
# JIANPING FU, Ph.D.

Department of Mechanical Engineering
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## Short Biography

Dr. Fu received a B.E. degree (2000) from the University of Science and Technology of China (USTC) and a M.S. degree (2002) from the University of California at Los Angeles (UCLA), both in Mechanical Engineering. He earned his Ph.D. degree in Mechanical Engineering from the Massachusetts Institute of Technology (MIT) in 2007 for a thesis completed with Dr. Jongyoon Han. Dr. Fu was an American Heart Association Postdoctoral Fellow in Dr. Christopher S. Chen's group at the University of Pennsylvania from 2007 to 2009. Dr. Fu has been at the University of Michigan in the Department of Mechanical Engineering from 2009 to the present, achieving the rank of Professor of Mechanical Engineering in 2020. Dr. Fu also holds courtesy appointments in the Department of Biomedical Engineering and Department of Cell & Developmental Biology (Medical School).

Dr. Fu has published > 140 archival journal papers and delivered > 160 invited seminars and presentations. Dr. Fu's research contributions have been recognized by more than 30 institutional, national and international awards and honors, including the National Science Foundation CAREER Award (2012), the Rising Star Award from the Biomedical Engineering Society (2016), the Analytical Chemistry Young Innovator Award from the American Chemical Society (2020), the Friedrich Wilhelm Bessel Research Award from the Alexander von Humboldt Foundation (2022), and numerous research awards from the University of Michigan. Dr. Fu's research focuses on stem cell bioengineering, developmental bioengineering, and mechanobiology in the context of understanding human development and disease. Dr. Fu and co-workers' research on modeling human development using stem cells has contributed significantly to the emerging field of "Artificial Embryos", which was selected by the *MIT Technology Review* as "10 Breakthrough Technologies of 2018" and by *Nature Methods* as "the Method of 2023".

Dr. Fu is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), the Royal Society of Chemistry (RSC), the American Society of Mechanical Engineers (ASME), the International Academy of Medical and Biological Engineers (IAMBE), and the Biomedical Engineering Society (BMES). He is also a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). Dr. Fu was a member of the International Society for Stem Cell Research (ISSCR) Guidelines Working Group (2019-2021), convened to review the oversight process and provide an update to the ISSCR guidelines on *in vitro* culture of human embryos, creation of stem cell-based embryo models, and *in vitro* gametogenesis. Dr. Fu is currently a member of the Biomedical Engineering Society Cellular and Molecular Bioengineering Special Interest Group (BMES CMBE-SIG), the ASME Bioengineering Division National Technical Committee on Tissue and Cellular Engineering, and the ISSCR Publication Committee. Dr. Fu served as organizers of numerous meetings in the fields of stem cell bioengineering and human development (BIRS Workshop / Keystone Symposia / BMES Cellular and Molecular Bioengineering Conference / ISSCR Digital Meeting Series / Bioengineering and Translational Medicine Conference). Dr. Fu now serves as the Associate Editor of *npj Regenerative Medicine* and is an Editorial or Advisory Board Member of *Cell Stem Cell*, *Biophysical Journal*, *Cell Regeneration*, *Mechanobiology in Medicine*, and *Frontiers in Cell and Developmental Biology*. Dr. Fu is a Founding Member of the Catalysts Program of *EMBO Journal*.

Since 2009, trainees in Dr. Fu's group have won > 40 research awards and fellowships. Most alumni of Dr. Fu's group are now pursuing careers in academia including faculty positions at the New York Univ., Univ. of Massachusetts at Amherst, Syracuse Univ., Johns Hopkins Univ., Cincinnati Children's Hospital Medical Center, City Univ. of Hong Kong, Shenzhen Univ. (China), Tsinghua Univ. (China), Anhui Univ. (China), and Dalian Univ. of Technology (China).

## A. EDUCATION

**Massachusetts Institute of Technology (MIT)** Cambridge, MA
Ph.D. Department of Mechanical Engineering. (2002-2007)
Thesis title: Nanofluidic devices for rapid analysis of DNA and proteins
Thesis advisor: Jongyoon Han

**University of California, Los Angeles (UCLA)** Los Angeles, CA
M.S. Department of Mechanical and Aerospace Engineering. (2000-2002)
Thesis title: Integrated electroplated heat spreaders for high power semiconductor lasers
Thesis advisor: Gang Chen

**University of Science and Technology of China (USTC)** Hefei, Anhui
B.E. Department of Mechanical Engineering. (1995-2000)
Thesis title: Thermophysical study of the trifluoroiodomethane ($CF_3I$)
Thesis advisor: Zeshao Chen

## B. POSITIONS AND EMPLOYMENT

**Freie Universität Berlin**
Visiting Professor, Institut für Chemie und Biochemie July 2024-present

**University of Michigan, Ann Arbor**

| | |
|---|---|
| Professor (by courtesy), Cell & Developmental Biology | Sept. 2020-present |
| Professor (by courtesy), Biomedical Engineering | Sept. 2020-present |
| Professor (with tenure), Mechanical Engineering | Sept. 2020-present |
| Associate Professor (with tenure), Mechanical Engineering | Sept. 2015-Aug. 2020 |
| Associate Director, Michigan Center for Integrative Research in Critical Care | Sept. 2015-June 2018 |
| Assistant Professor, Mechanical Engineering. | Sept. 2009-Aug. 2015 |

Other affiliations:

| | |
|---|---|
| Faculty Member, Center for Systems Biology | Jan. 2014-present |
| Faculty Member, Center for Wireless Integrated MicroSensing and Systems ($WIMS^2$) | Nov. 2013-present |
| Faculty Member, Michigan Center for Integrative Research in Critical Care | May 2013-present |
| Core Member, Comprehensive Cancer Center | Sept. 2012-present |
| Faculty Member, Microfluidics in Biomedical Sciences Training Program | Nov. 2010-present |
| Faculty Member, Center for Organogenesis | Oct. 2010-present |
| Faculty Associate, Center for Global Health | Feb. 2010-June 2012 |

**University of Pennsylvania**
Postdoctoral research fellow, Bioengineering. Sept. 2007-Aug. 2009
Postdoctoral advisor: Christopher S. Chen

**Massachusetts Institute of Technology**
Graduate research assistant, Electrical and Biological Engineering. June 2002-Aug. 2007
Graduate research advisor: Jongyoon Han

## C. HONORS AND AWARDS

### *C.1. FACULTY HONORS AND AWARDS*

1. International Society for Stem Cell Research (ISSCR) Merit Awards (2024; with J. Bok, Y. Kim, X. Xue)
2. Wise-Najafi Prize for Engineering Excellence in the Miniature World, College of Engineering, Univ. Michigan (2024)
3. Top 2% of World's Scientists by Stanford-Elsevier Ranking (2022, 2023)
4. Friedrich Wilhelm Bessel Research Award, Alexander von Humboldt Foundation (2022)

