Agents for the Treatment of Breast Cancer, *Acta Biomaterialia*, 126, 408-420. (IF10.633, Q1)
2. Wu, J., Niu S., Bremner D.H., Nie W., Fu Z., Li D*, Zhu L.M.* (2020). A Tumor Microenvironment-Responsive Biodegradable Mesoporous Nanosystem for Anti-Inflammation and Cancer Theranostics, *Advanced Healthcare Materials*, 9(2), e1901307. (IF11.092, Q1)
3. Chen, X., Niu, S., Bremner, D. H., Zhang X., Zhang H., Zhang, Y., Li, S.*, Zhu L.M.* (2020). Co-delivery of doxorubicin and oleanolic acid by triple-sensitive nanocomposite based on chitosan for effective promoting tumor apoptosis. *Carbohydrate Polymers*, 116672. (IF10.723, Q1)
4. Wu, J., Williams, G., Niu, S., Yang, Y., Li, Y., Zhang, X., Zhu, L.M.*. (2020). Biomineralized Bimetallic Oxide Nanotheranostics for Multimodal Imaging Guided Combination Therapy. *Theranostics*, 10: 841-855. (IF11.6, Q1)
5. Wang, H., Bremner, D. H., Wu, K., Gong, X., Fan, Q., Xie, X., Zhu, L.M.*. (2020). Platelet membrane biomimetic bufalin-loaded hollow MnO₂ nanoparticles for MRI-guided chemo-chemodynamic combined therapy of cancer. *Chemical Engineering Journal*, 382, 122848. (IF16.744, Q1)
- Gao, F., Wu, J., Niu, S., Sun, T., Li, F., Bai, C., Jin, L., Lin, L., Shi*, Q., Zhu, L.M.,* Du,* L. (2019). Biodegradable, pH-Sensitive Hollow Mesoporous Organosilica Nanoparticle (HMON) with Controlled Release of Pirfenidone and Ultrasound Target Microbubble Destruction (UTMD) for Pancreatic Cancer Treatment. *Theranostics*, 9(20), 6002-6018. (IF 11.6, Q1)
6. Niu, S., Williams, G. R., Wu, J., Wu, J., Zhang, X., Zhang H., Li S.*, Zhu, L.M.*. A novel chitosan-based nanomedicine for multi-drug resistant breast cancer therapy. *Chemical Engineering Journal*, 369 (2019) 134-149. (IF16.744, Q1)
7. Niu, S., Williams, G. R., Wu, J., Wu, J., Zhang, X., Chen, X., Zhu, L.M.*. (2019). A chitosan-based cascade-responsive drug delivery system for triple-negative breast cancer therapy. *Journal of Nanobiotechnology*, 17: 1-18. (IF 9.429, Q1)
8. Wang, H., Wu, J., Williams, G. R., Fan, Q., Niu, S., Wu, J., Zhu, L.M.*. (2019). Platelet-membrane-biomimetic nanoparticles for targeted antitumor drug delivery. *Journal of Nanobiotechnology*, 17(1), 60. (IF 9.429, Q1)
9. Wu, J., Williams, G.R., Niu, S., Gao F., Tang, R., Zhu, L.M.* (2019). A multifunctional biodegradable nanocomposite for cancer theranostics. *Advanced Science*, 10.1002/advs. 201802001. (IF 17.521, Q1)
10. Wu, J., Bremner, D. H., S., Wu, Shi, M., Wang, H., Tang, R., Zhu, L.M.* (2018). Chemodrug-

Gated Biodegradable Hollow Mesoporous Organosilica Nanotheranostics for Multimodal Imaging- Guided LowTemperature Photothermal Therapy/Chemotherapy of Cancer. *ACS Applied Materials & Interfaces*, 10 : 42115-42126. (IF 10.383, Q1)

11. Wu, J., Bremner, D. H., Niu, S., Wu, H., Wu, J., Wang, H., Wang, H., Li, H., Zhu, L.M.* (2018). Functionalized MoS₂ nanosheet-capped periodic mesoporous organosilicas as a multifunctional platform for synergistic targeted chemo-photothermal therapy. *Chemical Engineering Journal*, 342 : 90–102. (IF 16.744, Q1)

12. Wu, H., Williams, G.R., Wu, J., Wu, J., Niu, S., Li, H., Zhu, L.M.*. (2018). Regenerated chitin fibers reinforced with bacterial cellulose nanocrystals as suture biomaterials. *Carbohydrate Polymers*. 180 : 304-313. (IF10.723, Q1)

16. Prof. Xueyan Cao 曹雪雁 博士，副研究员

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Brief Introduction:

2009 年获上海交通大学生物医学工程专业博士学位，美国东北大学化学与化学生物系访问学者。

Research Areas:

1. 纳米药物/基因输送体系的构建及其癌症靶向治疗效果的评价。
2. 多功能纳米复合物用于癌症诊疗一体化的研究。

Main Papers Published:

1. Huan Chen; Yiming Zhang; Lulu Li; Rui Guo; *Xiangyang Shi; *Xueyan Cao. Effective CpG Delivery Using Zwitterion-Functionalized Dendrimer-Entrapped Gold Nanoparticles to Promote T Cell- Mediated Immunotherapy of Cancer Cells, *Biosensors*, 2022, 12: 71
2. Peng, Yucheng; Gao, Yue; Yang, Chao; Guo, Rui; *Shi, Xiangyang; *Cao, Xueyan. Low-Molecular-Weight Poly(ethylenimine) Nanogels Loaded with Ultrasmall Iron Oxide Nanoparticles for T-1-Weighted MR Imaging-Guided Gene Therapy of Sarcoma, *ACS Applied Materials & Interfaces*, 2021, 13(24): 27806-27813
3. Peng, Yucheng; Wang, Xiaomeng; Wang, Yue; Gao, Yue; Guo, Rui; *Shi, Xiangyang; *Cao, Xueyan. Macrophage-Laden Gold Nanoflowers Embedded with Ultrasmall Iron Oxide Nanoparticles for Enhanced Dual-Mode CT/MR Imaging of Tumors, *Pharmaceutics*, 2021, 13(7): 0-995
4. Chen, Huan; Fan, Yu; Hao, Xinxin; Yang, Chao; Peng, Yucheng; Guo, Rui; *Shi, Xiangyang; *Cao, Xueyan. Adoptive cellular immunotherapy of tumors via effective CpG delivery to dendritic cells using dendrimer-entrapped gold nanoparticles as a gene vector, *Journal of Materials Chemistry B*, 2020, 8(23): 5052-5063
5. Hao, Xinxin; Xu, Bei; Chen, Huan; Wang, Xiaomeng; Zhang, Jiulong; Guo, Rui; *Shi, Xiangyang; *Cao, Xueyan. Stem cell-mediated delivery of nanogels loaded with ultrasmall iron oxide nanoparticles for enhanced tumor MR imaging, *Nanoscale*, 2019, 11(11): 4904-4910
6. Cao, Xueyan; Lu, Xueguang; Wang, Dali; Jia, Fei; Tan, Xuyu; Corley, Michelle; Chen, Xiaoying; *Zhang, Ke; Modulating the Cellular Immune Response of Oligonucleotides by Brush Polymer-Assisted Compaction, *Small*, 2017, 13(43): 1701432

- Li, Aijun; Zhou, Benqing; Alves, Carla S.; Xu, Bei; Guo, Rui; *Shi, Xiangyang; *Cao, Xueyan. Mechanistic Studies of Enhanced PCR Using PEGylated PEI-Entrapped Gold Nanoparticles, *ACS Applied Materials & Interfaces*, 2016, 8: 25808-25817

17. Prof. Zhangjun Cao 曹张军 副教授

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Brief Introduction:

毕业于西北农林科技大学，相继获得学士、硕士及博士学位（其中 2002 年至 2004 年在中科院遗传和发育生物学研究所植物细胞与染色体工程国家重点实验室从事合作研究。加州大学圣地亚哥分校（UCSD）访问学者。

Research Areas:

1. 环境微生物（大分子生物降解及转化）
2. 天然活性物质药用研究；
3. 生物技术在纺织领域应用。

Main Papers Published:

1. ZhangJun Cao, Ao Tang, Juan Wang, YunLong Zhang, Guang Yang, XingQun Zhang. 2022. Improvement in dyeing and physical properties of wool fabrics through pretreatment based on the bacterial culture of *Stenotrophomonas maltophilia* DHHJ. *Textile Research Journal*,
2. ZhangJun Cao, XiaoXiao Song, Qian Zhu, Juan Wang, Rui Gong, YunLong Zhang, Gang Wang. 2021. Dynamic action of keratinase on wool fibre tracked by FITC-labelled enzyme. *Biocatal Biotransfor* 39(3), 214-220.
3. LongTao Zhou, Guang Yang, XueXia Yang, ZhangJun Cao, MeiHua Zhou. Preparation of regenerated keratin sponge from waste feathers by a simple method and its application for oil adsorption. *Environmental Science and Pollution Research*, 2014. 21(8):5730-5736 (通讯作者)
4. Yuan Zhuang, XiaoQian Wu, ZhangJun Cao, XiaoXiang Zhao, MeiHua Zhou, Pin Gao. Preparation and characterization of sponge film made from feathers. *Materials Science and Engineering: C*, 2013, 33 (8): 4732-4738.
5. 庄媛; 吴小倩; 曹张军; 赵晓祥; 周美华, 鸡毛不溶解蛋白海绵膜的制备与表征. *环境工程学报* 2013, 7, (4): 1510-1514.
6. 张铮, 徐琴, 王昌钊, 杨光, 杨雪霞, 曹张军, 洪枫. 一株产表面活性剂细菌鉴定及发酵条件优化. *工业微生物*, 2014. 44(2): 1-7.
7. 龚润, 蒋晶君, 曹张军, 周美华. *Stenotrophomonas maltophilia* DHHJ 角蛋白酶特性及酶促动力学研究. *工业微生物*. 2013, 43(3): 67-71
8. **Zhang-Jun Cao**, Dan Lu, Lai-Sheng Luo, Yun-Xia Deng, Yong-Gang Bian, Xing-Qun Zhang, Mei-Hua Zhou. Composition analysis and application of degradation products of whole feathers through a large scale of fermentation. *Environ Sci Pollut Res*. 2012, 19(7): 2690-2696
9. Shaobo Cai, Zhenghua Huang, Xingqun Zhang, Zhangjun Cao, Meihua Zhou and Feng Hong, Identification of a keratinase-producing bacterial strain and enzymatic study for

- its improvement on shrink resistance and tensile strength of wool- and polyester-blended fabric. *Appl Biochem Biotechnol*. 2011. 163(1):112-126 (通讯作者)
10. 鲁丹, 曹张军, 周美华. 嗜麦芽寡养单胞菌降解羽毛 5L 发酵罐工业小试过程研究. *环境工程学报*. 2009, 3(8): 1513-1516
 11. **Zhangjun Cao**, Qi Zhang, Dongkai Wei, Jing Wang, Li Chen, Xingqun Zhang, Meihua Zhou. Characterization of a novel **Stenotrophomonas** isolate with high keratinase activity and purification of the enzyme. **Journal of Industrial Microbiology & Biotechnology**. 2009, 36(2):181-188
 12. Xuexia Yang, **Zhangjun Cao**, Jihong Lao, Yunxia Deng, Hui Chen. Screening for an oil-removing microorganism and oil removal from waste silk by pure culture fermentation. **Engineering in Life Sciences**. 2009. 9(1): 1-5.
 13. 张启, 王晶, 曹张军, 张兴群, 周美华. 嗜麦芽窄食单胞菌(**Stenotrophomonas maltophilia**)DHHJ 分解角蛋白的生化机制初探. *河北农业大学学报*. 2008, 31(2): 70-73
 14. 张启, 魏冬凯, 曹张军, 周美华. 嗜麦芽窄食单胞菌(**Stenotrophomonas maltophilia**)DHHJ 角蛋白酶的纯化及酶解研究. *环境污染与防治*. 2008, 30(4): 40-43

18. Prof. Ting Chen 陈婷 生物工程系副主任, 党支部书记, 副教授

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Brief Introduction:

博士毕业于东北师范大学(蛋白质乙酰化酶的研究)。在中国科学院上海分院生化与细胞研究所进行博士后研究(细胞信号转导通路蛋白研究)。2007年进入东华大学(多肽及蛋白质结构与功能关系研究)。2016年在美国康奈尔大学访学(RNA编辑蛋白结构与功能研究), 2017年回国后在东华大学任教至今。

Research Areas:

长期从事与重大疾病相关的生物多肽及蛋白质的设计、制备及功能研究工作。主要包括:

1. RNA编辑蛋白的结构与功能研究
2. 基于RNA编辑蛋白结构进行的新蛋白质设计。
3. 糖尿病相关靶点蛋白的发现及相关多肽类药物、小分子药物的筛选与机理研究
4. 肿瘤转移相关酶类的制备及应用。

Main Papers Published:

1. Minmin Zhang, Yunlong Zhang, Bingnan Wu, Yanhao Peng, Altaf Ahmed Simair, Geoffery W Siegel, Changrui Lu*, Ting Chen*. Intein-mediated recombinant expression of monomeric B22Asp desB30 insulin, *Biotechnology*, 2020, 9; 20(1):3.
2. Rujie Cai, Ian R Price, Fang Ding, Feifei Wu, Ting Chen, Yunlong Zhang, Guangfeng Liu, Paul J Jardine, Changrui Lu, Ailong Ke, ATP/ADP modulates gp16-pRNA conformational change in the Phi29 DNA packaging motor, *NUCLEIC ACIDS RESEARCH*, 2019, 10;47(18):9818-9828.
3. Hanif M, Kanwal F, Rafiq M, Hassan M, Mustaqeem M, Seo SY, Zhang Y, Lu C, Chen T*, Saleem M*, Symmetrical Heterocyclic Cage Skeleton: Synthesis, Urease Inhibition Activity, Kinetic Mechanistic Insight, and Molecular Docking Analyses, *Molecules*, 2019, 16: 24(2)

