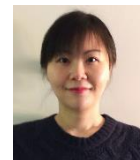


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**Profile:** an enthusiastic and highly motivated biomaterial scientist with multi-disciplinary research experience, skilled laboratory techniques and teaching and editorial experience

**Research Interests:** biomaterials, tissue engineering, drug delivery, cell micro-environment, microfluidics

### **Strengths**

- Broad knowledge and specialized techniques in biomaterials, tissue engineering, drug delivery, cell micro-environment and microfluidics
- Excellent communication and organization skills developed via writing papers and grant proposals, presenting at international conferences, demonstrating experiments, lecturing and editing scientific publications
- Fluent English, Cantonese and Mandarin
- International study and work experience in China, UK and USA

### **Higher Education**

2006-2010 **PhD** in Biomaterials and Tissue Engineering, **University College London (UCL, ranked 22<sup>nd</sup> in the world by US News 2016), UK**

2005-2006 **MSc with Distinction** in Engineering and Physical Science in Medicine (**top 5%**, GPA 72.5/100), **Imperial College London (ranked 18<sup>th</sup> in the world by US News 2016), UK**

2001-2005 **B.Eng First Class (Hons)** in Bioengineering (**top 1%**, GPA 3.821/5.0), South China Normal University (SCNU, ranked 57<sup>th</sup> from 1056 universities in China in 2015), China

Additional 2007-2008 **MBA** (certificate), **London Business School (ranked 2<sup>nd</sup> Business School in the world by the Financial Times in 2015), UK**

*Understanding Entrepreneurial Opportunities and New Venture Development*

### **Work Experience**

2016 - **Assistant professor**, Interdisciplinary Division of Biomedical Engineering, The Hong Kong Polytechnic University, Hong Kong, China

2015-2016 **Associate professor**, School of Life Science and Technology, Xi'an Jiaotong University, China (ranked 17<sup>th</sup> among 1056 universities in China)

2014-2015 **Postdoctoral research fellow**, **Harvard John A. Paulson School of Engineering and Applied Sciences (ranked 1<sup>st</sup> in the world by US News 2016), USA**

2012-2014 **Postdoctoral research fellow**, **Harvard-MIT Health Sciences and Technology, Harvard Medical School (ranked 1<sup>st</sup> in the world by US News 2016), USA**

2011-2012 **Research associate**, Guangzhou iGenomics Co., Ltd., China

### **Teaching Experience**

2016- Wearable Healthcare and Fitness Devices for Everyone, Undergraduate Students, CAR subjects, The Hong Kong Polytechnic University, Hong Kong SAR, China

2012-2015 Laboratory demonstration for undergraduate, MSc and PhD students in Biomaterials and Tissue Engineering, Harvard University, USA

2006-2009 Laboratory demonstration for undergraduate and MSc students in Biomaterials and Tissue Engineering, UCL, UK

## Editorships

- 2017 Editorial board of *Frontiers in Molecular Biosciences, Bioengineering and Biotechnology and Materials*
- 2016 Guest editor of special issue “Therapeutic Nanomaterials” of *Drug Discovery Today*
- 2015 Guest editor of special issue “Biomaterials for Plastic and Aesthetic Surgery” of *Plastic and Aesthetic Research*

## Grants and Awards

1. **Youth Projects of National Science Foundation of China** (PI, Grant no. 11702233, ¥ 250,000), Development of soft and elastic hydrogel-based 3D microenvironment for neuronal differentiation of neural stem cells, 01/01/2018-31/12/2020, 2017
2. Study on the mechanism of mechanical factors affecting the tumor development and metastasis of hepatoma stem cells (Co-I, funded by Shenzhen Science and Technology Innovation Committee, Grant no. 20170248, ¥ 2,000,000), 09/01/2017-08/31/2020, 2017
3. Grant for University Undergraduate Training Program for Innovation and Entrepreneurship, ¥ 6,000, Xi'an Jiaotong University, China, 2016
4. Collaboration Grant, ¥ 30,000, Xi'an Jiaotong University, China, 2016
5. Multi-disciplinary Research Grant, ¥ 120,000, Xi'an Jiaotong University, China, 2016
6. Grant for Outstanding Young Scholars, ¥ 1,000,000, Xi'an Jiaotong University, China, 2015
7. **Dorothy Hodgkins Postgraduate Award (DHPA)**, £ 90,000, EPSRC, UK, 2006 (103 candidates from the world were selected)
8. **Central Research Fund (CRF)**, £ 2,000, University of London, UK, 2009