5. Mid-career Biosciences Faculty Achievement Recognition Award, Univ. Michigan (2022)
6. Best Poster Award, the 3rd China Forum on Biosensors / Biochips / Nanobiotechnology (2021; with Dr. Kejie Chen)
7. Translational Award, UM Life Sciences - Michigan Translational Research and Commercialization Program, Univ. Michigan (2021)
8. Fast Forward Medical Innovation fastPACE Award, Univ. Michigan (2020)
9. Analytical Chemistry Young Innovator Award, American Chemical Society (2020)
10. Robert M. Caddell Memorial Award for Research, Department of Mechanical engineering, Univ. Michigan (2020)
11. Outstanding Poster Award, 9th International Conference on Microtechnologies in Medicine and Biology (2018; with Xufeng Xue)
12. 10 Breakthrough Technologies of 2018 - Artificial Embryos, *MIT Technology Review* (2018)
13. George J. Huebner, Jr. Research Excellence Award, College of Engineering, Univ. Michigan (2018)
14. Coulter Translational Research Award, Univ. Michigan (2016)
15. Kickstart Award, Michigan Translational Research and Commercialization for Life Sciences Innovation Hub, Univ. Michigan (2016)
16. Rising Star Award, Biomedical Engineering Society - Cellular and Molecular Bioengineering (2016)
17. Ted Kennedy Family Team Excellence Award, College of Engineering, Univ. Michigan (2015)
18. Robert M. Caddell Memorial Award for Research, Department of Mechanical Engineering, Univ. Michigan (2014)
19. Outstanding Faculty Achievement Award, Department of Mechanical Engineering, Univ. Michigan (2014)
20. Two Outstanding Paper Awards, ASME Global Congress on Nano Engineering for Medicine and Biology (2013; with Yue Shao and Weiqiang Chen)
21. NSF Faculty Early Career Development (CAREER) Award (2012)
22. American Heart Association Scientist Development Award, National Program (2012)

### *C.2. POSTGRADUATE HONORS AND AWARDS*

23. American Heart Association Postdoctoral Fellowship (2008)

### *C.3. GRADUATE HONORS AND AWARDS*

24. Senturia Prize for Best Thesis in MEMS/NEMS, MIT (2007)
25. Halen Carr Peake Research Prize for Bioengineering Research of Extraordinary Quality, MIT (2007)
26. Program in Polymer Science and Technology 20th Anniversary Research Excellence Award, First Runner-up, MIT (2006)
27. 100K Entrepreneurship Competition, Semifinalist, MIT (2006)
28. Massachusetts Technology Assessment Award, Massachusetts Technology Transfer Center (2006)
29. NTW Graduate Student Fellowship, UCLA (2000)

### *C.4. UNDERGRADUATE HONORS AND AWARDS*

30. Undergraduate Thesis Excellence Award, Univ. Sci. & Technol. China (2000)
31. *Proctor* & *Gamble* Scholarship, Univ. Sci. & Technol. China (1999)
32. Liu Yongling Scholarship, Univ. Sci. & Technol. China (1998)
33. Zhang Zhongzhi Science & Technology Scholarship, Univ. Sci. & Technol. China (1997)
34. Freshman Merit Scholarship, Univ. Sci. & Technol. China (1995)

### *C.5. NOTABLE SERVICES*

#### *C.5.1. JOURNAL EDITORIAL SERVICES*

1. Guest Editor, ***Biophysical Journal: Special Issue on Materials and Measurement in Mechanobiology*** (co-editors: Guy Genin and Treena L. Arinzeh)
2. Editorial Board Member, ***Biophysical Journal*** (2024-present)
3. Advisory Board Member, ***Cell Stem Cell*** (2023-present)
4. Editorial Board Member, ***Frontiers in Cell and Developmental Biology*** (2023-present)
5. Editorial Board Member, ***Mechanobiology in Medicine*** (2022-present)

6. Editorial Board Member, ***Cell Regeneration*** (2022-present)
7. Founding Member, Catalysts Program, ***EMBO Journal*** (2021-present)
8. Associate Editor, ***npj Regenerative Medicine*** (2021-present)
9. Guest Editor, ***Stem Cell Reports: Special Issue on Embryo Modeling***, 2021 (co-editor: Nicolas Rivron)
10. Guest Editor, ***Current Opinion in Biomedical Engineering: Special Issue on Organoids and Tissue Development***, 2020 (co-editor: George A. Truskey)
11. Guest Editor, ***Biomicrofluidics***, 2015
12. Guest Editor, ***ACS Biomaterials Science and Engineering***, 2014
13. Guest Editor, ***ASME Journal of Nanotechnology in Engineering and Medicine***, Special Topic on: Nanoscale materials, devices, and systems for biosensing, biomanipulation, and biofabrication, 2014

### *C.5.2. CONFERENCE ORGANIZERS*

1. Conference Co-organizer, 2026 Keystone Symposia: Stem Cell Models in Embryology (co-organizer: Jun Wu)
2. Conference Co-organizer, 2025 9th Sino-American Workshop on Biomedical Engineering and Biomechanics, Chengdu, China (co-organizer: Ning Jenny Jiang).
3. Scientific Program Committee Member, 2024 11th World Association for Chinese Biomedical Engineers (WACBE) World Congress on Bioengineering
4. Organizing Committee Co-chair, 2024 8th Bioengineering and Translational Medicine Conference (co-chair: Liangfang Zhang)
5. Conference Co-organizer, 2023 BMES Cellular and Molecular Bioengineering Conference (co-organizer: Dennis Discher and Stephanie I. Fraley)
6. Organizing Committee Member, 2022 7th Bioengineering and Translational Medicine Conference
7. Organizing Committee Member, 2022 8th International Conference on Stem Cell Engineering
8. Conference Co-organizer, 2022 Keystone Symposia: Multi-Cellular Engineered Living Systems: Biologically Engineered Systems with New Functionality (co-organizers: Roger D. Kamm and Nuria Montserrat Pulido)
9. Conference Co-organizer, 2022 BIRS Workshop: Modeling and Engineering of the Mammalian Embryo (co-organizers: Janet Rossant and Eric D. Siggia)
10. Member, Keystone Symposia Study Group (2021-present)
11. Conference Co-organizer, 2021 International Society for Stem Cell Research (ISSCR) Digital Meeting Series: Stem Cell-Based Embryo Models (co-organizer: Nicolas Rivron)

### *C.5.3. OTHER NOTABLE SERVICES*

1. Treasurer, Biomedical Engineering Society Cellular and Molecular Bioengineering Special Interest Group (BMES CMBE-SIG) (2023-present)
2. Member, Keystone Symposia's Study Group (2023-2024)
3. Member, International Society for Stem Cell Research (ISSCR) Publication Committee / Scientific Programs Committee (2021-present)
4. Council Member, Biomedical Engineering Society Cellular and Molecular Bioengineering Special Interest Group (BMES CMBE-SIG) (2020-present)
5. Member, International Society for Stem Cell Research (ISSCR) Guidelines Working Group (2019-2021)
6. Member, ASME Bioengineering Division National Technical Committee on Tissue and Cellular Engineering (2011-present)

## *C.6. SOCIETY MEMBERSHIP*

1. Life member, World Association of Chinese Biomedical Engineers (WACBE; 2024)
2. Fellow, Biomedical Engineering Society (BMES; inducted in 2023)
3. Fellow, International Academy of Medical and Biological Engineers (IAMBE; inducted in 2023)
4. Fellow, American Institute for Medical and Biological Engineering (AIMBE; inducted in 2020)
5. Fellow, American Society of Mechanical Engineers (ASME; inducted in 2020)
6. Senor Member, IEEE Engineering in Medicine & Biology Society (EMBS; inducted in 2020)
7. Member, American Association for the Advancement of Science (AAAS)
8. Fellow, Royal Society of Chemistry (RSC; inducted in 2020)

9. Member, International Society for Stem Cell Research (ISSCR)
10. Member, Society for Biomaterials (SFB)
11. Member, Materials Research Society (MRS)
12. Member, American Society for Cell Biology (ASCB)
13. Member, American Society of Biomechanics (ASB)
14. Member, Biophysical Society (BPS)

**D. SELECTED PUBLICATIONS**

(*Corresponding author; #Equal contribution; &Undergraduate co-author; Underline: Graduate / postdoctoral advisees at UM)

[1] Xufeng Xue, Yue Liu, and **Jianping Fu***. Bioengineering embryo models. ***Nature Reviews Bioengineering***, in press, 2024.