4. Fariha Kanwal, Ting Chen, Yunlong Zhang, Altaf Simair, Changrui Lu, A Modified In Vitro Transcription Approach to Improve RNA Synthesis and Ribozyme Cleavage Efficiency, *Mol. Biotechnol.*, 2019, 61 (7):469-476.
5. Chen Ting*, Zhu Wenkai, Zhang Yunlong, Zhang Mingming, Chen Li, Lu Changrui*, Recombinant Expression of the Monomeric B27 Lys Destripeptide Insulin Precursor (MIP) in E.coli., *Journal of Donghua University*, 2018, Vol.35, No.1: 43-46
6. Ting Chen*, Lujuan Li, Helong Hao, Yuanhao Qiao, Preparation of monomeric B27 Lys destripeptide insulin by intein mediated expression in Escherichia coli., *Protein Expression and Purification*, 2011, 80: 152–156
7. Ting Chen, Meng Li, Yu Ding, Le-shuai Zhang, Ying Xi, Wei-jun Pan, Dong-lei Tao, Ji-yong Wang, and Lin Li. Identification of zinc-finger bed domain containing 3 (ZBED3) as a novel axin-interacting protein that activates WNT/ β -catenin signaling, *J.Biol.Chem.*, 2009, 13: 284(11): 6683-9
8. Ting Chen, Hui Sun, Jun Lu, Dan Tao, Xiaoxue Li, Baiqu Huang, Histone acetylation is involved in hsp70 gene transcription regulation in *Drosophila melanogaster*, *Archives of Biochemistry and Biophysics*, 2002, 408: 171-176

19. Prof. Shuo Chen 陈硕 东华大学和佐治亚理工学院联合培养博士，东华大学副研究员，硕士生导师

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Brief Introduction:

2020年毕业于东华大学，2020-2022于上海交通大学进行博士后研究，于2023年4月加入东华大学生物与医学工程学院。

Research Areas:

1. 可降解弹性材料的合成、加工及其组织工程应用
2. 生物柔性电子器件的制备及其组织工程应用

Main Papers Published:

1. Chen, S., Sun, L., Zhou, X., Guo, Y., Song, J., Qian, S., Liu, Z., Guan, Q., Jeffries, E. M., Liu, W., Wang, Y., He, C. and You, Z*. Mechanically and biologically skin-like elastomers for bio-integrated electronics. *Nat. Commun.* 2020, 11, 1107. (#: 共同第一作者; *: 通讯作者; 下同)
2. Song J.#; Chen S.#; Sun L.; Guo Y.; Zhang L.; Wang S.; Xuan H.; Guan Q.; You.Z.* Mechanically and Electronically Robust Transparent Organohydrogel Fibers. *Adv. Mater.* 2020, 32, 1906994.
3. Chen, S.#; Huang, T.#; Zuo, H.; Qian, S.; Guo, Y.; Sun, L.; Lei, D.; Wu, Q.; Zhu, B.; He, C.; Mo, X.; Jeffries, E.; Yu, H.; You, Z.* A single integrated 3D-printing process customizes elastic and sustainable triboelectric nanogenerators for wearable electronics. *Adv. Funct. Mater.* 2018, 28, 1805108.
4. Guo, Y.#; Chen, S.#; Sun, L.; Yang, L.; Zhang, L.; Lou, J; You, Z.* Degradable and fully recyclable dynamic elastomer for 3D-printed wearable electronics. *Adv. Funct. Mater.* 2020, 2009799.

5. Chen, S., Wu, Z., Chu, C., Ni, Y., Neisiany, R., You, Z.* Biodegradable elastomers and gels for elastic electronics. *Adv. Sci.* 2022, 9, 2105146.
6. Chen, S.#, Jiang S.#, Qiao, D., Wang, J., Zhou, Q., Wu, C., Li, X., Neisiany, R., Sun, L., Liu, Y., You, Z.*, Zhu, M.*, Pan, J.* Chinese tofu-inspired biomimetic conductive and transparent fibers for biomedical applications. *Small Methods* 2023, DOI: 10.1002/smt.202201604.
7. Chen, S.#, Guo, Y.,# Sun L., Sun W., Neisiany, R., Chen, K., Guan, Q.*, You, Z.* Bio-based vitrimeric elastomers enable completely sustainable triboelectric nanogenerator. *Sci. China Mater.* 2022, 65, 1-8.
8. Chen, S.#; Bi, X.#; Sun, L.; Gao, J.; Huang, P.; Fan, X.; You, Z.*; Wang, Y.* Poly(Sebacoyl Diglyceride) cross-linked by dynamic hydrogen bonds: A self-healing and functionalizable thermoplastic bioelastomer. *ACS Appl. Mater. Interfaces.* 2016, 8, 20591–20599.
9. Wei, W.#; Li, J.#; Chen, S.#; Chen, M.; Xie, Q.; Sun, H.; Ruan, J.; Zhou, H.; Bi, X.; Zhuang, A.; You, Z.*; Gu, P.*; Fan, X.* In vitro osteogenic induction of bone marrow mesenchymal stem cells with a decellularized matrix derived from human adipose stem cells and in vivo implantation for bone regeneration. *J. Mater. Chem. B.* 2017, 5, 2468-2482.
10. Ni, N.#; Ji, J.#; Chen, S.#; Zhang, D.; Wang, Z.; Shen, B.; Guo, C.; Zhang, Y.; Wang, S.; Fan, X.; You, Z.*; Luo, M.*; Gu, P.* Poly(1,3-propylene sebacate) and poly(sebacoyl diglyceride): a pair of potential polymers for the proliferation and differentiation of retinal progenitor cells. *Macromol. Biosci.* 2016, 16, 1334-1347.
11. Sun, L.; Wang, M.; Chen, S.; Sun, B.; Guo, Y.; He, C.; Mo, X.; Zhu, B.; You, Z.*; Molecularly engineered metal-based bioactive soft materials – neuroactive magnesium ion/polymer hybrids. *Acta Biomater.* 2019, 85, 310.
12. Lei, D.; Yang, Y.; Chen, S.; Liu, Z.; Song, B.; Shen, A.; Yang, B.; Li, S.; Yuan, Z.; Qi, Q.; Sun, L.; Guo, Y.; Zuo, H.; Huang, S.; Yang, Q.; Mo, X.; He, C.; Zhu, B.; Jeffries, E.; Qing, F-L.; Ye, X.*; Zhao Q.*; You, Z.* A general strategy of 3D printing thermosets for diverse applications. *Mater. Horiz.* 2019, 6, 394.

20. Prof. Zhiwei Huang 黄志伟 博士, 副教授

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Brief Introduction:

2005年中国科学院上海生命科学研究院取得博士学位。先后在中国科学院上海生命科学研究院、美国贝勒医学院 (Baylor College of Medicine) 生物化学与分子生物学系作博士后研究。2011年入选上海市浦江人才计划。

Research Areas:

1. 真菌耐药性分子机制及新治疗策略研究：临床化疗、导管、插管和器官移植等引起的条件性真菌感染增多，真菌耐药性问题日益严重，本方向目的是研究真菌的耐药机制并寻找新型抗真菌药物或新的治疗措施；
2. 脂肪积累调控的生理与分子机制研究：肥胖相关的脂代谢障碍引起脂肪肝、糖尿病、心脏衰竭等代谢综合症，严重危害公众的健康。通过建立“肥胖”细胞模型，研究脂肪积累调控的分子机制寻找有效的干预措施(减肥药物)及机制；

3. 热点小分子药物的分子靶点鉴定及细胞调控机制研究：药用小分子化合物的分子靶点是药物产生药效(包括副作用)的基础，一些化合物如鬼臼毒素、氯碘喹啉等有明确的抑制肿瘤、缓解关节炎的临床治疗作用，但也有机制不明的严重副作用，本方向目的是研究一些热点药物的分子靶点明确作用机制，提出副作用消除策略。

Main Papers Published:

1. M Li, P Zhu, Z Huang*, Y Huang, X Lv, Q Zheng, Z Zhu, Z Fan, Y Yang*, P Shi*. Aspirin damages the cell wall of *Saccharomyces cerevisiae* by inhibiting the expression and activity of dolichol-phosphate mannose synthase. *FEBS Lett.* 2022, 596(3):369-380.
2. Z Huang*, H Dai, X Zhang, Q Wang, J Sun, Y Deng, P Shi. BSC2 induces multidrug resistance via contributing to the formation of biofilm in *Saccharomyces cerevisiae*. *Cell. Microbiol.* 2021 Sep 5:e13391.<https://doi.org/10.1111/cmi.13391>
3. Y Kong, Q Wang, F Cao, X Zhang, Z Fang, P Shi, H Wang, Y Shen & Z Huang*. BSC2 enhances cell resistance to AmB by inhibiting oxidative damage in *Saccharomyces cerevisiae*, *Free Radical Res.*, 2020, 54(4): 231-243,
4. X Zhang, X Kuang, F Cao, R Chen, Z Fang, W Liu*, P Shi, H Wang, Y Shen, Z Huang*. Effect of cadmium on mRNA mistranslation in *Saccharomyces cerevisiae*. *J Basic Microbiol.* 2020, 60(4): 372-379
5. R Chen, Q Zhu, Z Fang, Z Huang*, J Sun, M Peng, P Shi. Aluminum induces oxidative damage in *Saccharomyces cerevisiae*. *Can J Microbiol.*, 2020, 66(12): 713-722.
6. Z Huang*, Y Yu, Z Fang, Y Deng, Y Shen and P Shi. OLE1 reduces cadmium-induced oxidative damage in *Saccharomyces cerevisiae*. *FEMS Microbiol. Lett.*, 2018, 365, doi: 10.1093/femsle/fny193
7. Q Wang, X Du, K Ma, P Shi, W Liu, J Sun, M Peng, Z Huang*. A critical role for very long-chain fatty acid elongases in oleic acid-mediated *Saccharomyces cerevisiae* cytotoxicity. *Microbiol. Res.*, 2018, 201: 1-7.
8. Z Yang, Q Wang, K Ma, P Shi, W Liu, Z Huang*. Fluconazole inhibits the cellular ergosterol synthesis to confer synergism to berberine against yeast cells. *J. Glob. Antimicrob. Resist.*, 2018, 13: 125-130.
9. Liu Y, Zhu P, Z Huang*, Zhou L, Shi P*. Simultaneous detection of 5-fluorocytosine and 5-fluorouracil in human cells carrying CD/5-FC suicide gene system by using capillary zone electrophoresis. *J. Chromatogr. B.*, 2018, 1076: 1-7.
10. C Yan, S Wang, J Wang, H Li, Z Huang, S J un, M Peng, W Liu, P Shi. Clioquinol induces G2/M cell cycle arrest through the up-regulation of TDH3 in *Saccharomyces cerevisiae*. *Microbiol. Res.*, 2108, 214: 1-7.
11. Z Fang, Z Chen, S Wang, P Shi*, Y Shen, Y Zhang, J Xiao and Z Huang*. Overexpression of OLE1 enhances cytoplasmic membrane stability and confers resistance to cadmium in *Saccharomyces cerevisiae*. *Appl. Environ. Microb.*, 2017. 83(1): e02319-16.
12. Z Fang, W Liu, P Shi, Y Zhang, Z Huang*. Protective effect of berberine on the intestinal caecum in chicks with *Eimeria tenella*. *Avian Biol. Res.*, 2016, 9 (5): 235-239.
13. Z Huang*, L Wang, L Chen, Y Zhang, P Shi. Induction of cell cycle arrest via the p21, p27-cyclin E,A/Cdk2 pathway in SMMC-7721 hepatoma cells by clioquinol. *Acta Pharmaceut.*, 2015, 65: 463-471.

14. X Kuang, Z Fang, S Wang, P Shi*, Z Huang*. Effects of cadmium on intracellular cation homeostasis in the yeast *Saccharomyces cerevisiae*. *Toxico Enviro Chemt.*, 2015, 97(7): 922-930.
15. Z Fang, X Kuang, Y Zhang, P Shi, Z Huang*. A novel HAC1-based dual-luciferase reporter vector for detecting endoplasmic reticulum stress and unfolded protein response in yeast *Saccharomyces cerevisiae*, *Plasmid*, 2015, 79, 48-53.
16. Z Fang, M Zhao, H Zhen, L Chen, P Shi, Z Huang*. Genotoxicity of tri- and hexavalent chromium compounds in vivo and their modes of action on DNA damage in vitro. *PLoS One*. 2014, 11;9(8):e103194.
17. Z Fang, S Wang, X Du, P Shi, Z Huang*. Phosphatidate phosphatase-1 is functionally conserved in lipid synthesis and storage from human to yeast. *Acta Biol. Hung.*, 2014. 65(4): 481-492.
18. Z Huang, Z Fang, H Zhen, L Zhou, HM Amin, P Shi. Inhibition of type I insulin-like growth factor receptor tyrosine kinase by picropodophyllin induces apoptosis and cell cycle arrest in T lymphoblastic leukemia/lymphoma. *Leuk Lymphoma*. 2014, 55(8):1876-83.
19. Z Huang, K Chen, J Zhang, Y Li, H Wang, D Cui, J Tang, Y Liu, X Shi, W Li, D Liu, R Chen, RS. Sugang, X Pan. A Functional Variomics Tool for Discovering Drug-Resistance Genes and Drug Targets. *Cell Reports*, 2013, 3(2): 577-585.
20. Z Huang, S. Srinivasan, JH Zhang, KF Chen, YX Li, W Li, FA Quioco, and X Pan. Discovering thiamine transporters as targets of chloroquine using a novel functional genomics strategy. *PLoS Genet.*, 2012, 8(11): e1003083. doi:10.1371.
21. Z Huang, K Chen, T Xu, J Zhang, Y Li, W Li, A Agarwal, A Clark, J Phillips, and X Pan. Sampangine inhibits heme biosynthesis in both yeast and human. *Eukaryot. cell*, 2011, 10(11):1536-44.
22. X Pan, S Reissman, NR Douglas, Z Huang, DS Yuan, X Wang, JM McCaffery, J Frydman and JD Boeke. Trivalent Arsenic Inhibits the Functions of Chaperonin Complex. *Genetics*, 2010, 186(2):725-34.
23. Z Huang, G Chen, P Shi. Effects of emodin on the gene expression profiling of human breast carcinoma cells. *Cancer Detect. Pre.*, 2009, 32: 286-291.
24. J Zhang, X Shi, Y Li, BJ Kim, J Jia, Z Huang, T Yang, X Fu, SY Jung, Y Wang, P Zhang, ST Kim, X Pan, J Qin. Acetylation of Smc3 by Eco1 is required for S phase sister chromatid cohesion in both human and yeast. *Mol. Cell.*, 2008, 11;31(1):143-51.
25. Z Huang, RS Sugang, Y Lin, X Shi, JD Boeke & X Pan. Plasmid-chromosome shuffling for non-deletion alleles in yeast. *Nat. Methods.*, 2008 Feb;5(2):167-9.

