

Curriculum Vitae of Shixian Lv (Lyu) *Ph. D*

Postdoctoral Fellow

Bioengineering, University of Washington (UW)

3720 15th Ave NE, Seattle, WA 98195, U.S.A (office address)

4231 12th Ave NE Seattle, Apt 304, WA 98105 (home address)

Email address: shixian@uw.edu

Research Experience:

- Chemical synthesis and polymerization methods
 - Design of cancer nanomedicine
 - Peptides design and developing intracellular peptide delivery strategies for cancer immunotherapy
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Education and training:

09/2018-present

Postdoctoral Fellow, *Bioengineering, University of Washington (UW)*

Advisor: Prof. Suzie H. Pun

02/2017-09/2018

Postdoctoral Fellow, *Materials Science and Engineering, University of Illinois at Urbana-Champaign*

Advisor: Prof. Jianjun Cheng

02/2016-02/2017

Postdoctoral Fellow, *The Functional Nano & Soft Materials Laboratory (FUNSOM), Soochow University (China)*

09/2010-01/2016

Ph.D in Polymer Chemistry and Physics, Changchun Institute of Applied Chemistry, University of Chinese Academy of Sciences (UCAS)

Advisor: Prof. Xuesi Chen

Dissertation: Synthesis, Modification of Poly(amino acid)s and Their Applications in Drug Delivery Systems

09/2006-07/2010

B.S. in chemistry, Nanjing University

Advisor: Prof. Zhujun yao

Thesis: Total synthesis of huperzine A

Publications:

(1) **Shixian Lv**, Hojun Kim, Lin Feng, Ziyuan Song, Yingfeng Yang, Ryan Baumgartner, Kuan-Ying Tseng, Shen J Dillon, Cecilia Leal, Lichen Yin, Jianjun Cheng, Unimolecular Polypeptide Micelles via Ultra-fast Polymerization of N-Carboxyanhydrides, *Journal of the American Chemical Society*, 2020.

(2) Sheng Ma, Wantong Song, Yudi Xu, Xinghui Si, **Shixian Lv**, Yu Zhang, Zhaohui Tang, Xuesi Chen, Rationally Designed Polymer Conjugate for Tumor-Specific Amplification of Oxidative Stress and Boosting

Antitumor Immunity, **Nano Letters**, 2020, 20 (4), 2514-2521.

(3) Sheng Ma, Wantong Song, Yudi Xu, Xinghui Si, Dawei Zhang, **Shixian Lv**, Chenguang Yang, Lili Ma, Zhaohui Tang, Xuesi Chen, Neutralizing tumor-promoting inflammation with polypeptide-dexamethasone conjugate for microenvironment modulation and colorectal cancer therapy, **Biomaterials**, 2020, 232: 119676.

(4) Yuchen Wu, **Shixian Lv (co-first authors)**, Yongjuan Li, Hua He, Yong Ji, Mingfeng Zheng, Yong Liu, Lichen Yin, Co-delivery of dual chemo-drugs with precisely controlled, high drug loading polymeric micelles for synergistic anti-cancer therapy, **Biomaterials Science**, 2020.

(5) Xuefang Wang, Ziyuan Song, Zhengzhong Tan, Lingyang Zhu, Tianrui Xue, **Shixian Lv**, Zihuan Fu, Xuetao Zheng, Jie Ren, Jianjun Cheng, Facile Synthesis of Helical Multiblock Copolypeptides: Minimal Side Reactions with Accelerated Polymerization of N-Carboxyanhydrides, **ACS Macro Letters**, 2019, 8(11): 1517-1521.

(6) Yongjuan Li, Jian Hu, Xun Liu, Yong Liu, **Shixian Lv**, Juanjuan Dang, Yong Ji, Jinlin He, Lichen Yin, Photodynamic therapy-triggered on-demand drug release from ROS-responsive core-cross-linked micelles toward synergistic anti-cancer treatment, **Nano Research**, 2019, 12(5): 999-1008.

(7) Huicong Zhou, Shixian Lv, Dawei Zhang, Mingxiao Deng, Xuefei Zhang, Zhaohui Tang, Xuesi Chen, A polypeptide based podophyllotoxin conjugate for the treatment of multi drug resistant breast cancer with enhanced efficiency and minimal toxicity, **Acta biomaterialia**, 2018, 73: 388-399.

(8) Yongjuan Li, **Shixian Lv (co-first authors)**, Ziyuan Song, Juanjuan Dang, Xudong Li, Hua He, Xin Xu, Zhuchao Zhou, Lichen Yin. Photodynamic therapy-mediated remote control of chemotherapy toward synergistic anticancer treatment, **Nanoscale**, 2018, 10(30): 14554-14562.