[2] Cheng Zhao, Alvaro Plaza Reyes, John Paul Schell, Jere Weltner, Nicolás M. Ortega, Yi Zheng, Åsa K. Björklund, Joonas Sokka, Ras Torokovic, Brian Cox, Janet Rossant, **Jianping Fu**, Sophie Petropoulos*, and Fredrik Lanner*. A comprehensive human embryogenesis reference tool using single-cell RNA-sequencing data. ***Nature Methods***, in press, 2024.

[3] Yue Liu*, Yung Su Kim, Xufeng Xue, Norio Kobayashi, Shiyu Sun, Qiong Yang, Olivier Pourquié, and **Jianping Fu***. A human pluripotent stem cell-based somitogenesis model using microfluidics. ***Cell Stem Cell***, vol. 31, pp. 1113-1126, 2024, 2024.

[4] Jun Wu*, and **Jianping Fu***. Towards developing human organs *via* embryo models and chimeras. ***Cell***, vol. 187, pp. 3194-3219, 2024.

[5] Xufeng Xue, Yung Su Kim, Alfredo-Isaac Ponce-Arias, Richard O'laughlin, Robin Zhexuan Yan, Norio Kobayashi, Rami Yair Tshuva, Yu-Hwai Tsai, Shiyu Sun, Yi Zheng, Yue Liu, Frederick C.K. Wong, Azim Surani, Jason R. Spence, Hongjun Song, Guo-Li Ming, Orly Reiner, and **Jianping Fu***. A patterned human neural tube model using microfluidic gradients. ***Nature***, vol. 628, pp. 391-399, 2024. DOI: 10.1038/s41586-024-07204-7.

[6] Hyung Chul Lee*, Nidia M. M. Oliveira, Cato Hastings, Peter Baillie-Benson, Adam A. Moverley, Hui-Chun Lu, Yi Zheng, Elise L. Wilby, Timothy T. Weil, Karen M. Page, **Jianping Fu**, Naomi Moris, and Claudio D. Stern*. Regulation of long-range BMP gradients and embryonic polarity by propagation of local calcium-firing activity. ***Nature Communications***, vol. 15, 1463, 2024. DOI: 10.1038/s41467-024-45772-4.

[7] Sajedeh Nasr Esfahani, Yi Zheng, Auriana Arabpour, Agnes M. Resto Irizarry, Xufeng Xue, Yue Shao, Cheng Zhao, Nicole Agranonik, Timothy J. Hunt, Jared Faith, Mary Jane Lara, Qiu-Ya Hsu, Sherman Silber, Sophie Petropoulos, Ran Yang, Kenneth R. Chien, Amander T. Clark*, and **Jianping Fu***. Derivation of human primordial germ cell-like cells in an embryonic-like culture. ***Nature Communications***, vol. 15, 167, 2024. DOI: 10.1038/s41467-023-43871-2.

[8] Yue Liu*, Xufeng Xue, Shiyu Sun, Norio Kobayashi, Yung Su Kim, and **Jianping Fu***. Morphogenesis: *in vivo* and beyond. ***Nature Reviews Physics***, vol. 6, pp. 28-44, 2024. DOI: 10.1038/s42254-023-00669-x.

[9] Nicolas C. Rivron*, Alfonso Martinez-Arias*, Karen Sermon, Christine Mummery, Hans R. Schöler, James Wells, Jenny Nichols, Anna-Katerina Hadjantonakis, Madeline A. Lancaster, Naomi Morris, **Jianping Fu**, Roger G. Sturmey, Kathy Niakan, Janet Rossant, and Kazuto Kato. Changing the public perception of human embryology. ***Nature Cell Biology***, vol. 25, pp. 1717-1719, 2023. (Commentary)

[10] Janet Rossant* and **Jianping Fu***. Why researchers should use human embryo models with caution. ***Nature***, vol. 622, pp. 22-24, 2023. DOI: 10.1038/d41586-023-03062-x. (Commentary)

[11] Feng Lin[#], Xia Li[#], Shiyu Sun[#], Zhongyi Li, Jianbo Bai, Lin Song, Bo Li*, **Jianping Fu**, and Yue Shao*. Mechanically enhanced biogenesis of gut spheroids with instability-driven morphomechanics. ***Nature Communications***, vol. 14, 6016, 2023. DOI: 10.1038/s41467-023-41760-2.

[12] Zongyong Ai, Baohua Niu, Yu Yin, Kui Duan, Lifeng Xiang, Gaohui Shi, Lujuan Rong, Sile Wang, Ruize Kong, Tingwei Chen, Yixin Guo, Wanlu Liu, Wenya Li, Junliang Li, Nan Li, Shumei Zhao, Xiaoqing Zhu, Xuancheng Mai, Yonggang Li, Ze Wu, Yi Zheng, **Jianping Fu**, Weizhi Ji, and Tianqing Li*. Dissecting peri-implantation epiblast development using human embryos and embryoids. ***Cell Research***, vol. 33, pp. 661-678, 2023. DOI: 10.1038/s41422-023-00846-8.

[13] Yi Zheng*, Robin Zhexuan Yan, Mutsumi Kobayashi, Lifeng Xiang, Ran Yang, Alexander Goedel, Yu Kang, Xuefeng Xue, Sajedeh Nasr Esfahani, Yue Liu, Agnes M. Resto Irizarry, Weisheng Wu, Yunxiu Li, Weizhi Ji, Yuyu Niu, Kenneth R. Chien, Tianqing Li, Toshihiro Shioda, and **Jianping Fu***. Single-cell analysis of embryoids reveals lineage diversification roadmaps of early human development. ***Cell Stem Cell***, vol. 29, pp. 1402-1419, 2022. DOI: 10.1016/j.stem.2022.08.009.

[14] Ran Yang, Alexander Goedel, Yu Kang, Chengyang Si, Chu Chu, Yi Zheng, Zhenzhen Chen, Peter J. Gruber, Yao Xiao, Chikai Zhou, Chuen-Yan Leung, Yongchang Chen, **Jianping Fu**, Weizhi Ji, Fredrik Lanner*, Yuyu Niu*, and Kenneth Chien*. Amnion signals are essential for mesoderm formation in primates. ***Nature Communications***, vol. 12, 5126, 2021. DOI**:** 10.1101/2020.05.28.118703.

[15] Dennis W. Zhou, Marc Fernández-Yagüe, Nicolas S. Castro, Elijah N. Holland, Eric B. O'Neill, Jeroen Eyckmans, Christopher Chen, **Jianping Fu**, David D. Schlaepfer, and Andrés J. García*. Force-FAK signaling coupling at individual focal adhesions coordinates mechanosensing and microtissue repair. ***Nature Communications***, vol. 12, 2359, 2021. DOI: 10.1038/s41467-021-22602-5.

[16] Sicong Wang, Chien-Wei Lin, Chari L. Cortez, Amber E. Carleton, Craig Johnson, Linnea E. Taniguchi, Ryan F. Townshend, Venkatesha Basrur, Alexey I. Nesvizhskii, Amy W. Hudson, Blake R. Hill, Peng Zou, **Jianping Fu***, Deborah L. Gumucio*, Mara C. Duncan*, and Kenichiro Taniguchi*. Spatially resolved cell polarity proteomics of a human epiblast model. ***Science Advances***, vol. 7, eabd8407, 2021. DOI: 10.1126/sciadv.abd8407.