21. Prof. Ying Lin 林瑛 理学博士，副教授，硕士生导师

Email: liny@dhu.edu.cn

Brief Introduction:

2008年获中国科学院上海生物化学与细胞生物学研究所博士学位（细胞生物学专业），加拿大Dalhousie大学医学院访问学者，中国生物化学与分子生物学会生物技术专委会青年委员。

Research Areas:

1. 蛋白质内含子与蛋白质剪接
2. 仿生蛛丝纤维的制备及成丝机理研究
3. 重组抗体表达及其在生物医药领域中的应用

Main Papers Published:

1. Li X, Jiang Y, Lin Y*. Production of antimicrobial peptide arasin-like Sp in Escherichia coli via an ELP-intein self-cleavage system. *J Biotechnol.* 2022,347:49-55.
2. Ren Q, Yu N, Zou P, He Q, Macharia DK, Sheng Y, Zhu B, Lin Y*, Wu G*, Chen Z*. Reusable Cu₂-xS-modified masks with infrared lamp-driven antibacterial and antiviral activity for real-time personal protection. *Chem Eng J.* 2022,441:136043.
3. Li X, Zhang L, Wang S, Liu X, Lin Y*. Site-specific internal protein labeling through trans-splicing. *Int J Biol Macromol.* 2021,186:40-46.
4. Tian LY, Meng Q, Lin Y*. Expression and characterization of chimeric spidroins from flagelliform-aciniform repetitive modules. *Biopolymers.* 2020,111(12):e23404.
5. Li X, Mi J, Wen R, Zhang J, Cai Y, Meng Q, Lin Y*. Wet-Spinning Synthetic Fibers from Aggregate Glue: Aggregate Spidroin 1 (AgSp1). *ACS Appl Bio Mater.* 2020,3(9):5957-5965.
6. Xu S, Li X, Zhou Y, Lin Y, Meng Q*. Structural characterization and mechanical properties of chimeric Masp1/Flag minispidroins. *Biochimie.* 2020,168:251-258.
7. Zhou Y, Shen Q, Lin Y, Xu S, Meng Q*. Evaluation of the potential of chimeric spidroins/poly(L-lactic-co-ε-caprolactone) (PLCL) nanofibrous scaffolds for tissue engineering. *Mater Sci Eng C Mater Biol Appl.* 2020,111:110752.
8. Li X, Zhang XL, Cai YM, Zhang L, Lin Y*, Meng Q*. Site specific labeling of two proteins in one system by atypical split inteins. *Int J Biol Macromol.* 2018, 109:921-931.
9. Sang FM; Yang Y; Lin Y*; Zhang ZZ*. A hot start alternative for high-fidelity DNA polymerase amplification mediated by quantum dots. *Acta Biochim Biophys Sin.* 2014,46(6):502-511.
10. Lin Y, Li MM, Song HL, Xu LL, Meng Q*, Liu XQ*. Protein trans-splicing of multiple atypical split inteins engineered from natural inteins. *PLoS ONE.* 2013,8(4):e59516.
11. Lin Y, Li W*. Assessment of XAF1 as A Biomarker to Differentiate Hepatocellular Carcinoma from Nonneoplastic Liver Tissues. *Chin J Cancer Res.* 2012,24(3):201-206.
12. Lin Y, Li W*. MBD 4--a potential substrate for protein kinase X. *Acta Biochim Biophys Sin.* 2011,43(11):916-917.

22. Prof. Xiangxin Lou 娄向新 副研究员，硕士生导师

Email: xiangxin@dhu.edu.cn

Brief Introduction:

2007 年华东师范大学生理学博士。德国洪堡大学 Charite 医学院（2008-2010 年）和日本京都大学医学院（2010-2012 年）博士后，2012 年东华大学海外引进优秀留学归国人员。

Research Areas:

1. 诱导型多能干细胞（iPS 细胞）的定向分化
2. 干细胞与骨、神经组织再生
3. 哺乳动物内耳发育与毛细胞的再生

Research Projects:

1. 上海市自然科学基金面上项目, 20ZR1401200, 模拟听觉柯蒂氏器类器官诱导毛细胞三维再生的机制研究, 2020/07-2023/06, 主持
2. 上海中医药大学附属岳阳中西医结合医院横向课题, 105190308, 淫羊藿总黄酮经 BMP7 通路调节棕/白色脂肪比例影响 ApoE 基因敲除小鼠动脉粥样硬化病理环境的实验研究, 2019/06-2022/11, 主持
3. 上海楚豫生物科技有限公司横向课题, 105180731, 三维纳米纤维支架在骨组织的修复与再生中的应用, 2018/11-2022/11, 主持
4. 中央高校科研专项基金重点项目, 16D110520, 负载骨细胞外基质的纳米纤维支架的制备及其对人源 iPS 细胞的成骨作用研究, 2016/01-2018/12, 主持
5. 上海市自然科学基金面上项目, 15ZR1400500, 仿生复合纳米纤维对人源 iPS-MSCs 的成骨诱导作用及其机制研究, 2015/01-2017/12, 主持
6. 国家自然科学基金项目, 31570969, 仿生超细“中性纤维”的设计制备与修复肌腱缺损功效评价, 2016/01-2019/12, 参与
7. 上海市科委基础研究重点项目, 14JC1490100, 用于原位骨组织工程的多功能仿生纳米纤维支架的构建, 2014/09-2017/08, 参与
8. 中央高校科研专项基金项目, 2232013D3-13, 壳聚糖纳米纤维对 iPS 细胞诱导及分化的研究, 2013/01-2015/12, 主持

Main Papers Published:

1. Yunliang Wu, Lei Zhou, Yuexia Li, **Xiangxin Lou***. Osteoblast-derived extracellular matrix coated PLLA/silk fibroin composite nanofibers promote osteogenic differentiation of bone mesenchymal stem cells. **J Biomed Mater Res.** 2021, 1-10.
2. Siying Zhong, Xufeng He, Yuexia Li, **Xiangxin Lou***. Conditioned medium enhances osteogenic differentiation of iPS cell-derived mesenchymal stem cells. **Tissue Engineering and Regenerative Medicine**, 2019, 16(2):141-150.
3. Yuexia Li, Yunliang Wu, Hongmei Liu, **Xiangxin Lou***. Influence of DAPT on neomycin ototoxicity in cultured organ of Corti explants. **Neuro Report**, 2018, 29(12):1011-1016.
4. YunLiang Wu, Chunping Qin, Xianliu Wang, **Xiangxin Lou***. Enhanced proliferation of BMSCs supported by nanofibrous scaffold containing osteoblasts-derived extracellular matrix. **Journal of Controlled Release**, 2017, 259: e184-185.
5. YunLiang Wu, Chunping Qin, Xianliu Wang, **Xiangxin Lou***. Nanofibrous Scaffold Containing Osteoblast-derived Extracellular Matrix for the Proliferation of BMSCs. **Journal of Donghua University (English Edition)**, 2017, (06): 756-760.
6. Jing Xie, Chen Peng, Qinghua Zhao, Xianliu Wang, Huihua Yuan, Liangliang Yang, Kai Li, **Xiangxin Lou***, Yanzhong Zhang*. Osteogenic differentiation and bone regeneration of iPSC-MSCs supported by a biomimetic nanofibrous scaffold. **Acta Biomaterialia**, 2016, 29:365-379.
7. **Xiangxin Lou***. Induced pluripotent stem cells as a new strategy for osteogenesis and bone regeneration. **Stem Cell Rev and Rep**, 2015, 11:645-651.
8. **Xiangxin Lou***, Huihua Yuan, Jing Xie, Xianliu Wang, Liangliang Yang, Yanzhong Zhang. Growth factors have a protective effect on neomycin-induced hair cell loss. **Cell Biology International**, 2015, 39: 65-73.
9. **Xiangxin Lou**, Siying Zhong, Jing Xie, Yanzhong Zhang. Osteoblast conditioned medium

stimulates osteogenic differentiation of iPS cell-derived mesenchymal stem cells. **Tissue Engineering Part A**, 2015, 21(S1): S-211.

10. Dongshu Du, **Xiangxin Lou***. Generation of induced pluripotent stem cells from neonatal mouse cochlear cells, **Differentiation**, 2014, 87: 127-133.
11. **Xiangxin Lou**, Youyi Dong, Jing Xie, Xianliu Wang, Liangliang Yang, Masaaki Tokuda, Yanzhong Zhang. Comparing the cultivated cochlear cells derived from neonatal and adult mouse. **Journal of translational medicine**, 2014, 12(1): 150.
12. **Xiangxin Lou***, Jing Xie, Xianliu Wang, Liangliang Yang, Yanzhong Zhang. Comparison of sphere-forming capabilities of the cochlear stem cells derived from apical, middle and basal turns of murine organ of Corti. **Neuroscience Letters**, 2014, 579: 1-6.

23. Prof. Siyu Ni 倪似愚 副研究员，硕士生导师

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Brief Introduction:

2006 年获中国科学院上海硅酸盐研究所工学博士学位。美国东北大学访问学者。

Research Areas:

1. 硒基生物活性材料的设计、制备与性能调控研究
2. 新型多糖基水凝胶的构建及应用研究
3. 生物材料表面纳米化和功能化研究

Research Projects:

1. 上海市自然科学基金，19ZR1401000、材料表面纳米结构与活性元素的联合作用对免疫成骨效应调控研究主持
2. 国家自然科学基金青年基金项目，50902020、多孔阳极氧化铝表面有序纳米孔阵列对细胞及蛋白吸附行为的影响主持
3. 中央高校基本科研业务费专项基金，2015D110535、基于静电纺丝技术的 CaO-SiO₂-Se 纳米生物玻璃纤维的制备及成骨与抗菌双功效体系的构建主持
4. 中央高校基本科研业务费专项基金，2232014D3-16、316L 不锈钢表面成骨与抗菌活性双功效体系的构建及性能研究主持
5. 中央高校基本科研业务费专项基金，2011D10524、有序/无序纳米孔阵列对成骨细胞行为影响的研究主持
6. 高性能陶瓷和超微结构国家重点实验室开放课题基金，SKL201709SIC、具有二维有序纳米阵列与可控活性离子释放的生物活性材料的制备及相关性能研究主持
7. 上海泉源能源科技有限公司，10517456、新型硒基纳米复合材料的研制主持
8. 联合利华(中国)投资有限公司所属联合利华中国研究所，研究生联合培养协议
9. 浙江工业大学“重中之重”开放课题，明胶-生物活性玻璃复合微球的制备及载药性能研究主持
10. 中央高校基本科研业务费专项基金，2009D10519、发光稀土氟化物纳米晶的聚合物表面修饰主持

Main Papers Published:

1. Chu YT, Liu L, Chen DQ, Yang TT, **Ni SY**, Yang G, Nie HL. Self-supporting crumpled graphene balls as stable and reusable adsorbents for solid-phase extraction. **Carbon** 2021; 181: 389-397.

2. Ni SY, Zhai D, Huan ZG, Zhang TL, Chang J, Wu CT. Nanosized concave pits/convex dots microarray for immunomodulatory osteogenesis and angiogenesis. **Nanoscale** 2020; 12(31): 16474-16488.
3. Chen JJ, Wei YY, Yang XX, Ni SR, Hong F, Ni SY*. Construction of selenium-embedded mesoporous silica with improved antibacterial activity. **Colloids and Surfaces B: Biointerfaces** 2020; 190: 110910.
4. Wei YY, Ma YY, Chen JJ, Yang XX, Ni SR, Hong F, Ni SY*. Novel ordered TiO₂ nanodot array on 316LSS with enhanced antibacterial properties. **Materials Letters** 2020; 266: 127503.
5. Hu HR, Cui R, Mei L, Ni SR, Sun H, Zhang CQ, Ni SY*. Cytocompatibility and bone-forming potential of Se-coated 316L stainless steel with nano-pit arrays. **Journal of Biomedical Nanotechnology** 2018; 14: 716-724.
6. Chen ZT, Ni SY (Co-first author), Han SW, Crawford R, Lu S, Wei F, Chang J, Wu CT and Xiao Y Nanoporous microstructures mediate osteogenesis by modulating the osteo-immune response of macrophages. **Nanoscale** 2017; 9: 706-718.
7. Ni SY*, Mei L, Ni SR, Cui R, Li XH, Hong F, Webster TJ, Wu CT. Preparation of CaO-SiO₂-CuO bioactive glasses-embedded anodic alumina with improved biological activities. **Biomedical Glasses** 2017; 3: 67-78.
8. Ni SY*, Li XH, Yang PA, Ni SR, Hong F, Webster TJ. Enhanced apatite-forming ability and antibacterial activity of porous anodic alumina embedded with CaO-SiO₂-Ag₂O bioactive materials. **Materials Science and Engineering C** 2016; 58: 700-708.
9. Li XH, Ni SY*, Zhou XP. Highly ordered porous anodic alumina with large diameter pores fabricated by an improved two-step anodization approach. **Journal of Nanoscience and Nanotechnology** 2015; 15:1725-1731.
10. Li XH, Ni SY*, Webster TJ. In Vitro apatite formation on porous anodic alumina induced by a phosphorylation treatment. **Journal of Biomaterials Applications** 2014; 29: 321-328.
11. Ni SY*, Li CY, Ni SR, Chen T, Webster TJ. Understanding improved osteoblasts behavior on select nano-porous anodic alumina. **International Journal of Nanomedicine** 2014; 9: 3325-3334.
12. Ni SY, Sun LL, Ercan B, Liu LT, Ziemer K, Webster TJ. A mechanism for the enhanced attachment and proliferation of fibroblasts on anodized 316L stainless steel with nano-pit arrays. **Journal of Biomedical Materials Research Part B: Applied Biomaterials** 2014; 102: 1297-1303.