## Conference Presentations and Invited Talks

1. *Biomaterials for regenerative medicine* (invited talk by Prof Liming Bian). Chinese University of Hong Kong, Hong Kong, 2017.
2. *Photocrosslinkable gelatin for tissue engineering*, International Soft Matter Symposium & the 6<sup>th</sup> “China Soft Matter Day” (invited talk), Shen Zhen, China, 2017
3. *Photocrosslinkable gelatin for tissue engineering*, Karolinska Institutet Symposium “Reparative Medicine and Beyond (invited talk), Hong Kong, China, 2017
4. *Biomaterials for regenerative medicine* (invited talk by Anderson Shum). University of Hong Kong, Hong Kong, 2017.
5. *Biomaterials for translational medicine*. 3D bioprinting and biomaterials (keynote speech), Hong Kong, China, 2016.
6. *Stem cell-laden photo-crosslinkable microspheres for bone regeneration*, Tissue Engineering and Regenerative Medicine International Society- Asia Pacific Meeting (invited talk), Taiwan, China, 2016
7. *Stem cell-laden photo-crosslinkable microspheres for bone regeneration*, 6<sup>th</sup> International Conference on Optofluidics (invited talk), Beijing, China, 2016
8. *Stem cell-laden photo-crosslinkable microspheres for bone regeneration*, 10<sup>th</sup> World Biomaterials Congress (oral presentation), Montreal, Canada, 2016
9. *Micro- and nanofabrication of biomaterials and their biomedical applications, the 2<sup>nd</sup> National Young Scholar’s Forum on Additive Manufacturing* (invited talk), Xi’an, China, 2016
10. *Biomaterials for translational medicine* (invited talk). City University of Hong Kong, Hong Kong, 2016.
11. *Tumor triggered cancer therapy* (invited talk). International Young Scholars Forum, Shanghai Jiaotong University, China, 2015.
12. *Biomaterials for translational medicine* (invited talk). Xi’an Jiaotong University, China, 2015.
13. *Cell behavior on injectable and biodegradable polymers*, the 22<sup>nd</sup> European Biomaterials Conference, Switzerland, 2009.
14. *Injectable degradable reactive calcium phosphate contained composites for bone repair and drug delivery*, the 22<sup>nd</sup> European Biomaterials Conference, Switzerland, 2009.

15. *Injectable degradable polymeric adhesives containing reactive calcium phosphate filler particles*, the Pan European Federation of the International Association for Dental Research, UK, 2008.
16. *Injectable biodegradable reactive calcium phosphate loaded composites for combined bone repair and drug delivery*, the 8<sup>th</sup> World Biomaterials Congress, the Netherlands, 2008.
17. *Injectable biodegradable poly (ester-co-ether) methacrylate monomers for bone tissue engineering and drug delivery applications*, the 17<sup>th</sup> Interdisciplinary Research Conference on Biomaterials, UK, 2007.