[17] **Jianping Fu***, Aryeh Warmflash*, and Lutolf Matthias*. Stem-cell-based embryo models for fundamental research and translation. ***Nature Materials***, vol. 20, pp. 132-144, 2021. DOI: 10.1038/s41563-020-00829-9. (Review)

[18] Jonathon M. Muncie, Nadia M.E. Ayad, Johnathon N. Lakins, Xufeng Xue, **Jianping Fu**, and Valerie M. Weaver*. Mechanical tension promotes formation of gastrulation-like nodes and patterns mesoderm specification in human embryonic stem cells. ***Developmental Cell***, vol. 55, pp. 679-694, 2020. DOI**:** 10.1101/2020.02.10.943076.

[19] Yuanyuan Zheng, Xufeng Xue, Agnes M. Resto Irizarry, Zida Li, Yue Shao, Yi Zheng, Gang Zhao*, and **Jianping Fu***. Dorsal-ventral patterned neural cyst from human pluripotent stem cells in a biomimetic neurogenic niche. ***Science Advances***, vol. 5, eaax5933, 2019. DOI: 10.1126/sciadv.aax5933.

[20] Yi Zheng, Xufeng Xue, Yue Shao, Sicong Wang, Sajedeh Nasr Esfahani, Zida Li, Jonathon M. Muncie, Johnathon N. Lakins, Valerie M. Weaver, Deborah L. Gumucio, and **Jianping Fu***. Controlled modeling of human epiblast and amnion development using stem cells. ***Nature***, vol. 573, pp. 421-425, 2019. DOI: 10.1038/s41586-019-1535-2.

[21] Nicolas Rivron*, Martin Pera*, Janet Rossant, Alfonso Martinez Arias, Magdalena Zernicka-Goetz, **Jianping Fu**, Suzanne van den Brink, Annelien Bredenoord, Wybo Dondorp, Guido de Wert, Insoo Hyun, Megan Munsie, and Rosario Isasi. Debate ethics of embryo models from stem cells. ***Nature***, vol. 564, pp. 183-185, 2018. (Commentary)

[22] Xufeng Xue[#], Yubing Sun[#,] *, Agnes Resto-Irizarry, Ye Yuan[&], Koh Meng Aw Yong, Yi Zheng, Shinuo Weng, Yue Shao, Yimin Chai, Lorenz Studer, and **Jianping Fu***. Mechanics-guided embryonic patterning of neuroectoderm tissue from human pluripotent stem cells. ***Nature Materials***, vol. 17, pp. 633-641, 2018. DOI: 10.1038/s41563-018-0082-9.

[23] Yue Shao[#], Kenichiro Taniguchi[#], Ryan F. Townshend, Toshio Miki, Deborah L. Gumucio*, and **Jianping Fu***. A pluripotent stem cell-based model for post-implantation human amniotic sac development. ***Nature Communications***, vol. 8, 208, 2017. DOI: 10.1038/s41467-017-00236-w.

[24] Yue Shao[#], Kenichiro Taniguchi[#], Katherine Gurdziel, Ryan F. Townshend, Xufeng Xue, Koh Meng Aw Yong, Jianming Sang, Jason R. Spence, Deborah L. Gumucio*, and **Jianping Fu***. Self-organized amniogenesis by human pluripotent stem cells in a biomimetic implantation-like niche. ***Nature Materials***, vol. 16, pp. 419-425, 2017. DOI: 10.1038/NMAT4829.

[25] Shinuo Weng[#], Yue Shao[#], Weiqiang Chen, and **Jianping Fu***. Mechanosensitive subcellular rheostasis drives emergent single-cell tensional homeostasis. ***Nature Materials***, vol. 15, pp. 961-967, 2016. DOI: 10.1038/nmat4654.

[26] Yubing Sun, Koh Meng Aw Yong, Luis G. Villa-Diaz, Xiaoli Zhang, Weiqiang Chen, Renee Philson[&], Shinuo Weng, Haoxing Xu, Paul H. Krebsbach, and **Jianping Fu***. Hippo / YAP-mediated rigidity-dependent motor neuron differentiation of human pluripotent stem cells. ***Nature Materials***, vol. 13, pp. 599-604, 2014. DOI: 10.1038/nmat3945.

[27] Ankur Singh, Shalu Suri, Ted T. Lee, Jamie M.Chilton, Weiqiang Chen, **Jianping Fu**, Steven L. Stice, Hang Lu, Todd C. McDevitt, and Andrés J. García*. Adhesive signature-based, label-free isolation of human pluripotent stem cells. ***Nature Methods***, vol. 10, pp. 438-444, 2013. DOI: 10.1038/nmeth.2437.

[28] **Jianping Fu**[#], Yang-Kao Wang[#], Michael T. Yang, Ravi A. Desai, Xiang Yu, Zhijun Liu, and Christopher S. Chen*. Mechanical regulation of cell function with geometrically modulated elastomeric substrates. ***Nature Methods***, vol. 7, pp.733-736, 2010. DOI: 10.1038/nmeth.1487.

[29] **Jianping Fu**[#], Reto B. Schoch[#], Anna L. Stevens, Steven R. Tannenbaum, and Jongyoon Han*. A patterned anisotropic nanofluidic sieving structure for continuous-flow separation of DNA and proteins. ***Nature Nanotechnology***, vol. 2, pp.121-128, 2007. DOI: 10.1038/nnano.2006.206.

[30] **Jianping Fu**, Juhwan Yoo[&], and Jongyoon Han*. Molecular sieving in periodic free-energy landscapes created by patterned nanofilter arrays. ***Physical Review Letters***, vol. 97, 018103, 2006. DOI: 10.1103/PhysRevLett.97.018103.

## E. JOURNAL PUBLICATIONS (FULL LIST)

(*Corresponding author; [#]Equal contribution; [&]Undergraduate or K-12 co-author; Underline: Graduate / postdoctoral advisees at UM)

[1] Alfonso Martinez Arias*, Nicolas Rivron, Naomi Moris, Patrick Tam, Cantas Alev, **Jianping Fu**, Anna-Katerina Hadjantonakis, Jacob H. Hanna, Gabriella Minchiotti, Olivier Pourquie, Guojun Sheng, Liliana Solnica Krezel, Jesse Veenvliet, and Aryeh Warmflash. Criteria for standarization of stem-cell-based embryo models. ***Nature Cell Biology***, in press, 2023.

[2] Yuanyuan Zheng, Fangrong Zhang, Haifeng Nie, Xinyu Li, Jaili Xun, Shengmin Xu, **Jianping Fu***, and Lijun Wu*. Small molecule valproic acid enhances ventral patterning of human neural tube organoids by regulating Wnt and Shh signaling. ***Cell Proliferation***, in press, 2024. DOI: 10.1111/cpr.13737.

[3] Cheng Zhao, Alvaro Plaza Reyes, John Paul Schell, Jere Weltner, Nicolás M. Ortega, Yi Zheng, Åsa K. Björklund, Joonas Sokka, Ras Torokovic, Brian Cox, Janet Rossant, **Jianping Fu**, Sophie

Petropoulos*, and Fredrik Lanner*. A comprehensive human embryogenesis reference tool using single-cell RNA-sequencing data. ***Nature Methods***, in press, 2024.

[4] Xufeng Xue, Yue Liu, and **Jianping Fu***. Bioengineering embryo models. ***Nature Reviews Bioengineering***, in press, 2024.