24. Prof. Huali Nie 聂华丽 上海市浦江人才，江苏省“六大高峰人才”，苏州市吴江区“创新创业人才”

Email: niehuali@dhu.edu.cn

Brief Introduction:

东华大学博士，美国西北大学访问学者

Requirements for the future international students:

生物、材料和化学等专业背景的学术和专业学位研究生

Research Areas:

1. 新型生物医用材料：功能面膜、护肤护发、伤口敷料等
2. 仿生材料：光子晶体组装、生物传感器
3. 智能响应性材料：环境响应水凝胶材料、环境污染物及生物分子检测

Research Projects:

1. 山东省自然科学基金：电喷辅助的 LB 技术制备结构色纤维及生色机理研究，2021/05-2024/04，在研，主持。
2. 上海市“一带一路”国际合作项目：基于 LB 技术制备荧光猝灭试纸条及其莱克多巴胺检测，2019/11/01-2022/10/30，在研，主持。
3. 上海自然科学基金自由探索项目：基于 LB 自组装结构色纤维的制备及其性能研究，2018/06-2021/05，已结题，主持。
4. 广东佛山迭蓓丝生物科技有限公司，化妆品原料的提取与开发，2015.9~2020.8，已结题，主持。
5. 苏州绿中缘纺织有限公司，石墨烯基蚕丝功能纤维的研发，2018.1~2020.12，已结题，主持。
6. 上海市科委“浦江人才”计划项目：基于皱褶石墨烯球的新型固相萃取技术研究，2016/07-2018/06，已结题，主持。
7. 上海市自然科学基金面上项目，基于皱褶石墨烯球的新型纳米固相萃取剂及其在环境分析中的应用，2015/07-2017/06，已结题，主持。
8. 国家自然科学基金青年基金，新型智能双水相体系的构建、相行为与萃取分离性能研究，2011/01-2013/12，已结题，主持。
9. 教育部博士点新教师基金，染料亲和-热敏新型双水相体系的构建、相行为与萃取分离性能研究，2009/01-2010/12，已结题，主持。

Main Papers Published:

1. Shan Du, He, Tiantian He, Hua-Li Nie*, Guang Yang*, High-performance wigs via the Langmuir-Blodgett deposition of Keratin/graphene oxide nanocomposite, *ACS Applied Materials & Interfaces*, 14 (2022) 27233–27241. (IF=9.229)
2. Y.T. Chu, L. Liu, D.Q. Chen, T.T. Yang, S.Y. Ni, G. Yang, H.L. Nie*, Self-supporting crumpled graphene balls as stable and reusable adsorbents for solid-phase extraction, *Carbon*, 181 (2021) 389-397. (IF=9.594)
3. Y. Chen, Y. Li, X. Yang, Z. Cao, H.L. Nie, Y. Bian, G. Yang*, Glucose-Triggered in situ Forming Keratin Hydrogel for the Treatment of Diabetic Wounds, *Acta Biomaterialia*, 125 (2021) 208-218. (IF=8.947)
4. H.Y. Huang, C.H. Fan, M. Li, H.L. Nie, F.B. Wang, H. Wang, R. Wang, J.B. Xia, X. Zheng, X.L. Zuo, J.X. Huang*, COVID-19: A call for physical scientists and engineers, *Acs Nano*, 14 (2020) 3747-3754. (IF=15.881)
5. Hua-Li Nie, Jiaying Huang*. Working with minions: Assisted scalable bio-nanomanufacturing of functional materials, *Matter*, 1 (2019) 1430–1432.
6. Deqiang Chen, Xiang Liu, Huali Nie*, Crumpled graphene balls as rapid and efficient adsorbents for removal of copper ions, *Journal of Colloid and Interface Science*, 530 (2018) 46–51. (IF=8.128)
7. Huiqin Yang, Deqiang Chen, Ruiqiu Xiao, Hongzhen Guo, Xiang Liu, Huali Nie*, Facile fabrication of pH-sensitive peptide-inorganic hollow spheres using a template-free

- method, *Journal of Materials Chemistry B*, 5 (2017) 4569-4573. (IF=6.331)
8. Lin Liu, Shaoqing Bai, Huiqin Yang, Shubai Li, Jing Quan, Limin Zhu, Huali Nie*, Controlled release from thermo-sensitive PNVCL-co-MAA electrospun nanofibers: The effects of hydrophilicity/hydrophobicity of a drug, *Materials Science and Engineering C*, 67 (2016). (IF=5.234)
 9. Gong X, Branford-White C, Tao L, Li S, Quan J, H.L. Nie*, Zhu L. Preparation and characterization of a novel sodium alginate incorporated self-assembled Fmoc-FF composite hydrogel. *Materials Science and Engineering C* 58 (2016) 478-486. (IF=5.234)
 10. Hua-Li Nie, Xuan Dou, Zhihong Tang, Hee Dong Jang and Jiaying Huang*. High yield spreading of water-miscible solvents on water for Langmuir-Blodgett assembly. *Journal of the American Chemical Society*, 137 (2015)10683-10688. (IF=15.419)

25. Prof. Jing Quan 权静 副教授，硕士研究生导师

Email: jquan@dhu.edu.cn

Brief Introduction:

2007年毕业于浙江大学化学系获理学博士学位，同年7月加入东华大学。

Research Areas:

1. 多功能有机/无机纳米平台的构建及其肿瘤等疾病多模态治疗应用；
2. 聚合物医用材料设计及生物应用；
3. 智能响应生物纳米医药材料；
4. 糖基功能化药物递送系统。

Research Projects:

1. 广西区域性高发肿瘤早期防治研究重点实验室开放课题，基于精细化学结构可控的多功能 GlycoAuNCs-Lectin/DOX 复合靶向载药纳米平台的构建及其肿瘤协同治疗研究，**主持**。
2. 东华大学生态纺织教育部重点实验室，基于结构可控的新型多功能糖基嵌段共聚物 @AuNPs/PLCL 复合纳米纤维的构建及生物识别开发，**主持**。
3. 复旦大学聚合物分子工程国家重点实验室开放课题，基于结构和功能可控的 Glyco@AuNPs 组装体系的构建及生物识别研究，**主持**。
4. 教育部国际交流外籍专家顺访项目，基于结构功能可控的糖基聚合物自组装体系的机理研究，**主持**。
5. 东华大学生态纺织教育部重点实验室，基于生物识别机制的新型温敏性糖基聚合物纳米纤维的设计与性质研究，**主持**。
6. 国家自然科学基金青年基金，基于酶促合成-RAFT 聚合制备的新型温敏性糖基聚合物胶束的构建与生物识别，**主持**。
7. 中央高校基本科研业务费专项资金项目，酶促合成/静电纺丝制备结构可控的含糖纳米纤维膜及其酶固定化，**主持**。
8. 中央高校基本科研业务费专项资金项目，基于结构可控的含糖聚合物纳米纤维膜的制备及其生物识别行为研究，**主持**。
9. 东华大学纤维材料改性国家重点实验室开放课题基金，糖基化纳米纤维膜的制备及其靶向性研究，**主持**。

Main Papers Published:

1. Zheng Y.L., Zhang Y.N., Zhang T.Y., Cai H., Xie X.T., Yang Y.B., **Quan J.***, Wu H. AuNSsGlycopolymer-ConA hybrid nanoplatfom for photothermal therapy of hepatoma cells. **Chem. Eng. J.**,124460,**2020**.
2. Zheng Y.L., Zhang Y.N., Wu H., Shao D.J., Shen F.W., Cai H., **Quan J.***Galactose-functionalized GlycoAuNR as a photothermal conversion complex: Its binding to lectin RCA(120) and hepatoma-targeting therapy. **J. Biomater. Appl.**, 34 (9): 1300-1314, **2020**.
3. Shen F.W., Zhou K.C., Cai H., Zhang Y.N., **Quan J.***. One-pot synthesis of thermosensitive glycopolymers grafted gold nanoparticles and their lectin recognition. **Colloid. Surf. B-Biointerfaces**,173:504-511, **2019**.
4. **Quan J.***,Shen F.W., Cai H., Zhang Y.N., Wu H.*. Galactose-Functionalized Double-Hydrophilic Block Glycopolymers and Their Thermoresponsive Self-Assembly Dynamics. **Langmuir**, 34 (36):10721-10731, **2018**.
5. Shao D.J., Wu H.B., Shen F.W., Wu H., **Quan. J.***. Carbon Dioxide-modified PEI as A Novel Gene Delivery Vector and Its In-vitro Validation. **J. Biomater. Appl.**, 31(9):1257-1266, **2017**.
6. Sun K., Xu M.R., Zhou K.C., Nie H.L.,**Quan J.***, Zhu L.M.*. Thermoresponsive diblock glycopolymer by RAFT polymerization for lectin recognition. **Mat. Sci. Eng. C-Mater.**, 68, 172-176, **2016**.
7. Sun K., Wu H.B., Xu M.R., Nie H.L.,**Quan J.***, Zhu L.M.*. Lung-targeted thermosensitive double-hydrophilic block glycopolymer micelles by RAFT polymerization. **J. Control. Release**, 213(1), e65, **2015**.
8. Xu M.R., Shi M., Bremner D.H., Sun K., Nie H.L., **Quan J.***, Zhu L.M.*. Facile Fabrication of P(OVNG-co-NVCL) Thermoresponsive Double-Hydrophilic Glycopolymer Nanofibers for Sustained Drug Release. **Colloid. Surf. B-Biointerfaces**,135,209-216, **2015**.
9. Wu H.B., Bremner D.H., Nie H.L., **Quan J.***, Zhu L.M.*. Electrospun polyvinyl alcohol/carbon dioxide modified polyethyleneimine composite nanofiber scaffolds. **J. Biomater. Appl.**, 29(10):1407-1417, **2015**.
10. Sun K., Annie Bligh S. W., Nie H.L., **Quan J.***, Zhu L.M.*. Lectin Recognizable Thermoresponsive Double Hydrophilic Glycopolymers Micelles by RAFT Polymerization. **RSC Adv.**, 4(66), 34912-34921, **2014**.
11. Jin CC, Li HY, Wei R, Williams GR, Branford-White C.Nie HL, **Quan J***, Zhu LM*. Self-assembled liposomes from electrosprayed polymer-based microparticles. **Colloid Polym. Sci**, 292(9), 2325-2334, **2014**.
12. Wang L, Williams GR., Nie HL, **Quan J***, Zhu LM*. Electrospun glycopolymer fibers for lectin recognition. **Polym. Chem.** 5, 3009-3017, **2014**.
13. Lou SF, Wang L, Williams GR., Nie HL, **Quan J***, Zhu LM*. Galactose Functionalized Injectable Thermoresponsive Microgels for Sustained Protein Release. **Colloid Surf. B-Biointerfaces**, 113(1), 368-374, **2014**.

14. **Quan J**, Liu ZQ, Branford-White C, Nie HL, Zhu LM*, Fabrication of Glycopolymer/MWCNTs Composite Nanofibers and Its Enzyme Immobilization Applications. **Colloid. Surf. B-Biointerfaces**, 121,417-424, **2014**.
15. Lou SF, Zhang H, Nie HL, **Quan J***, Zhu LM*. Temperature-controlled self-assembly from thermosensitive double hydrophilic glycopolymer of poly(N-isopropyl acryamide-co-6-O-vinylsuccinoyl-d-glucose). **J. Control. Release**, 172(1), e137, **2013**.
16. Zhang H, Lou SF, Nie HL, **Quan J***, Zhu LM*. Preparation of core-shell structured PVP-NSPs/PLLA binary-drug loaded complex fiber mats by electrospinning; in vitro release and antimicrobial properties. **J. Control. Release**, 172(1), e37, **2013**.
17. Lou SF, Zhang H, Williams GR., Branford-White C., Nie HL, **Quan J***, Zhu LM*. Fabrication and Aggregation of Thermoresponsive Glucose-Functionalized Double Hydrophilic Copolymers. **Colloid Surf. B-Biointerfaces**, 105(5), 180-186, **2013**.
18. **Quan J**, Wu CY, Xie JG, Zhu LM*, Branford-White C, Novel electrospun nanofibers incorporating polymeric prodrugs of ketoprofen: preparation, characterization and *in vitro* sustained release, **J. Appl. Polym. Sci.**, 130(3), 1570-1577, **2013**.

26. Prof. Hongsheng Wang 王红声 副研究员，硕士生导师

Email: whs@dhu.edu.cn

Brief Introduction:

上海交通大学分子生物学博士，阿德莱德大学博士后访问学者

Research Areas:

1. 新型经皮给药（免疫）系统的构建及应用研究
2. 生物材料与组织再生相关研究

主持或参与多项国家及上海市科研项目，包括国家自然科学基金、国家重点研发专项计划、上海市国际合作项目、上海市自然科学基金等。

Main Papers Published:

1. Di Jiang, Yuxin Jiang, Kaili Wang, Zhe Wang, Yifei Pei, Jinglei Wu, Chuanglong He, Xiumei Mo, **Hongsheng Wang***. Binary ethosomes-based transdermal patches assisted by metal microneedles significantly improve the bioavailability of carvedilol. **Journal of Drug Delivery Science and Technology**, 2022, 74: 103498.
2. Kaili Wang, Xiaoyun Wang, Di Jiang, Yifei Pei, Zhe Wang, Xiaojun Zhou, Jinlei Wu, Xiumei Mo, **Hongsheng Wang***. Delivery of mRNA vaccines through non-invasive transcutaneous route effectively inhibits tumor growth. **Composites Part B: Engineering**, 2022, 233: 109648.
3. Xinran Song, Yuxin Jiang, Weixing Zhang, Gomaa Elfawal, Kaili Wang, Di Jiang, Huoyan Hong, Jinglei Wu, Chuanglong He, Xiumei Mo, **Hongsheng Wang***. Transcutaneous Tumor Vaccination Combined With aPD-1 Treatment Produces a Synergistic Antitumor Effect. **Acta Biomaterialia**. 2022, 140: 247-260.
4. Huoyan Hong, Xiaoyun Wang, Xinran Song, Gomaa El Fawal, Kaili Wang, Jiang Di, Yifei Pei, Zhe Wang, **Hongsheng Wang***. Transdermal delivery of interleukin-12 gene targeting dendritic cells enhances the anti-tumour effect of programmed cell death