### List of Publications

#### A. Published journal papers

##### 2017

1. **Zhao X**, Sun XM, Yildirim L, Lang Q, Zheng WY, Lin ZY, Zhang YG, Cui WG, Annabi N, Khademhosseini A. Cell infiltrative hydrogel fibrous scaffolds for accelerated wound healing. *Acta Biomaterialia* (IF 6.319), 2017, 49,66-77.
2. Sun XM, Lang Q, Zhang HB, Cheng LY, Zhang Y, Guoqing Pan, **Zhao X**, Yang HL, Zhang YG, Santos AH, Cui WG. Electrospun photocrosslinkable hydrogel fibrous scaffolds for rapid in vivo vascularized skin flap regeneration, *Advanced Functional Materials* (IF 12.124), 2017, 27, 1604617. **(journal cover)**
3. Liu YL, Zhi X, Yang M, Zhang JP, Lin LN, **Zhao X**, Hou WX, Zhang CL, Zhang Q, Pan F, Alfranca G, Yang YM, de la Fuente JM, Ni J, Cui DX. Tumor-triggered drug release from calcium carbonate-encapsulated gold nanostars for near-infrared photodynamic/photothermal combination antitumor therapy, *Theranostics* (IF 8.712), 2017; 7, 1650-1662.
4. Dong YQ, Jin GR, Ji CC, He RY, Lin M, **Zhao X**, Li A, Lu TJ, Xu F. Non-invasive tracking of hydrogel degradation using upconversion nanoparticles, *Acta Biomaterialia* (IF 6.319), 2017, 55, 410-419.
5. Zhao S, Su W, Shah V, Hobson D, Yildirim L, Yeung KWK, Zhao JZ, Cui W, **Zhao X** (corresponding author). Biomaterials based strategies for rotator cuff repair. *Colloids and Surfaces B: Biointerfaces* (IF 3.887), 2017,157,407-416.
6. Zhang Q, Li YQ, Lin ZY, Wong KY, Lin M, Yildirim L, **Zhao X** (corresponding author). Electrospun polymeric micro/nanofibrous scaffolds for long-term drug release and their biomedical applications, *Drug Discovery Today* (IF 6.369), 2017, <https://doi.org/10.1016/j.drudis.2017.05.007>
7. Jin GR, **Zhao X**, Feng X. Therapeutic nanomaterials for cancer therapy and tissue regeneration. *Drug Discovery Today* (IF 6.369), <https://doi.org/10.1016/j.drudis.2017.08.002>.
8. Huang GY, Li F, **Zhao X**, Ma YF, Li YH, Jin GR, Genin G, Lu TJ, Xu F. Biomimetic Materials for Engineering the Three-Dimensional Cell Microenvironment. *Chemical Reviews* (IF 47.928), accepted.
9. Zhang JW, **Zhao X**, Li J, Demirci U, Wang SQ. Advances in 3D Tissue Engineering for Liver Regeneration. *Biomaterials* (IF 8.402), under review.
10. Zhao H, Ding RH, **Zhao X**, Li YW, Qu LL, Pei H, Yildirim L, Wu ZW, Zhang WX. Graphene-based nanomaterials for drug and/or gene delivery, bioimaging, and tissue engineering. *Drug Discovery Today* (IF 6.369), <https://doi.org/10.1016/j.drudis.2017.04.002>.
11. Liu XL, Gao P, Du J, **Zhao X**, Wong KKY. Long-term anti-inflammatory efficacy in intestinal anastomosis in mice using silver nanoparticle-coated suture. *Pacific Association of Pediatric Surgeons*, <https://doi.org/10.1016/j.jpedsurg.2017.08.026>.

##### 2016

12. **Zhao X**, Liu S, Yildirim L, Zhao H, Ding RH, Wang HN, Cui WG, Weitz D. Injectable stem cell laden photo-crosslinkable microspheres fabricated using microfluidics for rapid generation of osteogenic tissue constructs. *Advanced Functional Materials* (IF 12.124), 2016, 26, 2809-2819. **(journal cover)**
13. **Zhao X**, Lang Q, Yildirim L, Lin ZY, Cui WG, Annabi N, Ng KW, Dokmeci MR, Ghaemmaghami AM, Khademhosseini A. Photocrosslinkable gelatin hydrogel for epidermal tissue engineering. *Advanced Healthcare Materials* (IF 5.11), 2016, 5,108-118. (most highly viewed publication of AHM of 2015).
14. Cheng LY, Sun XM, **Zhao X (co-first author)**, Wang L, Yu J, Pan GQ, Li B, Yang H, Zhang