[5] Yue Liu*, Yung Su Kim, Xufeng Xue, Norio Kobayashi, Shiyu Sun, Qiong Yang, Olivier Pourquié, and **Jianping Fu***. A human pluripotent stem cell-based somitogenesis model using microfluidics. ***Cell Stem Cell***, vol. 31, pp. 1113-1126, 2024. DOI: 10.1016/j.stem.2024.06.004.

- Preview by Katharina F. Sonnen, "*Setting the stage for embryo segmentation*", ***Cell Stem Cell***, vol. 31, pp. 1097-1098, 2024.

[6] Jun Wu*, and **Jianping Fu***. Towards developing human organs via embryo models and chimeras. ***Cell***, vol. 187, pp. 3194-3219, 2024. DOI: 10.1016/j.cell.2024.05.027.

[7] Elijah N. Holland, Marc A. Fernández-Yagüe, Dennis W. Zhou, Eric B. O'Neill, Ayanna U. Woodfolk, **Jianping Fu**, David D. Schlaepfer, and Andrés J. García*. Contributions of FAK, vinculin, and talin to YAP nuclear localization in adherent fibroblasts. ***Biomaterials***, vol. 308, 122542, 2024. DOI: 10.1016/j.biomaterials.2024.122542.

[8] Weiping Li, Jiatong Guo, Eric E. Hobson, Xufeng Xue, Qingjiang Li, **Jianping Fu**, Cheri X. Deng*, and Zhongwu Guo*. Metabolic glycoengineering-enabled molecularly specific acoustic tweezing cytometry for targeted mechanical stimulation of cell surface sialoglycans. ***Angewandte Chemie International Edition***, vol. 63, e202401921, 2024. DOI: 10.1002/anie.202401921.

[9] Xufeng Xue, Yung Su Kim, Alfredo-Isaac Ponce-Arias, Richard O'laughlin, Robin Zhexuan Yan, Norio Kobayashi, Rami Yair Tshuva, Yu-Hwai Tsai, Shiyu Sun, Yi Zheng, Yue Liu, Frederick C.K. Wong, Azim Surani, Jason R. Spence, Hongjun Song, Guo-Li Ming, Orly Reiner, and **Jianping Fu***. A patterned human neural tube model using microfluidic gradients. ***Nature***, vol. 628, pp. 391-399, 2024. DOI: 10.1038/s41586-024-07204-7.

[10] Hyung Chul Lee*, Nidia M. M. Oliveira, Cato Hastings, Peter Baillie-Benson, Adam A. Moverley, Hui-Chun Lu, Yi Zheng, Elise L. Wilby, Timothy T. Weil, Karen M. Page, **Jianping Fu**, Naomi Moris, and Claudio D. Stern*. Regulation of long-range BMP gradients and embryonic polarity by propagation of local calcium-firing activity. ***Nature Communications***, vol. 15, 1463, 2024. DOI: 10.1038/s41467-024-45772-4.

[11] Sajedeh Nasr Esfahani, Yi Zheng, Auriana Arabpour, Agnes M. Resto Irizarry, Xufeng Xue, Yue Shao, Cheng Zhao, Nicole Agranonik, Timothy J. Hunt, Jared Faith, Mary Jane Lara, Qiu-Ya Hsu, Sherman Silber, Sophie Petropoulos, Ran Yang, Kenneth R. Chien, Amander T. Clark*, and **Jianping Fu***. Derivation of human primordial germ cell-like cells in an embryonic-like culture. ***Nature Communications***, vol. 15, 167, 2024. DOI: 10.1038/s41467-023-43871-2.

- Featured in *Nature Communications* Editors' Highlights webpage.

[12] Yue Liu*, Xufeng Xue, Shiyu Sun, Norio Kobayashi, Yung Su Kim, and **Jianping Fu***. Morphogenesis: *in vivo* and beyond. ***Nature Reviews Physics***, vol. 6, pp. 28-44, 2024. DOI: 10.1038/s42254-023-00669-x.

[13] Nicolas C. Rivron*, Alfonso Martinez-Arias*, Karen Sermon, Christine Mummery, Hans R. Schöler, James Wells, Jenny Nichols, Anna-Katerina Hadjantonakis, Madeline A. Lancaster, Naomi Morris, **Jianping Fu**, Roger G. Sturmey, Kathy Niakan, Janet Rossant, and Kazuto Kato. Changing the public perception of human embryology. ***Nature Cell Biology***, vol. 25, pp. 1717-1719, 2023.

[14] Zhaoyi Xu, Shiying Liu, Xufeng Xue, Weiping Li, **Jianping Fu***, and Cheri X. Deng*. Rapid responses of human pluripotent stem cells to cyclic mechanical strains applied to integrin by acoustic tweezing cytometry. ***Scientific Reports***, vol. 13, 18030, 2023. DOI: 10.1038/s41598-023-45397-5.

[15] Janet Rossant* and **Jianping Fu***. Why researchers should use human embryo models with caution. ***Nature***, vol. 622, pp. 22-24, 2023. DOI: 10.1038/d41586-023-03062-x.

[16] Feng Lin[#], Xia Li[#], Shiyu Sun[#], Zhongyi Li, Jianbo Bai, Lin Song, Bo Li*, **Jianping Fu**, and Yue Shao*. Mechanically enhanced biogenesis of gut spheroids with instability-driven morphomechanics. ***Nature Communications***, vol. 14, 6016, 2023. DOI: 10.1038/s41467-023-41760-2.

[17] Shiyu Sun, Xufeng Xue, and **Jianping Fu***. Modeling development using microfluidics: Bridging gaps to foster fundamental and translational research. ***Current Opinion in Genetics & Development***, vol. 82, 102097, 2023. DOI: 10.1016/j.gde.2023.102097.

[18] Norio Kobayashi, and **Jianping Fu***. Stem cell-derived embryo models: A frontier of human embryology. ***Medical Review***, 2023. DOI: 10.1515/mr-2023-0009.

[19] Zongyong Ai, Baohua Niu, Yu Yin, Kui Duan, Lifeng Xiang, Gaohui Shi, Lujuan Rong, Sile Wang, Ruize Kong, Tingwei Chen, Yixin Guo, Wanlu Liu, Wenya Li, Junliang Li, Nan Li, Shumei Zhao, Xiaoqing Zhu, Xuancheng Mai, Yonggang Li, Ze Wu, Yi Zheng, **Jianping Fu**, Weizhi Ji, and Tianqing Li*. Dissecting peri-implantation epiblast development using human embryos and embryoids. ***Cell Research***, vol. 33, pp. 661-678, 2023. DOI: 10.1038/s41422-023-00846-8.

- Commentary by Janet Rossant, "*Studying human embryo development with E-assembloids*", ***Cell Research***, vol. 33, pp. 1-2, 2023. DOI: 10.1038/s41422-023-00863-7.

[20] Yen-Yu Hsu, Agnes M. Resto Irizarry, **Jianping Fu**, and Allen P. Liu*. Mechanosensitive channel-based optical membrane tension reporter. ***ACS Sensors***, vol. 8, pp. 12-18, 2023. DOI: 10.1021/acssensors.2c01921.

[21] Elijah N. Holland, Deborah Lobaccaro, **Jianping Fu**, and Andrés J. García*. Impact of adhesive area on cellular traction force and spread area. ***Journal of Biomedical Materials Research Part A***, vol. 111, pp. 609-617, 2023. DOI: 10.1002/jbm.a.37518.

