

Giannan Li

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Post-doctoral fellow, Orthopaedic Surgery, School of Medicine, Stanford University

Research interest: microfluidics, biomaterials, bioprinting, tissue engineering

EDUCATION

- Ph. D. in Electrical and Computer Engineering University of California, Davis, 09/2018
- Advisor: Prof. Tingrui Pan and Prof. Kit S. Lam
- M. S. in Electrical and Computer Engineering, GPA 3.87 University of California, Davis, 04/2014
- Advisor: Prof. Tingrui Pan and Prof. Kit S. Lam
- B. E. in Microelectronics and Nanoelectronics, GPA 3.75 Tsinghua University, 07/2012
- Advisor: Prof. Xiaohong Wang

POSTGRADUATE TRAINING

- Post-doctoral fellow Orthopaedic Surgery, School of Medicine, Stanford University, 03/2019-present
- Advisor: Prof. Yunzhi Peter Yang
- Post-doctoral fellow Biochemistry and Molecular Medicine, University of California, Davis, 09/2018-02/2019
- Advisor: Prof. Kit S. Lam

HONORS AND AWARDS

- Stanford MCHRI fellow postdoctoral fellowship*, School of Medicine, Stanford University 2021
- Excellence in research award*, Electrical and Computer Engineering, UC Davis 2016
- Outstanding student research training project*, Micro- and Nano-electronics, Tsinghua University 2012
- Scholarship of academic records*, Tsinghua University 2012
- Freshman scholarship*, Tsinghua University 2008
- Ranked 2nd/400,000 in National College Entrance Exam*, Shaanxi Province, China 2008

JOURNAL PAPERS

- J. Li**, W. Tan, W. Xiao, R. P. Carney, Y. Men, Y. Li, Y. Ajena, K. S. Lam, T. Pan, “A plug-and-play, drug-on-pillar platform for combination drug screening implemented by microfluidic adaptive printing”, *Analytical Chemistry*, 90(23), 2018 Nov 13. <https://doi.org/10.1021/acs.analchem.8b03456>
- J. Li**, R. P. Carney, R. Liu, J. Fan, S. Zhao, Y. Chen, K. S. Lam, T. Pan, “Microfluidic Print-to-Synthesis Platform for Efficient Preparation and Screening of Combinatorial Peptide Microarrays”, *Analytical Chemistry*, 90(9), 2018 Apr 10, 5833–5840. <https://doi.org/10.1021/acs.analchem.8b00371>
- Y. Ding, **J. Li (co-first author)**, W. Xiao, K. Xiao, J. Lee, U. Bhardwaj, Z. Zhu, P. Digiglio, K. S. Lam, T. Pan, “Microfluidic-Enabled Print-to-Screen (P2S) Platform for High-Throughput Screening of Combinatorial Chemotherapy”, *Analytical Chemistry*, 87(20), 2015 Oct 20, 10166-10171. <https://doi.org/10.1021/acs.analchem.5b00826>
- J. Li**, S. Zhao, G. Yang, R. Liu, W. Xiao, P. Disano, K. S. Lam, T. Pan, “Combinatorial Peptide Array Synthesis Based on Microfluidic Impact Printing”, *ACS Combinatorial Science*, 21(1), 2018 Dec 6, 6-10. <https://doi.org/10.1021/acscmbosci.8b00125>
- Y. Sun, G. Wang, J. Liang, J. Sui, J. Fan, **J. Li (Corresponding)**, “Microfluidic pneumatic printed sandwiched micro droplet array for high-throughput enzymatic reaction and screening”, *SLAS Technology*, 25(5), May 14, 2020, 446-454. <https://doi.org/10.1177%2F2472630320908248>

Y. P. Yang, B. C. Gadowski, A. Bruyas, J. Easley, K. M. Labus, B. Nelson, R. Palmer, H. Stewart, K. McGilvray, C. M. Puttlitz, D. Regan, A. Stahl, E. Lui, **J. Li**, S. Moeinzadeh, S. Kim, W. Maloney, M. J. Gardner, “Investigation of a Prevascularized Bone Graft for Large Defects in the Ovine Tibia”, *Tissue Engineering, Part A*. Apr. 2021. doi: 10.1089/ten.TEA.2020.0347

Y. Yang, K. M. Labus, B. C. Gadowski, A. Bruyas, J. Easley, B. Nelson, R. Palmer, K. McGilvray, D. Regan, C. M. Puttlitz, A. Stahl, E. Lui, **J. Li**, S. Moeinzadeh, S. Kim, W. Maloney, M. J. Gardner, “Osteoinductive 3D Printed Scaffold healed 5 cm Segmental Bone Defects in the Ovine Metatarsus”, *Scientific Reports*, Mar 2021, 11:6704. <https://doi.org/10.1038/s41598-021-86210-5>

M. Wang, X. Wang, **J. Li**, L. Liu, “In situ synthesis of 3D platinum nanoflowers on porous silicon for monolithic integrated micro direct methanol fuel cells”, *J. Mater. Chem. A*, 1(28), 2013 May 23, 8127-8133. <https://doi.org/10.1039/C3TA11997A>