- YG, Cui WG. Surface biofunctional drug-loaded electrospun fibrous scaffolds for comprehensive repairing hypertrophic scars. *Biomaterials* (IF 8.402), 2016, 83, 169–181.
15. Zhao H, Lin ZY, Yildirimer L, Dhinakara A, **Zhao X (corresponding author)**, Jun Wu. Polymer-based nanoparticles for protein delivery: design, strategy and applications. *Journal of Materials Chemistry B* (IF 4.543), 2016, 4, 4060-4071.
  16. Lang Q, Ren YK, Hobson D, Tao Y, Hou LK, Jia YK, Hu QM, Liu JW, **Zhao X (corresponding author)**, Jiang HY. In-plane microvortices micromixer-based AC electrothermal for testing drug induced death of tumor cells, *Biomicrofluidics* (IF 2.535), 2016, 10, 064102.
  17. Lin ZY, Shah V, Dhinakar A, Yildirimer L, Cui WG, **Zhao X (corresponding author)**. Intradermal fillers for minimally invasive treatment of facial aging. *Plastic and Aesthetic Research*, 2016, 3, 72-82.
  18. Ng K, Gao B, Yong KW, Li YH, Shi M, **Zhao X**, Li ZD, Pingguan-Murphy B, Xu F. Paper-based cell culture platform and its emerging biomedical applications. *Materials Today* (IF 21.695).
  19. Gao B, Yang QZ, **Zhao X**, Jin GR, Ma YF, Xu F. 4D bioprinting for biomedical applications. *Trends in Biotechnology* (IF 11.126), 2016, 158, 166-174. **(journal cover)**
  20. Hou WX, **Zhao X**, Qian XQ, Pan F, Zhang CL, Yang YM, de la Fuente JM, Cui DX. pH-sensitive self-assembling nanoparticles for tumor near-infrared fluorescence imaging and chemo-photodynamic combination therapy. *Nanoscale* (IF 7.367), 2016, 8, 104-116.
  21. Rahim R, Ochoa M, Parupudi T, **Zhao X**, Dokmeci M, Khademhosseini A, Ziaie B. A low-cost flexible pH sensor array for wound assessment. *Sensors and Actuators B: Chemical* (IF 5.401), 2016, 229, 609–617.
  22. Chen H, Guo L, Wicks J, Ling C, **Zhao X**, Yan YF, Qi J, Cui W, Deng LF. Quickly promoting angiogenesis by using a DFO-loaded photo-crosslinked gelatin hydrogel for diabetic skin regeneration. *Journal of Materials Chemistry B* (IF 4.543), 2016, 4, 3770-3781.
  23. Zhang DD, Lin ZY, Cheng RY, Yu J, **Zhao X**, Chen XL, Cui WG. Reinforcement of transvaginal repair using polypropylene mesh functionalized with basic fibroblast growth factor. *Colloids and surfaces B: Biointerfaces* (IF 3.887), 2016, 142, 10-19. **(journal cover)**
  24. Sun XM, Zheng WY, Cheng LY, **Zhao X**, Jin R, Sun BS, Shi YM, Zhang L, Zhang Y, Zhang YG, Cui WG. Two-dimensional electrospun nanofibrous membranes for promoting random skin flap survival. *RSC Advances* (IF 3.108), 2016, 6, 9360-9369.
  25. Lang Q, Ren YK, Wu YS, Guo YB, **Zhao X**, Tao Y, Liu JW, Zhao H, Lei I, Jiang HY. Multifunctional resealable perfusion chip for cell culture and tissue engineering. *RSC Advances* (IF 3.108), 2016, DOI: 10.1039/C5RA27102A.
  26. Cui WG, **Zhao X**, Zhang YG. Biomaterials for facial aging. *Plastic and Aesthetic Research*, 2016, 3, 70-71

## 2015

27. **Zhao X**, Cui WG. Disease-triggered hydrogel therapy. *Materials Today* (IF 21.695), 2015, 18, 56-57.
28. **Zhao X**, Jiang SC, Chen S, Zhou L, Lin ZY, Pan GQ, He F, Li B, Yang HL, Fan CY, Cui WG. Optimization of intrinsic and extrinsic tendon healing through controllable water-soluble mitomycin-C release from electrospun fibers by mediating adhesion-related gene expression. *Biomaterials* (IF 8.402), 2015, 61, 61-74.
29. **Zhao X**, Yuan ZM, Yildirimer L, Zhao JW, Lin ZY, Pan GQ, Cui WG. Tumor-triggered controlled drug release from electrospun fibers using inorganic caps for inhibiting cancer relapse. *Small* (IF 8.643), 2015, 11, 4284-4291. **(journal cover)**
30. **Zhao X**, Zhao JW, Lin ZY, Chen XL, Zhu YQ, Cui WG. Self-coated interfacial layer at organic/inorganic phase for temporally controlling dual-drug delivery from electrospun fibers. *Colloids and Surfaces B: Biointerfaces* (IF 3.887), 2015, 130, 1-9.
31. **Zhao X**, Hu CM, Pan GQ, Cui WG. Pomegranate-structured electrosprayed microspheres for long-term controlled drug release. *Particle and Particle Systems Characterization* (IF 4.474), 2015, 32, 529–535.
32. Zhao S, **Zhao X (co-first author)**, Dong SK, Pan GQ, Zhang Y, Zhao JZ, Cui WG. A hierarchical, stretchable and stiff fibrous biotemplate engineered using stagger-electrospinning for augmentation of rotator cuff tendon-healing. *Journal of Materials Chemistry B* (IF 4.543), 2015, 3, 990-1000. **(journal cover)**
33. Yuan ZM, **Zhao X (co-first author)**, Zhao JW, Pan GQ, Qiu WW, Wang XH, Zheng Q, Cui WG.