[22] Aidan Terhune, Jeyoon Bok, Shiyu Sun, and **Jianping Fu***. Stem cell-based models of early mammalian development. ***Development***, vol. 149, dev.201015, 2022. DOI: 10.1242/dev.201015.

[23] Erica C. Pandolfi, Mark Duhon, Fei-Man Hsu, Yi Zheng, **Jianping Fu**, Sherman J. Silber, and Amander T. Clark*. *In vitro* germ cell induction from fertile and infertile monozygotic twin research participants. ***Cell Reports Medicine***, vol. 3, 100782, 2022. DOI: 10.1016/j.xcrm.2022.100782.

[24] Jennifer Cable, Matthias P. Lutolf, **Jianping Fu**, Sunghee Estelle Park, Athanasia Apostolou, Shuibing Chen, Cheng Jack Song, Jason R. Spence, Prisca Liberali, Madeline Lancaster, Anna B. Meier, Nicole Min Qian Pek, James M. Wells, Meghan M. Capeling, Ana Uzquiano, Samira Musah, Meritxell Huch, Mina Gouti, Pleun Hombrink, Georgio Quadrato. Organoids as tools for fundamental discovery and translation - A Keystone Symposia report. ***Annals of the New York Academy of Sciences***, vol. 1518, pp. 196-208, 2022. DOI: 10.1111/nyas.14874.

[25] Yi Zheng*, Robin Zhexuan Yan, Mutsumi Kobayashi, Lifeng Xiang, Ran Yang, Alexander Goedel, Yu Kang, Xuefeng Xue, Sajedeh Nasr Esfahani, Yue Liu, Agnes M. Resto Irizarry, Weisheng Wu, Yunxiu Li, Weizhi Ji, Yuyu Niu, Kenneth R. Chien, Tianqing Li, Toshihiro Shioda, and **Jianping Fu***. Single-cell analysis of embryoids reveals lineage diversification roadmaps of early human development. ***Cell Stem Cell***, vol. 29, pp. 1402-1419, 2022. DOI: 10.1016/j.stem.2022.08.009.

[26] Aidan Terhune & **Jianping Fu***. Elucidating the behavior of trophectoderm derivatives in mouse implantation. ***Developmental Cell***, vol. 57, pp. 295-297, 2022. DOI: 10.1016/j.devcel.2022.01.010

[27] Yue Shao*, and **Jianping Fu**. Engineering multiscale structural orders for high-fidelity embryoids and organoids. ***Cell Stem Cell***, vol. 29, pp. 722-743, 2022. DOI: 10.1016/j.stem.2022.04.003.

[28] Sajedeh Nasr Esfahani, Agnes M. Resto Irizarry, Xufeng Xue, Samuel Byung-Deuk Lee, Yue Shao, and **Jianping Fu***. Micro/nanoengineered technologies for human pluripotent stem cell maintenance and differentiation. ***Nano Today***, vo. 41, 101310, 2021. DOI: 10.1016/j.nantod.2021.101310.

[29] Agnes M. Resto Irizarry, Sajedeh Nasr Esfahani, Yi Zheng, Robin Zhexuan Yan, Patrick Kinnunen, and **Jianping Fu***. Machine learning-assisted imaging analysis of a human epiblast model. ***Integrative Biology***, vol. 13, pp. 221-229, 2021. DOI: 10.1093/intbio/zyab014.

- Selected as the front cover page story by ***Integrative Biology***.

[30] Amander T. Clark*, Ali Brivanlou, **Jianping Fu**, Kazuto Kato, Debra Mathews, Kathy K. Niakan, Nicolas Rivron, Mitinori Saitou, Azim Surani, Fuchou Tang, and Janet Rossant*. Human embryo research, stem cell-derived embryo models and in vitro gametogenesis: Considerations leading to the revised ISSCR guidelines. ***Stem Cell Reports***, vol. 16, pp. 1-9, 2021. DOI: 10.1016/j.stemcr.2021.05.008.

[31] Robin Lovell-Badge, Eric Anthony, Roger A. Barker, Tania Bubela, Ali H. Brivanlou, Melissa Carpenter, R. Alta Charo, Amander Clark, Ellen Clayton, Yali Cong, George Q. Daley, **Jianping Fu**, Misao Fujita, Andy Greenfield, Steve A. Goldman, Lori Hill, Insoo Hyun, Rosario Isasi, Jeffrey Kahn, Kazuto Kato, Jin-Soo Kim, Jonathan Kimmelman, Jürgen A. Knoblich, Debra Mathews, Nuria Montserrat, Jack Mosher, Megan Munsie, Hiromitsu Nakauchi, Luigi Naldini, Gail Naughton, Kathy Niakan, Ubaka Ogbogu, Roger Pedersen, Nicolas Rivron, Heather Rooke, Janet Rossant, Jeff Round, Mitinori Saitou, Douglas Sipp, Julie Steffann, Jeremy Sugarman, Azim Surani, Jun Takahashi, Fuchou Tang, Leigh Turner, Patricia J. Zettler, and Xiaomei Zhai. ISSCR guidelines for stem cell research and clinical translation: The 2021 update. ***Stem Cell Reports***, vol. 16, pp. 1-11, 2021. DOI: 10.1016/j.stemcr.2021.05.012.

[32] Nicolas Rivron*, and **Jianping Fu***. SnapShot: Embryo models. ***Stem Cell Reports***, vol. 16, pp. 1142, 2021. DOI: 10.1016/j.stemcr.2021.04.012.

[33] Nicolas Rivron*, and **Jianping Fu***. It takes a village to form embryo models. ***Stem Cell Reports***, vol. 16, pp. 1011-1013, 2021. DOI: 10.1016/j.stemcr.2021.04.014.

[34] Kejie Chen, Yi Zheng, Xufeng Xue, Yue Liu, Agnes M. Resto Irizarry, Huaijing Tang, and **Jianping Fu***. Branching development of early post-implantation human embryonic-like tissues in 3D stem cell culture. ***Biomaterials***, vol. 275, 120898, 2021. DOI: 10.1016/j.biomaterials.2021.120898.

[35] Ran Yang, Alexander Goedel, Yu Kang, Chengyang Si, Chu Chu, Yi Zheng, Zhenzhen Chen, Peter J. Gruber, Yao Xiao, Chikai Zhou, Chuen-Yan Leung, Yongchang Chen, **Jianping Fu**, Weizhi Ji, Fredrik Lanner*, Yuyu Niu*, and Kenneth Chien*. Amnion signals are essential for mesoderm formation in primates. ***Nature Communications***, vol. 12, 5126, 2021. DOI**:** 10.1101/2020.05.28.118703.

[36] Yi Zheng, and **Jianping Fu***. First complete model of the human embryo. ***Nature***, vol. 591, pp. 531-532, 2021. DOI**:** 10.1038/d41586-021-00581-3. (News & Views)

[37] Dennis W. Zhou, Marc A. Fernández-Yagüe, Elijah N. Holland, Andrés F. García, Nicolas S. Castro, Eric B. O'Neill, Jeroen E.G. Eyckmans, Christopher S. Chen, **Jianping Fu**, David D. Schlaepfer, and Andrés J. García*. Force-FAK signaling coupling at individual focal adhesions coordinates mechanosensing and microtissue repair. ***Nature Communications***, vol. 12, 2359, 2021. DOI: 10.1038/s41467-021-22602-5.