- protein 1 monoclonal antibody. **Biomater Transl.** 2021, **2**(2): 151-164.
5. HONG Huoyan, ZHANG Dongdong, LIN Si, HAN Feng, WANG Kaili, JIANG Di, WU Jinglei, MO Xiumei and **WANG Hongsheng***. Green Electrospun Silk Fibroin Nanofibers Loaded with Cationic Ethosomes for Transdermal Drug Delivery. **Chem. Res. Chinese Universities**, 2021, 37(3): 488-495.
 6. Xingxing Yang, Xiaoyun Wang, Huoyan Hong, Gomaa Elfawal, Si Lin, Jinglei Wu, Yuxin Jiang, Chuanglong He, Xiumei Mo, Guoyin Kai, **Hongsheng Wang***. Galactosylated chitosan-modified ethosomes combined with silk fibroin nanofibers is useful in transcutaneous immunization. **Journal of Controlled Release.**, 2020, 327: 88-99.
 7. Gomaa F. El Fawal, Huoyan Hong, Xinran Song, Jinglei Wu, Meiqi Sun; Lin Zhang, Chuanglong He, Xiumei Mo, **Hongsheng Wang***. Polyvinylalcohol/hydroxyethylcellulose containing ethosomes as a carrier for transdermal drug delivery applications. **Applied Biochemistry and Biotechnology.** 2020, 191, 1624-1637.
 8. Gomaa El Fawal, Huoyan Hong, Xinran Song, Jinglei Wu, Meiqi Sun, Chuanglong He, Xiumei Mo, Yuxin Jiang, **Hongsheng Wang***. Fabrication of antimicrobial films based on hydroxyethylcellulose and ZnO for food packaging application. **Food Packaging and Shelf Life**, 2020, 23, 100462.
 9. Ma L, Wang X, Wu J, Zhang D, Zhang L, Song X, Hong H, He C, Mo X, Wu S*, Kai G*, **Wang H***. Polyethylenimine and sodium cholate-modified ethosomes complex as multidrug carrier for the treatment of melanoma through transdermal delivery. **Nanomedicine (Lond)**. 2019, 14(18): 2395-2408.
 10. Dongdong Zhang, Linpeng Fan, Linlin Ma, Junqiu Liu, Kai Zhou, Xinran Song, Meiqi Sun, Xiumei Mo, Chuanglong He, Yuxin Chen, and **Hongsheng Wang***. Helicobacter pylori Ribosomal Protein-A2 Peptide/Silk Fibroin Nanofibrous Composites as Potential Wound Dressing. **J. Biomed. Nanotechnol.**, 2019, 15: 507-517.
 11. Linlin Ma, Dongdong Zhang, Xingxing Yang, Lin Zhang, Jin Chu, Guoyin Kai, Chuanglong He, Xiumei Mo and **Hongsheng Wang***. Cirsium Japonicum DC ingredients-loaded silk fibroin nanofibrous matrices with excellent hemostatic activity. **Biomed. Phys. Eng. Express**, 2018, 4(2): 025035.
 12. Linpeng Fan, Zengxiao Cai, Xiaohua Geng, **Hongsheng WANG***, Jingliang Li, Chuanglong He, Xiumei Mo, Xungai Wang. Fabrication and characterization of compound vitamin B/silk fibroin nanofibrous matrices. **Journal of Controlled Release.**, 2017, 259: e85-e86.
 13. Xingxing Yang, Linpeng Fan, Linlin MA, Yunyi Wang, Si Lin, Fan Yu, Xiaohan Pan, Gejie Luo, Dongdong Zhang, **WANG Hong-sheng***. Green electrospun Manuka honey/silk fibroin fibrous matrices as potential wound dressing. **Materials & Design**, 2017, 119: 76-84.
 14. Xingxing Yang, Xiaoyun Wang, Fan Yu, Linlin Ma, Xiaohan Pan, Gejie Luo, Si Lin, Xiumei Mo, Chuanglong He and **Hongsheng Wang***. Hyaluronic acid/EDC/NHS- crosslinked green electrospun silk fibroin nanofibrous scaffolds for tissue engineering. **RSC Advances**, 2016, 6: 99720 - 99728.
 15. Si Lin, Mengxia Chen, Huayue Jiang, Linpeng Fan, Binbin Sun, Fan Yu, Xingxing Yang, Xiangxin Lou, Chuanglong He, **Hongsheng Wang***. Green electrospun grape seed

extract-loaded silk fibroin nanofibrous mats with excellent cytocompatibility and antioxidant effect. **Colloids and Surfaces B: Biointerfaces**, 2016, 139:156-163.

27. Prof. Jinglei Wu 吴晶磊 副研究员, 硕士生导师

Email: jw@dhu.edu.cn

Brief Introduction:

2017年8月毕业于德克萨斯大学生物医学工程专业。

Research Areas:

1. 脱细胞基质材料在组织修复与再生的应用。
2. 免疫与炎症调节生物材料。
3. 可注射型生物医用水凝胶。

Research Projects:

1. 仿生周围神经移植产品研发及应用, 科学技术部国家重点研发项目(2021YFC2400802)
2. 可注射脱细胞基质/PRP水凝胶对半月板修复与再生的研究, 国家自然科学基金青年基金项目(31900949)
3. 静电纺纳米纤维三维支架构建心肌纤维化模型的研究, 上海市科学技术委员会“科技创新行动计划”“一带一路”国际合作项目(19440741300)

Main Papers Published:

1. M. Liu, R. Wang, J. Liu, W. Zhang, Z. Liu, X. Lou, H. Nie, H. Wang, X. Mo, A.I. Abd-Elhamid, R. Zheng, **J. Wu***, Incorporation of magnesium oxide nanoparticles into electrospun membranes improves pro-angiogenic activity and promotes diabetic wound healing, *Biomater. Adv.*, 133 (2022) 112609. <https://doi.org/10.1016/j.msec.2021.112609>.
2. X. Wang, Y. Ding, H. Li, X. Mo, **J. Wu***, Advances in electrospun scaffolds for meniscus tissue engineering and regeneration, *J. Biomed. Mater. Res. B Appl. Biomater.*, 110 (2022) 923-949. <https://www.ncbi.nlm.nih.gov/pubmed/34619021>.
3. H. Li, X. Wang, J. Liu, Z. Liu, H. Wang, X. Mo, **J. Wu***, Nanofiber configuration affects biological performance of decellularized meniscus extracellular matrix incorporated electrospun scaffolds, *Biomed. Mater.*, 16 (2021) 065013. <https://www.ncbi.nlm.nih.gov/pubmed/34547733>.
4. T. Zhu, H. Gu, H. Zhang, H. Wang, H. Xia, X. Mo, **J. Wu***, Covalent grafting of PEG and heparin improves biological performance of electrospun vascular grafts for carotid artery replacement, *Acta Biomater.*, 119 (2021) 211-224. <https://www.ncbi.nlm.nih.gov/pubmed/33181359>.
5. M. Liu, X. Wang, H. Li, C. Xia, Z. Liu, J. Liu, A. Yin, X. Lou, H. Wang, X. Mo, **J. Wu***, Magnesium oxide-incorporated electrospun membranes inhibit bacterial infections and promote the healing process of infected wounds, *J. Mater. Chem. B*, 9 (2021) 3727-3744. <https://www.ncbi.nlm.nih.gov/pubmed/33904568>.
6. X. Xie, D. Li, Y. Chen, Y. Shen, F. Yu, W. Wang, Z. Yuan, Y. Morsi, **J. Wu***, X. Mo, Conjugate Electrospun 3D Gelatin Nanofiber Sponge for Rapid Hemostasis, *Adv. Healthc. Mater.*, 10 (2021) e2100918. <https://www.ncbi.nlm.nih.gov/pubmed/34235873>.
7. **J. Wu**, J. Xu, Y. Huang, L. Tang, Y. Hong, Regional-specific meniscal extracellular matrix hydrogels and their effects on cell-matrix interactions of fibrochondrocytes, *Biomed.*

- Mater., 17 (2021) 014105. <https://doi.org/10.1088/1748-605X/ac4178>.
8. X. Wang, J. Zhu, B. Sun, Q. Jin, H. Li, C. Xia, H. Wang, X. Mo, **J. Wu***, Harnessing electrospun nanofibers to recapitulate hierarchical fibrous structures of meniscus, *J. Biomed. Mater. Res. B Appl. Biomater.*, 109 (2021) 201-213. <https://www.ncbi.nlm.nih.gov/pubmed/32761755>.
 9. X. Liu, X. He, D. Jin, S. Wu, H. Wang, M. Yin, A. Aldalbahi, M. El-Newehy, X. Mo, **J. Wu***, A biodegradable multifunctional nanofibrous membrane for periodontal tissue regeneration, *Acta Biomater.*, 108 (2020) 207-222. <https://www.ncbi.nlm.nih.gov/pubmed/32251784>.
 10. J. Wu, Q. Ding, A. Dutta, Y. Wang, Y.H. Huang, H. Weng, L. Tang, Y. Hong, An injectable extracellular matrix derived hydrogel for meniscus repair and regeneration, *Acta Biomater.*, 16 (2015) 49-59. <https://doi.org/10.1016/j.actbio.2015.01.027>

28. Prof. Wen Xue 薛雯 副教授

Email: xuewen@dhu.edu.cn

Brief Introduction:

2019 年于东华大学获得博士学位，2019 年至 2022 年于密歇根大学安娜堡分校和内布拉斯加大学医学中心从事博士后研究。

Research Areas:

1. 脱细胞基质在组织再生中的应用
2. 外泌体的检测及在疾病诊断中的应用
3. 多孔水凝胶的开发及应用

Main Papers Published:

1. Wen Xue, Wen Shi, Mitchell Kuss, Yunfan Kong, Olawale A Alimi, Hanjun Wang, Dominick J DiMaio, Cunjiang Yu, Bin Duan*. A dual-network nerve adhesive with enhanced adhesion strength promotes transected peripheral nerve repair. *Advanced Functional Materials*, 2022, 2209971.
2. Wen Xue, Seok-Yeong Yu, Mitchell Kuss, Yunfan Kong, Wen Shi, Soonkyu Chung, So-Youn Kim*, Bin Duan*. 3D bioprinted white adipose model for in vitro study of cancer-associated cachexia induced adipose tissue remodeling. *Biofabrication*, 2022, 14(3), 034106.
3. Wen Xue, Yunfan Kong, Rafay Abu, Pooja Roy, Sung-Ho Huh, Mitchell Kuss, Vikas Kumar, Bin Duan*. Regulation of Schwann cell and DRG neurite behaviors within decellularized peripheral nerve matrix. *ACS Applied Materials & Interfaces*, 2022, 14, 8693–8704.
4. Wen Xue, Bo Liu, Haipeng Zhang, Sangjin Ryu, Mitchell Kuss, Devanshi Shukla, Guoku Hu, Wen Shi, Xiping Jiang, Yuguo Lei, Bin Duan*. Controllable fabrication of alginate/poly-L-ornithine polyelectrolyte complex hydrogel networks as therapeutic drug and cell carriers. *Acta Biomaterialia*, 2022, 138, 182-192.
5. Wen Xue, Wen Shi, Yunfan Kong, Mitchell Kuss, Bin Duan*. Anisotropic scaffolds for peripheral nerve and spinal cord regeneration. *Bioactive Materials*, 2021, 6, 4141-4160. (ESI-Hot Paper)

6. Wen Xue, Xiaotian Tan, Maung Kyaw Khaing Oo, Girish Kulkarni, Mark A. Ilgen, Xudong Fan*. Rapid and sensitive detection of drugs of abuse in sweat by multiplexed capillary based immuno-biosensors. *Analyst*, 2020, 145, 1346-1354.
7. Wen Xue, Yang Hu, Fujun Wang*, Xudong Yang, Lu Wang. Fe₃O₄/ poly(caprolactone) (PCL) electrospun membranes as methylene blue catalyst with high recyclability. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 2019, 594, 115-121.
8. Wen Xue, Peifeng Chen, Fujun Wang*, Lu Wang*. Melt spinning of nano-hydroxyapatite and polycaprolactone composite fibers for bone scaffold application. *Journal of Material Science*, 2019, 54(11), 8602-8612.
9. Wen Xue, Liheng Gao, Xuan Fang, Fan Zhao, Jing Gao, Guoping Guan, Jing Lin, Fujun Wang*, Lu Wang*. Experimental and analytical evaluation on the mass transfer performance of braided stent-grafts. *Journal of the Mechanical Behavior of Biomedical Materials*, 2018, 86, 98-104.
10. Wen Xue, Jing Gao*, Jing Lin, Fujun Wang, Guoping Guan, Lu Wang*. Deformation mechanisms of prototype composite braided stent-grafts in bending fatigue for peripheral artery application. *Journal of the Mechanical Behavior of Biomedical Materials*, 2018, 78, 74-81.