Synergistic mediation of tumor signaling pathways in hepatocellular carcinoma therapy via dual-drug-loaded pH responsive electrospun fibrous scaffolds. *Journal of Materials Chemistry B* (IF 4.543), 2015, 3, 3436-3446. **(journal cover)**

34. Sun XD, **Zhao X (corresponding author)**, Li Qing, D'Ortenzio M, Nguyen B, Xu X, Wen Y. Development of a hybrid gelatin hydrogel platform for tissue engineering and protein delivery applications. *Journal of Materials Chemistry B* (IF 4.543), 2015, 3, 6368-6376.
35. Jiang LQ, **Zhao X (co-first author)**, Zhao LL, Ni B, Qian H, Maclean JL, Zhu JB, Zhang Y, Ge L. The quantitative detection of the uptake and intracellular fate of albumin nanoparticles. *RSC Advances* (IF 3.108), 2015, 5, 34956-34966.
36. Pan GQ, Liu S, **Zhao X**, Zhao JW, Fan CY, Cui WG. Full-course inhibition of biodegradation-induced inflammation in fibrous scaffold by loading enzyme-sensitive prodrug. *Biomaterials* (IF 8.402), 2015, 53, 202-210.
37. Cheng YJ, Cheng H, **Zhao X**, He F, Xu XD. Self-assembled micelles of multi-functional amphiphilic fusion (MFAF) peptide for targeted cancer therapy. *Polymer Chemistry* (IF 5.375), 2015, 6, 3512-3520.

#### 2014

38. Jiang SC, **Zhao X (co-first author)**, Chen S, Pan GQ, Song JL, He N, Li FF, Cui WG, Fan CY. Down-regulating ERK1/2 and SMAD2/3 phosphorylation by physical barrier of celecoxib-loaded electrospun fibrous membranes prevents tendon adhesions. *Biomaterials* (IF 8.402), 2014, 35, 9920-9929.
39. Wu J, **Zhao X (co-first author)**, Wu DQ, Chu CC. Development of a biocompatible and biodegradable hybrid hydrogel platform for sustained and temperature responsive release of ionic drugs. *Journal of Materials Chemistry B* (IF 4.543), 2014, 2, 6660 – 6668.
40. Yuan ZM, **Zhao X (co-first author)**, Wang XH, Qiu WW, Chen XL, Zheng Q, Cui WG. Promotion of initial anti-tumor effect via polydopamine modified doxorubicin-loaded electrospun fibrous membranes. *International Journal of Clinical and Experimental Pathology* (IF 1.706), 2014, 7, 5436 - 5449.
41. Hasan A, Paul A, Vrana NE, **Zhao X**, Memic A, Hwang Y, Dokmeci M, Khademhosseini A. Microfluidic techniques for development of 3D vascularized tissue. *Biomaterials* (IF 8.402), 2014, 35, 7308-7325.
42. Zhao JW, Jiang SC, Zheng WY, **Zhao X**, Chen XL, Fan CY, Cui WG. Smart electrospun fibrous scaffolds inhibit tumor cells and promote normal cell proliferation. *RSC Advances* (IF 3.108), 2014, 4, 51696-51702.
43. Chen S, Wang GD, Wu TY, **Zhao X**, Liu S, Li G, Cui WG, Fan CY. Silver nanoparticles/ibuprofen-loaded poly(L-lactide) fibrous membrane: anti-infection and anti-adhesion effects. *International Journal of Molecular Sciences* (IF 3.226), 2014, 15, 14014-14025.
44. Zhu YQ, Edmonds L, **Zhao X**, Chen XL, Hu CM, Cheng YS, Cui WG. *In vitro* and *in vivo* evaluation of Rapamycin-eluting nanofibers coating on cardiac stents. *RSC Advances* (IF 3.108), 2014,4, 34405-34411.