[38] Sicong Wang, Chien-Wei Lin, Chari L. Cortez, Amber E. Carleton, Craig Johnson, Linnea E. Taniguchi, Ryan F. Townshend, Venkatesha Basrur, Alexey I. Nesvizhskii, Amy W. Hudson, Blake R. Hill, Peng Zou, **Jianping Fu***, Deborah L. Gumucio*, Mara C. Duncan*, and Kenichiro Taniguchi*. Spatially resolved cell polarity proteomics of a human epiblast model. ***Science Advances***, vol. 7, eabd8407, 2021. DOI: 10.1126/sciadv.abd8407.

[39] Yi Zheng, Yue Shao, and **Jianping Fu***. A microfluidics-based stem cell model of early post-implantation human development. ***Nature Protocols***, vol. 16, pp. 309-326, 2021. DOI: 10.1038/s41596-020-00417-w.

[40] **Jianping Fu***, Aryeh Warmflash*, and Lutolf Matthias*. Stem-cell-based embryo models for fundamental research and translation. ***Nature Materials***, vol. 20, pp. 132-144, 2021. DOI: 10.1038/s41563-020-00829-9. PMCID: PMC7855549.

[41] Zhenzhen Fan, Xufeng Xue, **Jianping Fu**, and Cheri X. Deng*. Visualization and quantification of dynamic intercellular coupling in human embryonic stem cells using single cell sonoporation. ***Scientific Reports***, vol. 10, 18253, 2020. DOI: 10.1038/s41598-020-75347-4.

[42] Ryan F. Townshend, Yue Shao, Sicong Wang, Chari L. Cortez, Sajedeh Nasr Esfahani, Jason R. Spence, K. Sue O'Shea, **Jianping Fu**, Deborah L. Gumucio*, and Kenichiro Taniguchi*. Effect of cell spreading on rosette formation by human pluripotent stem cell-derived neural progenitor cells. ***Frontiers in Cell and Developmental Biology***, vol. 8, 588941, 2020. DOI: 10.3389/fcell.2020.588941.

[43] Jonathon M. Muncie, Nadia M.E. Ayad, Johnathon N. Lakins, Xufeng Xue, **Jianping Fu**, and Valerie M. Weaver*. Mechanical tension promotes formation of gastrulation-like nodes and patterns mesoderm specification in human embryonic stem cells. ***Developmental Cell***, vol. 55, pp. 679-694, 2020. DOI**:** 10.1101/2020.02.10.943076.

[44] Lydia L. Sohn, Petra Schwille, Andreas Hierlemann, Savas Tay, Josep Samitier, **Jianping Fu**, and Peter Loskill. How can microfluidic and microfabrication approaches make experiments more physiologically relevant? ***Cell Systems***, vol. 11, pp. 1-3, 2020. DOI: 10.1016/j.cels.2020.07.003.

[45] George A. Truskey* and **Jianping Fu***. The future of biomedical engineering - Bioengineering of organoids and tissue development. ***Current Opinion in Biomedical Engineering***, vol. 13, A1-A2, 2020. DOI: 10.1016/j.cobme.2020.02.002.

[46] Agnes M. Resto Irizarry, Sajedeh Nasr Esfahani, and **Jianping Fu***. Bioengineered pluripotent stem cell models: New approaches to explore early human embryo development. ***Current Opinion in Biotechnology***, vol. 66, pp. 52-58, 2020. DOI: 10.1016/j.copbio.2020.06.005.

[47] Qingsheng Guo, Yao Wang, Cang Chen, Dan Wei, **Jianping Fu**, Hong Xu*, and Hongchen Gu*. Multiplexed luminescence oxygen channeling immunoassay based on dual-functional barcodes with host-guest structure: A facile and robust suspension array platform. ***Small***, vol. 16, pp. 1907521, 2020. DOI: 10.1002/smll.201907521.

[48] Yue Shao*, and **Jianping Fu***. Synthetic human embryology: Towards a quantitative future. ***Current Opinion in Genetics and Development***, vo. 63, pp. 30-35, 2020. DOI: 10.1016/j.gde.2020.02.013.

[49] Xufeng Xue, Ryan P. Wang[&], and **Jianping Fu***. Modeling of human neurulation using bioengineered pluripotent stem cell culture. ***Current Opinion in Biomedical Engineering***, vol. 13, pp. 127-133, 2020. DOI: 10.1016/j.cobme.2020.02.002.

[50] Di Chen, Na Sun, Lei Hou, Rachel Kim, Jared Faith, Marianna Aslanyan, Yu Tao, Yi Zheng, **Jianping Fu**, Wanlu Liu, Manolis Kellis, and Amander Clark*. Human primordial germ cells are

specified from lineage-primed progenitors. ***Cell Reports***, vol. 29, pp. 4568-4582, 2019. DOI: 10.1016/j.celrep.2019.11.083.

[51] Yuanyuan Zheng, Xufeng Xue, Agnes M. Resto Irizarry, Zida Li, Yue Shao, Yi Zheng, Gang Zhao*, and **Jianping Fu***. Dorsal-ventral patterned neural cyst from human pluripotent stem cells in a biomimetic neurogenic niche. ***Science Advances***, vol. 5, eaax5933, 2019. DOI: 10.1126/sciadv.aax5933.

[52] Yi Zheng, Xufeng Xue, Yue Shao, Sicong Wang, Sajedeh Nasr Esfahani, Zida Li, Jonathon M. Muncie, Johnathon N. Lakins, Valerie M. Weaver, Deborah L. Gumucio, and **Jianping Fu***. Controlled modeling of human epiblast and amnion development using stem cells. ***Nature***, vol. 573, pp. 421-425, 2019. DOI: 10.1038/s41586-019-1535-2.

- Commentary by Amander T. Clark, "*Human embryo implantation modelled in microfluidic channels*", ***Nature***, vol. 573, pp. 350-351, 2019. DOI: 10.1038/d41586-019-02563-y.
- *Nature News* by David Cyranoski, "*Embryo-like structures created from human stem cells*", ***Nature***, vol. 573, 2019.
- *National Public Radio* by Rob Stein, "*Scientists create a device that can mass-produce human embryoids*".
- *MIT Technology Review* by Antonio Regalado, "*Meet the "artificial embryos" being called uncanny and spectacular*".
- *BBC News*, "*Science in action: Embryoid from stem cells*".
- *Chemical & Engineering News* by Alla Katsnelson, "*Microfluidic device brews human embryo-like structures*".
- Also highlighted by *Washington Times*, *Michigan Health Lab Report*, *Michigan Engineering News Center*, *EurekAlert! by AAAS*, *Genetic Engineering & Biotechnology News*, *ScienceDaily*, *Nanowerk*, *Health Medicine Network*, *Health News Digest*, *eCancer News*, *The Medical News*, *Medical Xpress*.

[53] Andrew Stephens, Robert Nidetz, Nicolas Mesyngier, Meng Ting Chung, Yujing Song, **Jianping Fu**, and Katsuo Kurabayashi*. Mass-producible microporous silicon membranes for specific leukocyte subset isolation, immunophenotyping, and personalized immunomodulatory drug screening *in vitro*. ***Lab on Chip***, vol. 19, pp. 3065-3076, 2019. DOI: 10.1039/c9lc00315k.

[54] Sajedeh Nasr Esfahani[#], Yue Shao[#], Agnes M. Resto Irizarry, Zida Li, Xufeng Xue, Deborah L. Gumucio, and **Jianping Fu***. Microengineered human amniotic ectoderm tissue assay for high-content development phenotyping. ***Biomaterials***, vol. 216, 119244, 2019. DOI: 10.1016/j.biomaterials.2019.119244.

[55] Abhay Kotnala, Yi Zheng, **Jianping Fu**, and Wei Cheng*. Back-focal-plane interferometric detection of nanoparticles in spatially confined microfluidic channels. ***Review of Scientific Instructments***, vol. 90, 023107, 2019. DOI: 10.1063/1.5074194.