29. Prof. Guang Yang 杨光 副教授, 上海市“浦江计划”、“晨光计划”人才项目入选者

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Requirements for the future international students:

生物、材料和化学等专业背景的研究生

Brief Introduction:

2009 年获浙江大学生物化工专业博士学位, 美国加州大学洛杉矶分校生物工程系、美国北卡罗来纳大学教堂山分校生物医学工程系访问学者。

Research Areas:

1. 天然生物材料及组织工程, 尤其是新型角蛋白基水凝胶材料的构建及其在创伤修复等领域的应用
2. 药物递送系统, 包括局部给药系统及经皮给药系统等

Research Projects:

1. 可控透皮给药治疗类风湿关节炎及其减毒增效作用评价, 上海市自然科学基金项目, 主持。
2. 微针介导胺碘酮局部长效给药治疗心脏术后房颤, 上海市科委“浦江计划”项目, 主持。
3. 角蛋白矿化制备高荧光纳米金簇及汞离子检测应用, 中国博士后科学基金(一等), 主持。
4. 基于生物模板效应的 BC/AgNPs 功能复合材料的设计合成及性能研究, 国家自然科学基金项目, 主持。
5. 生物纳米纤维基小径血管的构建及其性能研究, 上海市自然科学基金项目, 主持。
6. 细菌纤维素基功能医用纳米材料的绿色合成及应用基础研究, 上海市教育委员会“晨光计划”项目, 主持。
7. 载银纳米纤维敷料的生物相容性研究, 上海市教委“上海高校青年教师培养资助计划”项

目，主持。

Main Papers Published:

1. Du Shan; He Tiantian; Nie Huali*; **Yang Guang***; High-performance wigs via the Langmuir–Blodgett deposition of keratin/graphene oxide nanocomposite. **ACS Applied Materials & Interfaces**, 2022. DOI:10.1021/acsami.2c05965.
2. Chen Yansong; Li Ying; Yang Xuexia; Cao Zhangjun; Nie Huali; Bian Yonggang; **Yang Guang***; Glucose-triggered in situ forming keratin hydrogel for the treatment of diabetic wounds, **Acta Biomaterialia**, 2021,125, 208-218.
3. Tang Ao; Li Ying; Yao Yiqian; Yang Xuexia; Cao Zhangjun; **Yang Guang***; Injectable keratin hydrogels as hemostatic and wound dressing materials, **Biomaterials Science**, 2021,9, 4169-4177.
4. Li Ying[#]; Cao Yu[#]; Wei Lai[#]; Wang Jinjie; Zhang Min; Yang Xuexia; Wang Wenshuo*; **Yang Guang***; The assembly of protein-templated gold nanoclusters for enhanced fluorescence emission and multifunctional applications, **Acta Biomaterialia**, 2020, 101: 436-443.
5. Du Zhuang; Yan Kelu; Cao Yu; Li Yan; Yao Yiqian; **Yang Guang***; Regenerated keratin-encapsulated gold nanorods for chemo-photothermal synergistic therapy, **Materials Science and Engineering: C**, 2020, 117, 111340.
6. **Yang Guang***; Chen Qian; Wen Di; Chen Zhaowei; Wang Jinqiang; Chen Guojun; Wang Zejun; Zhang Xudong; Zhang Yuqi; Hu Quanyin; Zhang Liang*; Gu Zhen*; A therapeutic microneedle patch made from hair-derived keratin for promoting hair regrowth, **ACS Nano**, 2019, 13(4): 4354-4360.
7. Cao Yu[#]; Yao Yiqian[#]; Li Ying; Yang Xuexia; Cao Zhangjun; **Yang Guang***; Tunable keratin hydrogel based on disulfide shuffling strategy for drug delivery and tissue engineering, **Journal of Colloid and Interface Science**, 2019, 544: 121-129.
8. Chen Qian; Wang Chao; Zhang Xudong; Chen Guojun; Hu Quanyin; Li Hongjun; Wang Jinqiang; Wen Di; Zhang Yuqi; Lu Yifei; **Yang Guang***; Jiang Chen; Wang Jun; Dotti Gianpietro; Gu Zhen*; In situ sprayed bioresponsive immunotherapeutic gel for post-surgical cancer treatment, **Nature Nanotechnology**, 2019,14: 89-97.
9. Li Yan[#]; Song Kai[#]; Cao Yu; Peng Chen*; **Yang Guang***; Keratin-templated synthesis of metallic oxide nanoparticles as MRI contrast agents and drug carriers, **ACS Applied Materials & Interfaces**, 2018, 10: 26039-26045.
10. Du Zhuang; Yan Kelu; Cao Yu; Li Yan; Yao Yiqian; **Yang Guang***; Regenerated keratin-encapsulated gold nanorods for chemo-photothermal synergistic therapy, **Materials Science & Engineering C**, 2020,117: 111340-111347.
11. **Yang Guang***; Zhang Yuqi; Gu Zhen*; Punching and electroporation for enhanced transdermal drug delivery, **Theranostics**, 2018, 8: 3688-3690.
12. Wang Jinjie[#]; Ma Shuyi[#]; Ren Jicun; Yang Jinxia; Qu Yi; Ding Derun; Zhang Min*; **Yang Guang***; Fluorescence enhancement of cysteine-rich protein- templated gold nanoclusters using silver(I) ions and its sensing application for mercury(II), **Sensors and Actuators B: Chemical**, 2018,267: 342-350.
13. **Yang Guang***; Lu Yue; Bomba Hunter, Gu Zhen*; Cysteine-rich proteins for drug delivery and diagnostics, **Current Medicinal Chemistry**, 2018, 25: 1-13.

14. **Yang Guang***; Yao Yiqian; Wang Xiahui; Comparative study of keratine and keratose based composite nanofibers for biomedical applications, **Materials Science & Engineering C**, 2018, 83: 1-8.
15. **Yang Guang***; Wang Caixia; Hong Feng*; Yang Xuexia; Cao Zhangjun; Preparation and characterization of BC/PAM-AgNPs nanocomposites for antibacterial applications, **Carbohydrate Polymers**, 2015, 115: 636-642.
16. **Yang Guang***; Xie Jianjian; Hong Feng; Cao Zhangjun; Yang Xuexia; Antimicrobial activity of silver nanoparticle impregnated bacterial cellulose membrane: Effect of fermentation carbon sources of bacterial cellulose, **Carbohydrate Polymers**, 2012, 87: 839-845.
17. **Yang Guang***; Xie Jianjian; Deng Yunxia; Bian Yonggang; Hong Feng; Hydrothermal synthesis of bacterial cellulose/AgNPs composite: A "green" route for antibacterial application, **Carbohydrate Polymers**, 2012, 87: 2482-2487.

30. Prof. Xuexia Yang 杨雪霞 副教授，硕士生导师

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Brief Introduction:

2002 年于中国科学院过程工程研究所获工学博士学位。澳大利亚新南威尔士大学生物技术生物分子学院访问学者。

Research Areas:

1. 微生物功能性多糖的研究及应用
2. 工业微生物菌种选育
3. 食品酶的开发应用

Research Projects:

1. 富含味精的发酵调味料研究 企业委托 主持
2. 食品用抗冻蛋白的研究 企业委托 主持
3. α -葡萄糖苷酶产生菌株的选育及发酵工艺优化 企业委托 主持
4. 高产可得然胶菌种的筛选 企业委托 主持
5. 谷氨酰胺转氨酶产生菌的育种 企业委托 主持
6. 绢纺原料微生物处理技术 企业委托 主持
7. 麦秆酸解液中木醋杆菌抑制物的鉴定及耐受菌株选育 中央高校基本科研业务费专项基金 主持
8. 以魔芋为原料调控发酵高效制备细菌纤维素 中央高校基本科研业务费专项资金 主持
9. 纳米细菌纤维材料的高效低成本可控制备及其应用 上海市科委—联合利华研究与发展基金 参与

Main Papers Published:

1. Jie Wan, Zhiyu Shao, Deming Jiang, Hongliang Gao, Xuexia Yang*. Curdlan production from cassava starch hydrolysates by **Agrobacterium** sp. DH- 2. Bioprocess and Biosystems Engineering, 2022, 45:969-979
2. Hongliang Gao, Wei Zhang, Jing Zhang, Yimin Huang, Jingyu Zhang, Jiangtao Tian, Yanning Niu, Chunjing Zou, Caifeng Jia, Zhongyi Chang, Xuexia Yang*, Deming Jiang*. Methionine biosynthesis pathway genes affect curdlan biosynthesis

- of **Agrobacterium** sp. CGMCC 11546 via energy regeneration. International Journal of Biological Macromolecules, 2021,185: 821-831
- Hongliang Gao, Li Yang, Jiangtao Tian, Lingling Huang, Dating Huang, Wei Zhang, Fangrui Xie, Yanning Niu, Mingfei Jin, Caifeng Jia, Chunjing Zou, Jing Huang, Zhongyi Chang, Xuexia Yang*, Deming Jiang*. Characterization and rheological properties analysis of the succinoglycan produced by a high-yield mutant of **Rhizobium radiobacter** ATCC 19358. International Journal of Biological Macromolecules, 2021, 166: 61-70
 - 杨靖, 孙艳芳, 高红亮, 杨雪霞*. 一种快速测定微生物发酵体系硫酸化多糖的方法研究, 食品科技, 2021, 46(4): 250-255
 - Jie Wan, Yifeng Wang, Deming Jiang, Hongliang Gao, Guang Yang, Xuexia Yang*. Effects of carbon sources on production and properties of curdlan using **Agrobacterium** sp. DH-2. Preparative Biochemistry & Biotechnology, 2020, 1777423
 - Hongliang Gao, Fangrui Xie, Wei Zhang Jiangtao Tian, Chunjing Zou, Caifeng Jia, Mingfei Jin, Jing Huang, Zhongyi Chang, Xuexia Yang*, Deming Jiang*. Characterization and improvement of curdlan produced by a high-yield mutant of **Agrobacterium** sp. ATCC 31749 based on whole-genome analysis. Carbohydrate Polymers, 2020, 245: 116486
 - 万婕, 王贻峰, 高红亮, 解秀娟, 杨雪霞*. 搅拌桨组合对土壤杆菌产可得然胶的影响. 工业微生物, 2020,50(3):24-29
 - Yang Jiang, Lingli Liu, Bijia Wang, Xuexia Yang*, Zhize Chen, Yi Zhong, Linping Zhang, Zhiping Mao, Hong Xu, Xiaofeng Sui*. Polysaccharide-based edible emulsion gel stabilized by regenerated cellulose. Food Hydrocolloids, 2019, 91: 232-237
 - 武世强, 蒋德明, 张静, 高红亮, 常忠义, 杨雪霞*. phbC 基因敲除对土壤杆菌产可得然胶的影响. 工业微生物, 2018, 49(4):21-26
 - 刘恩华, 杨雪霞*, 陶鹏, 高红亮, 孙倩, 欧文超. 可得然胶补料发酵工艺优化. 食品与发酵科技, 2018, 54 (2) : 69-74

31. Prof. Yunlong Zhang 张云龙 副教授, 生物工程系副主任

Email: zhyl@dhu.edu.cn

Brief Introduction:

2007 年博士毕业于吉林大学基础医学院生化与分生专业, 曾获国家留学基金委资助赴匹兹堡大学医学中心 (UPMC) 访问学习。

Research Areas:

- 真核细胞代谢、应激及稳态调控
- 新型荧光蛋白监测系统开发与应用研究
- 功能微生物代谢改造与应用研究

Research Projects:

- 上海市科委“一带一路”国际合作项目, 19410741800, 初级纤毛介导 FLCN-mTOR 信号应答肾细胞癌发生的分子机制, 2019/11-2022/11, 30 万元, 主持
- 校企合作项目, HX105180781, 细胞因子 Y-1 配对重组兔单抗制备, 2019/1-2022/6, 6 万元, 主持
- 国家外专局, 高校重点外专项目 (学校特聘专项), 110000202220180036, 初级纤毛

- 介导 FLCN-mTOR 信号应答乳腺癌发生的分子机制, 2018/11-2020/6, 5 万元, 主持
4. 国家自然科学基金青年基金项目, 31000352, 体外定向蛋白剪接合成蜘蛛牵引丝蛋白研究, 2011/01-2013/12, 20 万元, 主持
 5. 高等学校博士学科点专项科研基金项目, 200802551021, 新型蛋白质反式剪接技术用于蜘蛛葡萄状丝蛋白合成, 2009/01-2011/12, 3.6 万元, 主持
 6. 中央高校基本科研业务费专项基金, 2010-C02-2, 20(S)-原人参二醇阻抑 PI3K/AKT 信号途径及其抗肿瘤作用研究, 2011/01-2013/12, 10 万元, 主持
 7. 中央高校基本科研业务费专项基金, 2010-C02-2, 仿生蜘蛛丝纤维的新型制备技术研究, 2010/01-2010/12, 6 万元, 主持
 8. 东华大学青年教师科研启动基金, 105-10-0044018, 蜘蛛葡萄状丝腺 cDNA 文库的构建及 AcSp 基因, 2008/10-2010/12, 2 万元, 主持
 9. 国家自然科学基金青年基金项目, 31000989, S.maltophilia DHHJ 胞外胞内酶降解羽毛角蛋白协同增效作用机制解析, 2011/01-2013/12, 20 万元, 第二参与人
 10. 上海市科委纳米科技专项, ZX200811000053, 负载维生素的丝素蛋白纳米纤维膜的制备及其应用研究, 2008/11-2011/12, 10 万元, 第四参与人

Main Papers Published:

1. Yunlong Zhang, Ying Liu, Yu Dai, Yazhe Ren, Guangsen Bao, BoAi, Yu Jiang*. Ciliary localization of folliculin mediated via akinesin-2-binding motif is required for its functions in mTOR regulation and tumor suppression. **FEBS LETTERS**, 2020, 595(1): 123-132. (IF=3.864)
2. YunLong Zhang, Rui Zhang, Yi-Fan Shen, Kai-Yue Huang, Yang-Yang He, Jun-Han Zhao, Zhi-Cheng Jing*. 3-Bromopyruvate Attenuates Experimental Pulmonary Hypertension via Inhibition of Glycolysis. **Am J Hypertens.**, 2019, 32(4): 426-432. (IF=3.08)
3. Yun-Long Zhang, Rui Zhang, Hua-Li Xu, Xiao-Feng Yu, Shao-Chun Qu, Da-Yuan Sui*. 20(S)-Protopanaxadiol Triggers Mitochondrial-Mediated Apoptosis in Human Lung Adenocarcinoma A549 Cells via Inhibiting the PI3K/Akt Signaling Pathway. **Am J Chinese Medicine**, 2013, 41(5): 1137-1152. (IF=6.005)
4. Yun-Long Zhang, Jiayue Cui, Rui Zhang, Yanpin Wang, Min Hong*. A novel fibrinolytic serine protease from the polychaete *Nereis virens*, Purification and characterization, **BIOCHIMIE**, 2007, 89(1): 93-103. (IF=4.372)
5. Fariha Kanwal, Ting Chen, Yunlong Zhang, Altaf Simair, Changrui Lu*. A Modified In Vitro Transcription Approach to Improve RNA Synthesis and Ribozyme Cleavage Efficiency. **Molecular Biotechnology**. 2019, 61(7): 469-476. (IF=2.86)
6. Rujie Cai, Fang Ding, Paul J. Jardine, Ian R.Price, Feifei Wu, Ting Chen, Yunlong Zhang, Changrui Lu*. Ailong Ke*. ATP/ADP Modulates gp16-pRNA Conformational Change in The Phi29 DNA Packaging Motor . **NUCLEIC ACIDS RESEARCH**, 2019, 47(18): 9818-9828. (IF=19.16)
7. Muhammad Hanif, Fariha Kanwal, Muhammad Rafiq, Mubashir Hassan, Muhammad Mustaqeem, Sung-Yum Seo, Yunlong Zhang, Changrui Lu, Ting Chen*, Muhammad Saleem*. Symmetrical Heterocyclic Cage Skeleton: Synthesis, Urease Inhibition Activity, Kinetic Mechanistic Insight, and Molecular Docking Analyses. **Molecules**, 2019, 42: 312-319. (IF=4.927)
8. Gefei Chen, Xiangqin Liu, Yunlong Zhang, Senzhu Lin, Zijiang Yang, Jan Johansson, Anna