#### 2011

45. **Zhao X**, Olsen I, Pratten J, Knowles JC, Young AM. Reactive calcium phosphate-containing poly(ester-co-ether) methacrylate bone adhesives: setting, degradation and drug release considerations. *Journal of Material Science-Material in Medicine* (IF 2.325), 2011, 22, 1993- 2004.

#### 2010

46. **Zhao X**, Olsen I, Li HY, Gellynck K, Buxton PG, Knowles JC, Salih V, Young AM. Reactive calcium phosphate - containing poly (ester-co-ether) methacrylate bone adhesives: chemical, mechanical and biological considerations. *Acta Biomaterialia* (IF 6.319), 2010, 6, 845-55.
47. Chrzanowski W, Abou Neel E, Armitage D, **Zhao X**, Knowles JC, Salih V. *In vitro* studies on the influence of surface modification of Ni-Ti alloy on human bone cells. *Journal Biomedical Material Research-Part A* (IF 3.076), 2010, 93, 1596 -608.

#### 2008

48. Abou Neel EA, **Zhao X**, Ho SM, Knowles JC, Salih V, Young AM. Injectable degradable polymeric adhesives containing reactive calcium phosphate filler particles. *Journal of Dental*

## 2007

49. **Zhao X**, Ho SM, Young AM. Injectable biodegradable poly(ester-co-ether) methacrylate monomers for bone tissue engineering and drug delivery applications. *Tissue Engineering* (IF 3.485), 2007,13,1372. (abstract)

## 2004

50. **Zhao X**, Chen G. *In vitro* tissue culture and plantlet regeneration of the sensitive plant *Mimosa pudica* L.. *Journal of South China Normal University (Natural Science Edition)*, 2004,12, 40-42.

## B. Book chapters

51. **Zhao X (corresponding author)**, Yildirimer L, Lin ZY, Cui WG. 'Bionanofibers in drug delivery' in 'Nanobiomaterials in Drug Delivery'. Editor. Grumezescu AM. Elsevier. (2016) 403-446.
52. Yildirimer L, Hobson D, Lin ZY, Cui WG, **Zhao X (corresponding author)**. 'Tissue-engineered human skin equivalents and their applications in wound healing' in 'Tissue Engineering for Artificial Organs: Regenerative Medicine, Smart Diagnostics and Personalized Medicine'. Editor. Hasan A. Wiley-VCH.
53. **Zhao X**, Hobson D, Lin ZY, Cui WG. Electrospun biodegradable polyester micro/nano fibers for drug delivery and their clinical applications. Editor. Majeti R. Pan Stanford Publishing.
54. Wen HY, Li YY, **Zhao X**. 'Redox-sensitive polymeric nanoparticles for intracellular drug delivery' in 'Biomedically Inspired Nanomaterials'. Editor. Shi Donglu. World Scientific Publishing.(2014) 21-48.
55. **Zhao X**, Selimović Š, Camci-Unal G, Dokmeci MR, Yildirimer L, Annabi N, Khademhosseini A. 'Microfabrication of three-dimensional vascular structures' in 'Vascularization: Regenerative Medicine and Tissue Engineering'. Editor. Brey Eric. CRC Press. (2013) 143-162.

## C. Patents

1. Cui WG, Zhu YQ, Yuan TW, Cheng YS, **Zhao X**, Gao F, Degradable esophagus scaffolds National utility model patent, China. (granted, 201520876939.4).
2. Ni Q, Wu W, **Zhao X**, Cui WG, Dai Y, Wan LP. NO releasing blood vessel scaffolds. National utility model patent, China. (applied, 201610397559.1).