(9) **Shixian Lv**, Yuchen Wu, Kaimin Cai, Hua He, Yongjuan Li, Min Lan, Xuesi Chen, Jianjun Cheng, Lichen Yin, High drug loading and sub-quantitative loading efficiency of polymeric micelles driven by donor–receptor coordination interactions, **Journal of the American Chemical Society**, 2018 140 (4), 1235-1238. (**highly cited papers**)

(10) Na Shen, Jian Jiang, Dawei Zhang, Guanyi Wang, **Shixian Lv**, Yanjie Jia, Zhaohui Tang, Xuesi Chen, Bortezomib Increases the Cancer Therapeutic Efficacy of Poly (amino acid)–Doxorubicin, **ACS Biomaterials Science & Engineering** 2018, 4, 2053–2060.

(11) Fangfang Li, Yongjuan Li, Zhuchao Zhou, **Shixian Lv**, Qiurong Deng, Xin Xu, and Lichen Yin, Engineering the aromaticity of cationic helical polypeptides toward “self-activated” DNA/siRNA delivery, **ACS applied materials & interfaces**, 2017, 9(28): 23586-23601.

(12) Huicong Zhou, Huanjiao Sun, **Shixian Lv**, Dawei Zhang, Xuefei Zhang, Zhaohui Tang, Xuesi Chen, Legumain-cleavable 4-arm poly (ethylene glycol)-doxorubicin conjugate for tumor specific delivery and release, **Acta Biomaterialia**, 2017;54:227-38.

(13) **Shixian Lv**, Zhaohui Tang, Wantong Song, Dawei Zhang, Mingqiang Li, Huaiyu Liu, Jianjun Cheng, Wu Zhong, Xuesi Chen, Inhibiting Solid Tumor Growth In Vivo by Non - Tumor - Penetrating Nanomedicine, **Small**, 2017, 13(12).

(14) Mingqiang Li, Weiqian Jiang, Zaozao Chen, Smruthi Suryaprakash, **Shixian Lv**, Zhaohui Tang, Xuesi Chen, Kam W Leong, A versatile platform for surface modification of microfluidic droplets, **Lab on a Chip**, 2017, 17(4): 635-639.

(15) Ziyuan Song, Zhiyuan Han, **Shixian Lv**, Chongyi Chen, Li Chen, Lichen Yin and Jianjun Cheng, Synthetic polypeptides: from polymer design to supramolecular assembly and biomedical application, **Chemical Society Reviews**, 2017, 46(21): 6570-6599.

(16) **Shixian Lv**, Yuchen Wu (**co-first authors**), Jingqi Dang, Zhaohui Tang, Ziyuan Song, Sheng Ma, Xiao Wang, Xuesi Chen, Jianjun Cheng, Lichen Yin, Investigation on the controlled synthesis and post-modification of poly-[(N-2-hydroxyethyl)-aspartamide]-based polymers, **Polymer Chemistry**, 2017, 8(12): 1872-1877.

(17) Zaheer Ahmad, Zhaohui Tang, Afzal Shah, **Shixian Lv**, Dawei Zhang, Ying Zhang, Xuesi Chen, Methoxy poly (ethylene glycol)-block-poly (glutamic acid)-graft-6-(2-nitroimidazole) hexyl amine nanoparticles for potential hypoxia-responsive delivery of doxorubicin, **Journal of Biomaterials Science, Polymer Edition**,

2016, 27(1): 40-54.