- Rising*, Qing Meng*. Full-Length Minor Ampullate Spidroin Gene Sequence, **PLoS One**, 2012, 7(12): 1-11. (IF=3.752)
9. Guang-Sen Bao, Ya-Zhe Ren, Heng-Bin Yang, L Wang, Rui Zhang, Yun-Long Zhang*. ER Timer: An insight provider for pulmonary arterial hypertension. **Am J Respir Crit Care Med**. 2021; 203: A3677. (IF=30.528)
 10. Yunlong Zhang, Xiao-Qing Sun, Hong-Da Zhang, Rui Zhang*. A ginseng metabolite, 20(S)-protopanaxadiol, induces autophagy via generation of reactive oxygen species and activation of JNK in human non small cells lung cancer. **Am J Respir Crit Care Med**. 2015; 191: A5067. (IF=30.528)
 11. Yun-Long Zhang, Xiao-Qing Sun, Hua-Li Xu, Da-Yuan Sui, Rui Zhang*. Ginseng saponin metabolite 20(S)-protopanaxadiol inhibits human non small cells lung cancer xenograft growth in nude mice. **Am J Respir Crit Care Med**. 2014; 163: B63. (IF=30.528)
 12. 张云龙, 孟清*. PBL-NAI 平台在生物化学教学中的重要性. **生命的化学**, 2009, 29(5): 739-742.
 13. 张云龙, 杨常玲, 杨雪霞, 杜鹃, 邢彦军, 赵曙辉*. 高校普及化学科学素养的窗口——浅析“化学与社会文明”课程的建设. **纺织服装教育**, 2013, 28(4): 298-300.
 14. 王露, 卞永刚, 李鹏, 李凯, 张云龙*. PBL-STBL 联合教学法在生物化学教学中的探索与实践, 2020, **广州化工**, 47(2): 176-177.

32. Prof. Hao Zheng 郑皓 理学博士, 副研究员

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Brief Introduction:

2010年毕业于中国药科大学药理学专业(第二军医大学联合培养), 美国纽约大学免疫学博士后。

Research Areas:

1. 真菌与免疫药理学
2. 微生物致病机制及新药研发
3. 生物材料活性与组织相容性研究

Research Projects:

1. 国家自然科学基金——新型二氢吡吩衍生物抗血液病原微生物作用研究(81101298), 2012.01-2014.12, 主持
2. 中央高校基本科研业务费自由探索项目——新型 AT1 受体拮抗剂降压及作用机制研究(12D10515), 2012.01- 2014.12, 主持
3. 东华大学青年教师科研启动基金项目——新型 AT1 受体拮抗剂的设计合成及其抗前列腺癌作用研究(105-10-0044030), 2011.01-2012.12, 主持
4. 东华大学研究生课程建设项目——《生理药理学理论与实践》课程内容建设及优化(105-20-030004011), 2011.09-2012.09, 主持
5. 主持, 中央高校基本科研业务费专项——新型二氢吡吩衍生物抗病原微生物作用研究(11D10518), 2011.01- 2011.12。

Main Papers Published:

1. **Zheng H***, Lu GM. Reduction of prohibitin expression contributes to left ventricular hypertrophy via enhancement of mitochondrial reactive oxygen species formation in spontaneous hypertensive rats. *Free. Radic. Res.* 2015, 49(2): 164-174.
2. Zehai Lu, Qingwei Li, Minghua Tang, Panpan Jiang, **Hao Zheng*** and Xianjin Yang*. CFBSA: a novel and practical chlorinating reagent. *Chemcomm.* 2015, 51:14852.
3. **Zheng H**, Yu YS. Chronic hydrogen-rich saline treatment attenuates vascular dysfunction in spontaneous hypertensive rats. *Biochem. Pharmacol.* 2012, 83: 1269-1277.
4. **Zheng H**, Yu YS. TOP2 is involved in pathogenicity of *Candida albicans*. *Mole. Cell.Biochem.* 2011, 364(1-2):45-52.
5. **Zheng H**, Wang Y, Jia XM, Ji H, Jiang YY. TOP2 gene disruption reduces drug susceptibility by increasing intracellular ergosterol biosynthesis in *Candida albicans*. *J Med Microbio.* 2010, 59(7):797-803.
6. Yu YS, **Zheng H**. Chronic hydrogen-rich saline treatment reduces oxidative stress and attenuates left ventricular hypertrophy in spontaneous hypertensive rats. *Mole. Cell.Biochem.* 2012, 365(1-2):233-242. (Co-first author)
7. **Zheng H**, Xu SJ, Yang XX, Chen ZL. Progress of Antimicrobials and its Application in Textiles. *J Texti. Res.* 2011, 32(11): 153-162.
8. **Zheng H**, Wang QJ, Pan ZW, Kong LY. Effects of praeurotorin C on experimental myocardial ischemic injury. *Chin. J. New. Drugs. Clin. Rem.* 2007, 26(6): 409-412.
9. Nie YY, Da YJ, **Zheng H**, Chen ZL. Synthesis and biological evaluation of novel potent angiotensin II receptor antagonists with anti-hypertension effect. *Bioorgan. Med. Chem.* 2012, 20(8):2747-61. (2010IF: 2.977)
10. Nie YY, Li FM, **Zheng H**, Chen ZL. Progress in angiotensin II receptor antagonists as a new type of antihypertensive drug. *Chin. J. New Drugs.* 2012, 21(3): 44-53.

33. Prof. Yuxun Zhou 周宇荀 副研究员

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Brief Introduction:

毕业于华东理工大学，工学博士。

Research Areas:

1. 调控哺乳动物性发育的分子机制，特别是微小 RNA 在其中的生物学功能；
2. 基因编辑技术在分子检测中的应用。
3. 病原体核酸的分子检测技术开发

Main Papers Published:

1. 陈佳贤，李晓宁，王欣，肖君华，李凯，周宇荀*，miR-92a-3p 和 miR-25-3p 海绵上调 Kiss1 并影响雌性小鼠的青春期启动及动情周期，*中国生物化学与分子生物学报*, 2021, 37(04): 543~ 550。
2. 王欣，李晓宁，陈佳贤，陈贞，肖君华，李凯，周宇荀*，miR-29 对 GnRH 基因启动子区特定位点甲基化的影响研究，*生物学杂志*. 2020,37(06): 12-16.
3. Xiaoning Li, Junhua Xiao, Kai Li, Yuxun Zhou*. MiR-199-3p modulates the onset of puberty in rodents probably by regulating the expression of Kiss1 via the p38 MAPK

pathway. *Molecular and Cellular Endocrinology*. 2020. DOI: 10.1016/j.mce.2020.110994

- Xiaoning Li, Junhua Xiao, Yating Fan, Kan Yang, Kai Li, Xin Wang, Yanhua Lu and Yuxun Zhou*. miR-29 family regulates the puberty onset mediated by a novel Gnrh1 transcription factor TBX21. *Journal of Endocrinology*. 2019, 242 (3) : 185-197.
- Yuxun Zhou, Li Tong, Maochun Wang, Xueying Chang, Sijia Wang, Kai Li and Junhua Xiao, MiR-505-3p is a Repressor of the Puberty Onset in Female Mice, *Journal of Endocrinology*. 2019, 240 (3) : 379-392.
- Xiaoning Li, Sijia Wang, Yanhua Lu, Huanhuan Yin, Junhua Xiao, Kai Li, Lei Ma and Yuxun Zhou*, A dual fluorescence reporter system for high throughput screening of effectors of Kiss1 gene expression. *FEBS Bio Open*. 2018, doi:10.1002/2211-5463.12476.
- Gideon Omariba, Li Tong, Maochun Wang, Kai Li, Junhua Xiao, Yuxun Zhou*, Xiao Characterization of the dynamic change of microRNA expression in mice hypothalamus during the time of female puberty. *Genes & Genomics*. 2018, 40: 295~304.
- Kan Yang, Li Tong, Kai Li, Junhua Xiao, Yuxun Zhou*, A SRSF1 self-binding mechanism restrains Mir505-3p from inhibiting proliferation of neural tumor cell lines. *AntiCancer Drugs*. 2018, 29: 40-49.
- Kan Yang, Bin Yu, Cheng Cheng, Tianlin Cheng, Bo Yuan, Kai Li, Junhua Xiao, Zilong Qiu*, Yuxun Zhou*, Mir505-3p regulates axonal , development via inhibiting the autophagy pathway by targeting Atg12. *Autophagy*. 2017, 13(10): 1679-1696.
- Maochun Wang, Li Tong, Sijia Wang, Kai Li, Junhua Xiao*, Yuxun Zhou*, A multiplex sensitive quantification of MicroRNAs based on competitive PCR. *Biotechnology and Bioprocess Engineering*. 2017, 2 22(1): 95~99.
- Li Tong, Huihui Xue, Li Xiong, Junhua Xiao, Yuxun Zhou*. Improved RT-PCR Assay to Quantitate the Pri-, Pre-, and Mature microRNAs with Higher Efficiency and Accuracy. *Mol Biotechnol*, 2015, 57:939-946.
- Jia Li, Lihui Lin, Juan Wang, Xia Peng, Yanan Liu, Junhua Xiao, Yuxun Zhou*, Li Li. Quantitative analysis of multiple genes' expressions based on a novel competitive RT-PCR assay. *Anal Bioanal Chem*. 2012, DOI 10.1007/s00216-012-6518-1,
- 范雅婷, 王欣, 孙贤丽, 肖君华, 李凯, 周宇荀*, LIN28A 在 GT1-7 细胞中过表达对性发育相关基因的影响, *生物技术*, 2019, 29(01) :84-89

34. Dr. Tingting Sun 孙婷婷 博士, 讲师

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Brief Introduction:

2023 年博士毕业于东华大学。

Research Areas:

- 可穿戴医疗设备用柔性热电材料及器件。
- 用于人体健康管理及检测的智能纤维及织物。

Research Projects:

- 东华大学拔尖创新人才项目, 主持。
- 上海市教委科研创新计划重大项目, 参与。

3. 国家自然科学基金面上项目，参与。

Main Papers Published:

1. Tingting Sun, Lianjun Wang*, Wan Jiang*. Stretchable thermoelectric materials/devices for low-grade thermal energy harvesting. 《In Low-Grade Thermal Energy Harvesting》, Wang, S., (ed.) Woodhead Publishing. 2022, 11-40. (第 2 章编写)
2. Tingting Sun, Beiying Zhou, Qi Zheng, Lianjun Wang*, Wan Jiang*. Stretchable fabric generates electric power from woven thermoelectric fibers. Nature Communications. 2020, 11, 572. (ESI 高被引)
3. Tingting Sun, Lianjun Wang*, Wan Jiang*. Pushing thermoelectric generators toward energy harvesting from the human body: challenges and strategies. Materials today. 2022, 57, 121. (Highlighted paper)
4. Wei Zhao#, Tingting Sun#, Yiwei Zheng, Qihao Zhang*, Aibin Huang, Lianjun Wang*, Wan Jiang. Tailoring Intermolecular Interactions Towards High-Performance Thermoelectric Ionogels at Low Humidity. Advanced Science. 2022, 2201075.
5. Tingting Sun, Sibao Chen, Hongfei Sun, Xin Wu, Lianjun Wang*, Wan Jiang. Wavy-structured thermoelectric device integrated with high-performance n-type carbon nanotube fiber prepared by multistep treatment for energy harvesting. Composites Communications. 2021, 27, 100871.
6. Lulu Jin, Tingting Sun*, Wei Zhao, Lianjun Wang*, Wan Jiang. Durable and washable carbon nanotube-based fibers toward wearable thermoelectric generators application. Journal of Power Sources. 2021, 496, 229838.
7. Shengjie Fan, Tingting Sun*, Meng Jiang, Shijia Gu, Lianjun Wang, Wan Jiang. Enhanced thermoelectric performance of MXene/GeTe through a facile freeze-drying method. Journal of Alloys and Compounds. 2023, 948, 169807.
8. Shengnan Jin#, Tingting Sun#, Yuchi Fan, Lianjun Wang*, Meifang Zhu, Jianping Yang, Wan Jiang. Synthesis of freestanding PEDOT:PSS/PVA@Ag NPs nanofiber film for high-performance flexible thermoelectric generator. Polymer, 2019, 167,102.
9. Xiaomeng Sun#, Tingting Sun#, Xiaofang Lu, Lianjun Wang*, Wan Jiang. Simultaneously improving thermopower and electrical conductivity via polar organic solvents aided layer-by-layer technique. Materials Science in Semiconductor Processing. 2020, 108, 104909.
10. Tingting Sun, Yuanming Zhang*, Wei Jiang, Guangting Han*. The Effect of Cooling Temperature on the Skin-Core Crystalline Structure of β -nucleated Polypropylene Using Finite Element Analysis. Results in Physics. 2017,7,2036.