W. Tan, Z. Zhong, R. P. Carney, Y. Men, **J. Li**, T. Pan, Y. Wang, “Deciphering the Metabolic Role of AMPK in Cancer Multi-Drug Resistance”, *Seminars in Cancer Biology*. <https://doi.org/10.1016/j.semcancer.2018.09.005>

J. Fan, F. Villarreal, B. Weyers, Y. Ding, K. Tseng, **J. Li**, B. Li, C. Tan, T. Pan, “Multi-dimensional studies of synthetic genetic promoters enabled by microfluidic impact printing”, *Lab Chip*, 17(13), 2017 Jun 01, 2198-2207. <https://doi.org/10.1039/C7LC00382J>

L. Shao, H. Chen, Y. Li, **J. Li**, G. Chen, G. Wang, “Pretreatment of corn stover via sodium hydroxide–urea solutions to improve the glucose yield”, *Bioresource Technology*, Volume 307, July 2020, 123191. <https://doi.org/10.1016/j.biortech.2020.123191>

W. Bu, W. Li, **J. Li**, T. Ao, Z. Li, B. Wu, S. Wu, W. Kong, T. Pan, Y. Ding, W. Tan, Y. Chen, Y. Men, “A low-cost, programmable and multi-functional droplet printing system for low copy number SARS-CoV-2 digital PCR determination”, *Sensors and Actuators B*, 1 Dec 2021, <https://doi.org/10.1016/j.snb.2021.130678>

S. Jafari, Y. Thillier, Y. H. Ajena, D. Shorty, **J. Li**, J. S. Huynh, B. M. Pan, T. Pan, K. S. Lam, R. Liu, “Rapid Discovery of Illuminating Peptides for Instant Detection of Opioids in Blood and Body Fluids”, *Molecules*, 2019, 24(9), 1813. <https://doi.org/10.3390/molecules24091813>

B. Li, J. Fan, **J. Li**, J. Chu, T. Pan, “Piezoelectric-driven droplet impact printing with an interchangeable microfluidic cartridge”, *Biomicrofluidics*, 9(5), 2015 Sep 1, 054101. <https://doi.org/10.1063/1.4928298>

W. Song, **J. Li**, Y. Xiao, H. Chen, Y. Sun, S. Zhang, Y. Li, G. Chen, G. Wang, “Building an operational framework for pretreatment corn stover via sulfamic acid/NaCl and application”, *Biomass Conv. Bioref.*, Aug. 25, 2020. <https://doi.org/10.1007/s13399-020-00975-9>

C. Pan, C. Kim, **J. Li (co-first author)**, E. Lui, B. Salazar, M. Maruyama, S. B. Goodman, Y. P. Yang, “Bioprinting for Bone Tissue Engineering”, *ASM Handbooks*, *accepted*

J. Li, S. Moeinzadeh, C. Kim, C. Pan, G. Weale, S. Kim, H. Choo, C. Chan, Y. P. Yang, “Development and Systematical Characterization of GelMA/Alginate/PEGDMA/Xanthan Gum Hydrogel Bioink System for Extrusion Bioprinting”, *in revision*

CONFERENCE PAPERS

J. Li, C. Kim, S. Moeinzadeh, C. Pan, Y. P. Yang, “Hybrid Bioprinting via Integrated Additive Manufacturing High-Throughput Acoustic Patterning (IMHAP)”, *SFB 2021 Annual Meeting*, 2021

J. Li, T. Shelby, H. Shelby, Y. P. Yang, “Development and Characterization of an Automated Hydrogel Bioink Preparation Device”, *SFB 2021 Annual Meeting*, 2021

C. Kim, **J. Li**, S. Moeinzadeh, C. Pan, Y. P. Yang, “Hybrid Bioprinting via Integrated Additive Manufacturing High-

Throughput Acoustic Patterning (IMHAP)", *ORS 2021 Annual Meeting*, 2021

T. Shelby, **J. Li**, H. Shelby, Y. P. Yang, "Development and Characterization of an Automated Hydrogel Bioink Preparation Device", *ORS 2021 Annual Meeting*, 2021

J. Li, S. Moeinzadeh, C. Kim, C. Pan, G. Weale, Y. P. Yang, "Systematic Characterization of a Novel GelMA-Based Hydrogel System", *ORS 2020 Annual Meeting*, 2020

J. Li, W. Xiao, Y. Men, W. Tan, K. S. Lam, T. Pan, "Microfluidic Printing Enabled Drug-on-Pillar Platform for Personalized Drug Screening", *BMES 2018 Annual Meeting*, 2018

J. Li, R. P. Carney, R. Liu, J. Fan, S. Zhao, K. S. Lam, T. Pan, "Microfluidic Print-to-Synthesis Enabled Combinatorial Peptide Microarray for Cancer Targeting", *Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS), 2017 19th International Conference on*. doi: 10.1109/TRANSDUCERS.2017.7994512