- (18) Yue Wang, **Shixian Lv**, Mingxiao Deng, Zhaohui Tang, **Xuesi Chen**, A charge-conversional intracellular-activated polymeric prodrug for tumor therapy, *Polymer Chemistry*, 2016, 7 (12), 2253-2263.
- (19) Wantong Song, Zhaohui Tang, Dawei Zhang, Xue Wen, Shixian Lv, Zhilin Liu, Mingxiao Deng, Xuesi Chen, Solid tumor therapy using a cannon and pawn combination strategy, *Theranostics*, 2016;6:1023-30.
- (20) Mingqiang Li, Zhaohui Tang, Yu Zhang, **Shixian Lv**, Quanshun Li, **Xuesi Chen**, Targeted delivery of cisplatin by LHRH-peptide conjugated dextran nanoparticles suppresses breast cancer growth and metastasis, *Acta Biomaterialia*, 2015,18: 132-143.
- (21) **Shixian Lv**, Zhaohui Tang, Dawei Zhang, Wantong Song, Mingqiang Li, Jian Lin, Huaiyu Liu, Xuesi Chen, Well-defined polymer-drug conjugate engineered with redox and pH-sensitive release mechanism for efficient delivery of paclitaxel, *Journal of Controlled Release*, 2014, 194: 220-227. (**highly cited papers**)
- (22) Mingqiang Li, Zhaohui Tang, Jian Lin, Yu Zhang, **Shixian Lv**, Wantong Song, Yubin Huang, **Xuesi Chen**, Synergistic Antitumor Effects of Doxorubicin - Loaded Carboxymethyl Cellulose Nanoparticle in Combination with Endostar for Effective Treatment of Non - Small - Cell Lung Cancer, *Advanced Healthcare Materials*, 2014, 3(11): 1877-1888.
- (23) Zaheer Ahmad, Zhaohui Tang, Afzal Shah, **Shixian Lv**, Dawei Zhang, Ying Zhang, Xuesi Chen, Cisplatin Loaded Methoxy Poly (ethylene glycol) - block - Poly (L - glutamic acid - co - L - Phenylalanine) Nanoparticles against Human Breast Cancer Cell, *Macromolecular bioscience*, 2014, 14(9): 1337-1345.
- (24) Qian Li, **Shixian Lv (co-first authors)**, Zhaohui Tang, Muhua Liu, Dawei Zhang, Yan Yang, Xuesi Chen, A co-delivery system based on paclitaxel grafted mPEG-b-PLG loaded with doxorubicin: preparation, in vitro and in vivo evaluation, *International Journal of Pharmaceutics*, 2014, 471(1-20): 412-420.
- (25) **Shixian Lv**, Zhaohui Tang, Mingqiang Li, Jian Lin, Wantong Song, Huaiyu Liu, Yubin Huang, Yuanyuan Zhang, Xuesi Chen, Co-delivery of doxorubicin and paclitaxel by PEG-polypeptide nanovehicle for the treatment of non-small cell lung cancer, *Biomaterials*, 2014, 35(23): 6118-6129.
- (26) **Shixian Lv**, Wantong Song, Zhaohui Tang, Mingqiang Li, Haiyang Yu, Hua Hong, Xuesi Chen, Charge-Conversional PEG-Polypeptide Polyionic Complex Nanoparticles from Simple Blending of a Pair of Oppositely Charged Block Copolymers as an Intelligent Vehicle for Efficient Antitumor Drug Delivery, *Molecular Pharmaceutics*, 2014, 11(5): 1562-1574.
- (27) Mingqiang Li, Zhaohui Tang, **Shixian Lv**, Wantong Song, Hua Hong, Xiabin Jing, Yuanyuan Zhang, Xuesi Chen, Cisplatin crosslinked pH-sensitive nanoparticles for efficient delivery of doxorubicin, *Biomaterials*, 2014, 35(12): 3851-3864.
- (28) Wantong Song, Zhaohui Tang, Mingqiang Li, **Shixian Lv**, Hai Sun, Mingxiao Deng, Huaiyu Liu, Xuesi Chen, Polypeptide-based combination of paclitaxel and cisplatin for enhanced chemotherapy efficacy and reduced side-effects, *Acta Biomaterialia*, 2014, 10(3): 1392-1402.
- (29) Wantong Song, Zhaohui Tang, Dawei Zhang, Ying Zhang, Haiyang Yu, Mingqiang Li, **Shixian Lv**, Hai Sun, Mingxiao Deng, Xuesi Chen, Anti-tumor efficacy of c (RGDfK)-decorated polypeptide-based micelles co-loaded with docetaxel and cisplatin, *Biomaterials*, 2014, 35(9): 3005-3014.
- (30) Mingqiang Li, Zhaohui Tang, Yu Zhang, **Shixian Lv**, Haiyang Yu, Dawei Zhang, Hua Hong, Xuesi Chen, LHRH-peptide conjugated dextran nanoparticles for targeted delivery of cisplatin to breast cancer, *Journal of Materials Chemistry B*, 2014, 35(9): 3005-3014.
- (31) **Shixian Lv**, Mingqiang Li (co-first authors), Zhaohui Tang, Wantong Song, Hai Sun, Huaiyu Liu, Xuesi Chen, Doxorubicin-loaded amphiphilic polypeptide-based nanoparticles as an efficient drug delivery system for cancer therapy, *Acta Biomaterialia*, 2013, 9(12): 9330-9342.
- (32) Mingqiang Li, **Shixian Lv (co-first authors)**, Zhaohui Tang, Wantong Song, Haiyang Yu, Hai Sun, Huaiyu Liu, Xuesi Chen, Polypeptide/D oxorubicin Hydrochloride Polymersomes Prepared Through Organic Solvent - free Technique as a Smart Drug Delivery Platform, *Macromolecular Bioscience*, 2013, 13(9): 1150-1162.
- (33) Mingqiang Li, Wantong Song, Zhaohui Tang, **Shixian Lv**, Lin Lin, Hai Sun, Quanshun Li, Yan Yang, Hua Hong, Xuesi Chen, Nanoscaled Poly(l-glutamic acid)/Doxorubicin-Amphiphile Complex as pH-responsive

Drug Delivery System for Effective Treatment of Nonsmall Cell Lung Cancer, *ACS Applied Materials & Interfaces*, 2013,5(5): 1781-1792.

(34) Wantong Song, Zhaohui Tang, Mingqiang Li, **Shixian Lv**, Haiyang Yu, Lili Ma, Xiuli Zhuang, Yubin Huang, Xuesi Chen, Tunable pH - Sensitive Poly(β - amino ester)s Synthesized from Primary Amines and Diacrylates for Intracellular Drug Delivery, *Macromolecular Bioscience*, 2012, 12(10): 1375-1383.

Honors

2014–2015 UCAS, “Pexpertmaker to Merit Student”

2013–2014 UCAS, “Merit Student”