35. Dr. Binbin Sun 孙彬彬 博士、讲师

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Brief Introduction:

2018 年博士毕业于东华大学生物材料学，2018-2021 年在上海交通大学医学院附属第九人民医院骨科从事博士后研究，2022 年加入东华大学。

Research Areas:

1. 静电纺丝纳米纤维组织工程应用

2. 生物 3D 打印新材料开发与组织工程应用

Research Projects:

1. 国家自然科学基金青年基金项目，基于生物 3D 打印技术制备促血管化骨组织工程支架及其应用，2019/01-2021/12，主持
2. 中国博士后科学基金会博士后特别资助项目，基于自组装纳米纤维水凝胶新型生物 3D 打印墨水的研发，2019/06-2021/11，主持
3. 国家自然科学基金面上项目，仿生活性丝素蛋白-P(LLA-CL)微纳米纱线针织支架用于兔跟腱再生，2018/01-2021/12，参与

Main Papers Published:

1. Mo Xiumei, **Sun Binbin**, Wu Tong, Hany El-Hamshary, Nanofiber composites in neural tissue engineering. In: Murugan Ramalingam and Seeram Ramakrishna(ED), Nanofiber Composites for Biomedical Application, Woodhead Publishing, pp395-410, 2017, ISBN 978-0-08-100173-8(print), ISBN 978-0-08-100208-7(online)
2. Mo Xiumei, **Sun Binbin**, Wu Tong, Li Dandan, CHAPTER 24 Electrospun Nanofibers for Tissue Engineering. In: Bin Ding, Xianfeng Wang, Jianyong Yu, Electrospinning: Nanofabrication and Applications, Publisher: Matthew Dean, ISBN: 978-0-323-51270-1, 2018
3. Mo Xiumei, Wu Tong, **Sun Binbin**, Hany El-Hamshary, Nanofiber composites in tendon tissue engineering. In: Murugan Ramalingam and Seeram Ramakrishna(ED), Nanofiber Composites for Biomedical Application, Woodhead Publishing, pp345-368, 2017, ISBN 978-0-08-100173-8(print), ISBN 978-0-08-100208-7(online)
4. Fang Yuan#, Han Yu#, Wang Shoubao#, Chen Jingting, Dai Kerong*, Xiong Yao*, **Sun Binbin***. Three-dimensional printing bilayer membranous nanofiber scaffold for inhibiting scar hyperplasia of skin. *Biomaterials Advances*, 2022.
5. Han, Yu#, Lian Meifei#, Zhang Chenyu#, Jia Bo, Wu Qiang, Sun Benlin, Qiao Zhiguang*, **Sun Binbin***, Dai Kerong*. Study on bioactive PEGDA/ECM hybrid bi-layered hydrogel scaffolds fabricated by electro-writing for cartilage regeneration. *Applied Materials Today*, 2022.
6. Fang Yuan, Li Haibo, Chen Jingting, Xiong Yao, Li Xu, Zhou Jianda, Li Shengli, Wang Shoubao*, **Sun Binbin***. Highly Water-Absorptive and Antibacterial Hydrogel Dressings for Rapid Postoperative Detumescence. *Frontiers in Bioengineering and Biotechnology*, 2022.
7. Lian, Meifei#, **Binbin Sun**#, Yu Han#, Bin Yu, Weiwei Xin, Ruida Xu, Bing Ni, Wenbo Jiang, Yongqiang Hao*, and Xiuyin Zhang*. A low-temperature-printed hierarchical porous sponge-like scaffold that promotes cell-material interaction and modulates paracrine activity of MSCs for vascularized bone regeneration. *Biomaterials*, 2021.
8. **Sun, Binbin**, Meifei Lian, Yu Han, Xiumei Mo, Wenbo Jiang, Zhiguang Qiao*, and Kerong Dai*. A 3D-Bioprinted Dual Growth Factor-Releasing Intervertebral Disc Scaffold Induces Nucleus Pulposus and Annulus Fibrosus Regeneration. *Bioactive Materials*, 2021.
9. Wang, Shoubao#, Yao Xiong#, Jingting Chen, Abdulsamad Ghanem, Yinmin Wang, Jun Yang*, and **Binbin Sun***. Three Dimensional Printing Bilayer Membrane Scaffold Promotes Wound Healing. *Frontiers in Bioengineering and Biotechnology*, 2019.

10. **Sun, Binbin**#, Zifei Zhou#, Dawei Li, Tong Wu, Hao Zheng, Junjian Liu, Gangyang Wang, Yinxian Yu*, Xiumei Mo*. Polypyrrole-coated poly(l-lactic acid-co-ε-caprolactone)/silk fibroin nanofibrous nerve guidance conduit induced nerve regeneration in rat. *Materials Science & Engineering C*, 2019.
11. **Sun, Binbin**, Zifei Zhou, Tong Wu, Weiming Chen, Dawei Li, Hao Zheng, Hany El-Hamshary, Salem S. Al-Deyab, Xiumei Mo*, Yinxian Yu*. Development of Nanofiber Sponges-Containing Nerve Guidance Conduit for Peripheral Nerve Regeneration in Vivo. *ACS Appl Mater Interfaces*, 2017.
12. **Sun Binbin**#, Wu Tong#, Wang Jing, Li Dawei, Gao Qiang, Bhutto M. Aqeel, Hany El-Hamshary, Salem S. Al-Deyab, Mo Xiumei*. Polypyrrole-Coated Poly(l-lactic acid-co-ε-caprolactone)/Silk Fibroin Nanofibrous Membranes Promoting Neural Cells Proliferation and Differentiation with Electrical Stimulation. *Journal of Materials Chemistry B*, 2016.
13. **Sun Binbin**, Wu Tong, He Liping, Zhang Jianguang, Yuan Yuyu, Huang Xijun, Hany El-Hamshary, Salem S. Al-Deyab, Mo Xiumei*. Development of Dual Neurotrophins-Encapsulated Electrospun Nanofibrous Scaffolds for Peripheral Nerve Regeneration. *Journal of Biomedical Nanotechnology*, 2016.

36. Dr. Wenhui Wang 王文辉 博士, 讲师

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Brief Introduction:

2021 年于上海交通大学获得博士学位，2021 至 2023 年于上海交通大学化学博士后科研流动站从事博士后研究工作。

Research Areas:

1. 生物医用可降解镁金属植入材料及器械。
2. 医用可降解金属生物学功能化研究。

Research Projects:

1. 国家自然科学基金（青年科学基金）项目：高温应变诱导可降解 Mg-Zn 合金晶界动态偏聚与纳米晶形成机理，主持；
2. 中国博士后科学基金面上项目：医用可降解金属间化合物 MgZn₂ 的力学性能、降解机制和生物学功能研究，主持；

Main Papers Published:

1. H. Peng, Z.-J. Gong, R. Zan, W. Wang, H. Yu, Y. Sun, C. Ma, **W. Wang***, T. Suo*, X. Zhang*, Research on the degradation behaviors of biomedical Mg-2wt.%Zn alloy under a biliary environment in vitro and in vivo [J], *Journal of Magnesium and Alloys*. In Press.
2. Y. Sun, H. Yu, H. Peng, X. Kang, Z. Peng, **W. Wang***, Y. Song, X. Zhang*. Degradation products derived from high-purity magnesium inhibit osteogenic differentiation through regulation of macrophage polarization [J]. *Journal of Materials Science & Technology*. 139, 2023, 113-119
3. **Wenhui Wang**, Carsten Blawert, Mikhail L. Zheludkevich, et al., A novel lean alloy of biodegradable Mg-2Zn with nanograins [J], *Bioactive Materials*, 6, (2021), 4333-4341

4. J. Lou, Y. Sun, Y. Chen, R. Zan, H. Peng, S. Yang, X. Kang, Z. Peng, **W. Wang***, X. Zhang, Effects of MgF₂ coating on the biodegradation and biological properties of magnesium [J], Surface and Coatings Technology. 422 (2021) 127552.
5. **Wenhui Wang**, H.L. Wu, et al., Microstructure controls the corrosion behavior of a lean biodegradable Mg-2Zn alloy [J], Acta Biomaterialia, 107, (2020), 349-361
6. **Wenhui Wang**, H.L. Wu, et al., Local intragranular misorientation accelerates corrosion in biodegradable Mg [J], Acta Biomaterialia, 101 (2020) 575-585.
7. **W.H. Wang**, D. Wu, R.S. Chen, X.N Zhang. Effect of solute atom concentration and precipitates on serrated flow in Mg-3Nd-Zn alloy [J]. Journal of Materials Science & Technology 34 (2018) 1236-1242.
8. **W.H. Wang**, D. Wu, J.H. Ni, R.S. Chen, X.N Zhang. The relationship between dynamic strain aging and serrated flow behavior in magnesium alloy [J]. Philosophical Magazine Letters, 97, (2017) 235-240.
9. **W.H. Wang**, D. Wu, S.S.A. Shah, R.S. Chen, C.S. Lou, The mechanism of critical strain and serration type of the serrated flow in Mg-Nd-Zn alloy [J]. Materials Science & Engineering A, 649 (2016) 214-221.
10. **W.H. Wang**, D. Wu, R.S. Chen, C.S. Lou, The influence of temperature and strain rate on serration type transition of serrated flow on NZ31 magnesium alloy [J]. Transactions of Nonferrous Metals Society of China, 25 (2015) 3611-3617.

37. Dr. Xiaojun Zhou 周小军 博士，讲师，硕士生导师

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Requirements for the future international students:

招收生物化学与分子生物学、生物医学工程、生物与医药专业的研究生

Brief Introduction:

2016年毕业于东华大学，获工学博士学位。2017-2019年，在上海交通大学医学院附属第九人民医院从事博士后工作。

Research Areas:

1. 功能化组织修复材料的设计及性能研究
2. 纳米材料的药物输送与诊疗研究

Research Projects:

1. 上海市青年科技启明星计划，微环境响应生物打印支架引导免疫调控促进内源性骨再生研究（22QA1400100），2022-06至2025-05。
2. 国家自然科学基金面上项目，基于HIF通路双向调控的生物打印骨-软骨一体化支架的构建及再生机制研究（32171404），2022-01至2025-12。
3. 上海市自然科学基金面上项目，基于微流控技术的双药水凝胶微球的制备及在骨关节炎治疗中的应用（21ZR1403100），2021-07至2024-06。
4. 中央高校自由探索项目，基于诱导H型血管生成的3D打印支架促进骨修复的机制研究（2232021D-10），2021-01至2023-12。
5. 国家自然科学基金青年科学基金项目，双因子控制释放纳米纤维支架的仿生构建及骨再生机制研究（81702124），2018-01至2020-12。

6. 中国博士后科学基金面上资助，促血管化与成骨仿生骨支架的构建及其修复骨缺损的研究（2018M630451），2018-05 至 2019-11。

Main Papers Published:

1. 参编《数字骨科学基础》第八章“组织工程与骨科生物 3D 打印”，王成焘、苏秀云主编，山东科学技术出版社，2019-02，第 1 版。
2. Li SK, Li ZH, Yang J, Ha YJ, Zhou XJ*, He CL*. Inhibition of Sympathetic Activation by Delivering Calcium Channel Blockers from a 3D Printed Scaffold to Promote Bone Defect Repair. *Adv. Healthc. Mater.*, 2022, 2200785.
3. Li ZH, Li SK, Yang J, Ha YJ, Zhang QQ, Zhou XJ*, He CL*. 3D bioprinted gelatin/gellan gum-based scaffold with double-crosslinking network for vascularized bone regeneration. *Carbohydr. Polym.*, 2022, 290: 119469.
4. Shafiq M, Chen YJ, Hashim R, He CL, Mo XM, Zhou XJ*. Reactive Oxygen Species-Based Biomaterials for Regenerative Medicine and Tissue Engineering Applications. *Front. Bioeng. Biotechnol.*, 2021, 9: 821288.
5. Ha YJ, Ma XJ, Li SK, Li T, Li ZH, Qian YH, Shafiq M, Wang JW, Zhou XJ*, He CL*. Bone Microenvironment-Mimetic Scaffolds with Hierarchical Microstructure for Enhanced Vascularization and Bone Regeneration. *Adv. Funct. Mater.*, 2022: 2200011.
6. Yang J, Deng CX, Shafiq M, Li ZH, Zhang QQ, Du HB, Li SK, Zhou XJ*, He CL*. Localized delivery of FTY-720 from 3D printed cell-laden gelatin/silk fibroin composite scaffolds for enhanced vascularized bone regeneration. *Smart Mater. Med.*, 2022, 3: 217-229.
7. Chai NW, Zhang JT, Zhang QQ, Du HB, He X, Yang J, Zhou XJ*, He JW*, He CL*. Construction of 3D printed constructs based on microfluidic microgel for bone regeneration. *Compos. B Eng.*, 2021, 223: 109100.
8. Gu JN, Zhang QQ, Geng MR, Wang WZ, Yang J, Khan AUR, Du HB, Sha Z, Zhou XJ*, He CL*. Construction of nanofibrous scaffolds with interconnected perfusable microchannel networks for engineering of vascularized bone tissue. *Bioact. Mater.*, 2021, 6(10): 3254-3268.
9. Xue S#, Zhou XJ#, Sang WL, Wang C, Lu HM, Xu YM, Zhong YM, Zhu LB*, He CL*, Jinzhong Ma*. Cartilage-targeting peptide-modified dual-drug delivery nanoplatfrom with NIR laser response for osteoarthritis therapy. *Bioact. Mater.*, 2021, 6(8): 2372-2389.
10. Li T#, He HT#, Yang ZZ#, Wang JJ, Zhang YX, He GX, Huang J, Song DY, Ni JD, Zhou XJ*, Zhu JF*, Ding ML*. Strontium-Doped Gelatin Scaffolds Promote M2 Macrophages Switch and Angiogenesis through Modulating the Polarization of Neutrophils. *Biomater. Sci.*, 2021, 9(8): 2931-2946
11. Geng MR, Zhang QQ, Gu JN, Yang J, Du HB, Jia YT, Zhou XJ*, He CL*. Construction of a nanofiber network within 3D printed scaffolds for vascularized bone regeneration. *Biomater. Sci.*, 2021, 9(7): 2631-2646.
12. Sun X#, Ma ZJ#, Zhao X#, Jin WJ, Zhang CY, Ma J, Qiang L, Wang WH, Deng Q, Yang H, Zhao JZ, Liang QQ, Zhou XJ*, Li T*, Wang JW*. Three-dimensional bioprinting of multicell-laden scaffolds containing bone morphogenetic protein-4 for promoting M2 macrophage polarization and accelerating bone defect repair in diabetes mellitus. *Bioact. Mater.*, 2021, 6(3): 757-769.

13. He X#, Liu XZ#, Yang J, Du HB, Chai NW, Sha Z, Geng MR, Zhou XJ*, He CL*. Tannic acid-reinforced methacrylated chitosan/methacrylated silk fibroin hydrogels with multifunctionality for accelerating wound healing. *Carbohydr. Polym.*, 2020, 247: 11689.
14. Zhou XJ#, Liu PC#, Nie W, Peng C, Li T, Qiang L, He CL*, Wang JW*. Incorporation of dexamethasone-loaded mesoporous silica nanoparticles into mineralized porous biocomposite scaffolds for improving osteogenic activity. *Int. J. Biol. Macromol.*, 2020, 149: 116-126.