J. Li, Y. Ding, W. Xiao, K. Xiao, J. Lee, U. Bhardwaj, Z. Zhu, P. Digiglio, K. S. Lam, T. Pan, "High-throughput print-to-screen (P2S) platform for combinatorial chemotherapy", *Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS), 2015 Transducers - 2015 18th International Conference on*. doi: 10.1109/TRANSDUCERS.2015.7181406

J. Li, W. Chen, "A new envelope tracking technique for concurrent duan-band PAs", *Consumer Electronics, Communications and Networks (CECNet), 2012 2nd International Conference on*. doi: 10.1109/CECNet.2012.6201694

R. Liu, S. Jafari, Y. Thillier, Y. H. Ajena, **J. Li**, B. M. Pan, J. S. Huynh, T. Pan, X. Chen, A. Hong, K. S. Lam, "Rapid discovery of illuminating peptides for instant detection of opioids in blood", *15th Chinese International Peptide Symposium*. 2nd tier award.

PATENTS AND RECORD OF INVENTIONS

X. Wang, M. Wang, **J. Li**, L. Liu, "A novel proton exchange membrane based on porous silicon", *CN201210484580.7*

B. Li, J. Fan, **J. Li**, K. S. Lam, T. Pan, "Multi-channel microfluidic piezoelectric impact printer", UC Case 2016-139-0

J. Li, T. Shelby, Y. P. Yang, "Automated active mixing platform (AAMP) for Hydrogel Bioink Preparation", S21-003/PROV

GRANT SUPPORT

ACTIVE Grants

Stanford MCHRI Postdoctoral Support Grant

07/01/2021-07/01/2023

Title: Integration of Stem Cell Therapy with a Bioactive Hybrid Scaffold Adaptable to Fetal Growth for Improved Prenatal Treatment of *Spina Bifida*

Role: PI (Faculty advisor: Prof. Peter Yang)

Amount: \$120,000

NIH 1U01AR069395-01A1

09/09/2016-08/31/2022

Title: Systems Modeling Guided Bone regeneration

Role: Fellow (PI: Prof. Xiaobo Zhou, Prof. Peter Yang)

Amount: \$2,808,950

DOD BA180237

10/01/2019-10/01/2021

Title: Hybrid Bone-Tendon Grafts for Enhanced Tendon Healing

Role: Fellow (PI: Prof. Yunzhi Peter Yang)

Amount: ~\$1,000,000

PAST Grants

NIH R21 1R21CA173243	<i>09/01/2013-08/31/2016</i>
Title: Cancer Detection and Diagnosis Research	
Role: Fellow (PI: Prof. Kit S. Lam, Prof. Tingrui Pan)	
Amount: \$643,979	
NIH R01 5R01CA115483	<i>07/25/2005-04/30/2021</i>
Title: Therapeutic Targeting Agents for Ovarian Cancer	
Role: Fellow (PI: Prof. Kit S. Lam)	
Amount: \$ 5,485,525	
NIH R01 5R01EB012569	<i>12/01/2010-05/31/2021</i>
Title: Targeting nanotherapeutics against murine and feline oral cancer	
Role: Fellow (PI: Prof. Kit S. Lam)	
Amount: \$4,204,796	
NSF DBI 1256193	<i>04/01/2013-06/18/2015</i>
Title: Encoded Combinatorial Microdisc Array for Ultrahigh-Throughput Biomolecule Screening	
Role: Fellow (PI: Prof. Tingrui Pan, Prof. Kit S. Lam)	
Amount: \$390,107	
NSF ECCS 0846502	<i>07/15/2009-06/30/2014</i>
Title: Lab-on-a-Chip Systems of Photopatternable Multifunctional Nanocomposite Materials for Cell Detection and Manipulation	
Role: Fellow (PI: Prof. Tingrui Pan)	
Amount: \$400,000	

TEACHING EXPERIENCE

Teaching assistant for Engineering problem solving (ENG 6) at UC Davis	<i>2014-2016</i>
Teaching assistant for Biomedical Instrumentation (BIM 111) at UC Davis	<i>2015-2016</i>
Teaching assistant for Microfluidic Labs (BIM 189C) at UC Davis	<i>2018</i>

PEER-REVIEW SERVICES

Lab on a Chip	<i>2018-present</i>
Biomedical Microdevices	<i>2018-present</i>
SPE Journal	<i>2018-present</i>
SPE Production and Operations	<i>2018-present</i>
Micromachines	<i>2021-present</i>
Sustainability	<i>2021-present</i>

OTHER EXPERIENCES AND PROFESSIONAL MEMBERSHIPS

Judge, Alameda County Science and Engineering Fair	<i>2021</i>
Member, Orthopaedic Research Society	<i>2019-2020</i>
Student member, Biomedical Engineering Society	<i>2018-2019</i>
Division of Student and Scholar Affairs, Chinese Students and Scholars Association, UC Davis	
• Director	<i>2014-2015</i>
• Vice Director	<i>2013-2014</i>