[56] Feng Lin, Yue Shao, Xufeng Xue, Yi Zheng, Zida Li, Chunyang Xiong*, and **Jianping Fu***. Biophysical phenotypes and determinants of anterior *vs.* posterior primitive streak cells derived from human pluripotent stem cells. ***Acta Biomaterialia***, vol. 86, pp. 125-134, 2019. DOI: 10.1016/j.actbio.2019.01.017.

[57] Weiqiang Chen, Steven G. Allen, Weiyi Qian, Zifeng Peng, Shuo Han[&], Xiang Li, Yubing Sun, Chelsea Fournier, Liwei Bao, Raymond H.W. Lam, Sofia D. Merajver*, and **Jianping Fu***.

Biophysical phenotyping and modulation of ALDH+ inflammatory breast cancer stem-like cells. ***Small***, vol. 15, 1802891, 2019. DOI: 10.1002/smll.201802891.

[58] Nicolas Rivron*, Martin Pera*, Janet Rossant, Alfonso Martinez Arias, Magdalena Zernicka-Goetz, **Jianping Fu**, Suzanne van den Brink, Annelien Bredenoord, Wybo Dondorp, Guido de Wert, Insoo Hyun, Megan Munsie, and Rosario Isasi. Debate ethics of embryo models from stem cells. ***Nature***, vol. 564, pp. 183-185, 2018. DOI: 10.1038/d41586-018-07663-9. (Commentary)

[59] Zhenzhen Fan, Xufeng Xue, Al Christopher De Leon, Agata Exner, **Jianping Fu***, and Cheri X. Deng*. Acoustic actuation of integrin-bound microbubbles for mechanical phenotyping during differentiation and morphogenesis of human embryonic stem cells. ***Small***, vol. 14, 1803137, 2018. DOI: 10.1002/smll.201803137.

[60] Xiaozhang Zhang, Gang Zhao*, Yuan Cao, Zeeshan Haider, Meng Wang, and **Jianping Fu***. Magnetothermal heating facilitates cryogenic recovery of stem cell-laden alginate-$Fe_3O_4$ nanocomposite hydrogel. ***Biomaterials Science***, vol. 6, pp. 3139-3151, 2018. DOI: 10.1039/C8BM01004H.

- Selected as the front cover page story by ***Biomaterials Science***.

[61] Yen P. Kong, Ana Y. Rioja, Xufeng Xue, Yubing Sun, **Jianping Fu**, and Andrew J. Putnam*. A systems mechanobiology model to predict cardiac reprogramming outcomes on different biomaterials. ***Biomaterials***, vol. 181, pp. 280-292, 2018. DOI: 10.1016/j.biomaterials.2018.07.036.

[62] Tugba Topal, Adeline X. Hong, Xufeng Xue, Zhenzhen Fan, Ninad Kanetkar, Joe T. Nguyen, **Jianping Fu**, Cheri X. Deng*, and Paul H. Krebsbach*. Acoustic tweezing cytometry induces rapid initiation of human embryonic stem cell differentiation. ***Scientific Reports***, vol. 8, 12977, 2018. DOI: 10.1038/s41598-018-30939-z.

[63] Elisa Mattias Sartori, Osvaldo Magro-Filho, Daniela B. Silveira Mendonça, Xiang Li, **Jianping Fu**, and Gustavo Mendonça*. Modulation of micro RNA expression and osteoblast differentiation by nanotopography. ***International Journal of Oral & Maxillofacial Implants***, vol. 33, pp. 269-280, 2018. DOI: 10.11607/jomi.5372.

[64] Xufeng Xue[#], Yubing Sun[#,] *, Agnes Resto-Irizarry, Ye Yuan[&], Koh Meng Aw Yong, Yi Zheng, Shinuo Weng, Yue Shao, Yimin Chai, Lorenz Studer, and **Jianping Fu***. Mechanics-guided embryonic patterning of neuroectoderm tissue from human pluripotent stem cells. ***Nature Materials***, vol. 17, pp. 633-641, 2018. DOI: 10.1038/s41563-018-0082-9.

- Recommended in ***F1000Prime*** as being of special significance in its field by F1000 Faculty Member David Schaffer.

- Commentary by Mukul Tewary & Peter W. Zandstra, "Mechanics-guided developmental fate patterning", ***Nature Materials***, vol. 17, pp. 571-572, 2018.

- Highlighted by *Michigan News*, *Michigan Engineering News*, *UMass Amherst News*, *Phys.org*, and *Futurity*.

[65] Zida Li, Yize Wang[&], Xufeng Xue, Brendan McCraken, Kevin Ward, and **Jianping Fu***. Carbon nanotube strain sensor based hemoretractometer for blood coagulation testing. ***ACS Sensors***, vol. 3, pp. 670-676, 2018. DOI: 10.1021/acssensors.7b00971.

[66] Weiqiang Chen, Shuo Han[&], Weyi Qain, Shinuo Weng, Haiou Yang, Yubing Sun, Luis G. Villa-Diaz, Paul H. Krebsbach, and **Jianping Fu***. Nanotopography regulates motor neuron differentiation of human pluripotent stem cells. ***Nanoscale***, vol. 10, pp. 3556-3565, 2018. DOI: 10.1039/C7NR05430K.

[67] Agnes M. Resto Irizarry and **Jianping Fu***. Highly parallel single-cell force cytometry. ***Nature Biomedical Engineering***, vol. 2, pp. 60-61, 2018. DOI: 10.1038/s41551-018-0198-x. (News & Views)

[68] Yue Shao, Kenichiro Taniguchi, Deborah L. Gumucio*, and **Jianping Fu***. Synthetic human embryology: The rise of a new era with new collaborations. ***Development***, 2018. (Commentary)

[69] Zida Li, Xufeng Xue, Feng Lin, Yize Wang[&], Kevin Ward, and **Jianping Fu***. Capillary-facilitated deposition of carbon nanotube film for strain sensing. ***Applied Physics Letter***, vol. 111, 173105, 2017. DOI: 10.1063/1.5001754.

[70] Koh Meng Aw Yong, Zida Li, Sofia D. Merajver, and **Jianping Fu***. Tracking the tumor invasion front using long-term fluidic tumoroid culture. ***Scientific Reports***, vol. 7, 10784, 2017. DOI: 10.1038/s41598-017-10874-1.

- Top 100 read oncology papers for ***Scientific Reports*** in 2017.
- Highlighted by *Michigan Health Lab Report*, *Michigan Engineering News Center*, *EurekAlert! by AAAS*, *Genetic Engineering & Biotechnology News*, *ScienceDaily*, *Nanowerk*, *Health Medicine Network*, *Health News Digest*, *eCancer News*, *The Medical News*, *Medical Xpress*.

[71] Kenichiro Taniguchi[#], Yue Shao[#], Ryan F. Townshend, Clair E. Harris, Sasha Meshinchi, Sundeep Kalantry, **Jianping Fu**, K. Sue O'Shea, and Deborah L. Gumucio*. An apicosome initiates self-organizing morphogenesis in human pluripotent stem cells. ***Journal of Cell Biology***, vol. 216, pp. 3981-3990, 2017. DOI: 10.1083/jcb.201704085.

- Commentary by Alejandra I. Romero-Morales, Natalya A. Ortolano, and Vivian Gama, "*Apical polarization and lumenogenesis: The apicosome sheds new light*", ***Journal of Cell Biology***, vol. 216, pp. 3891-3893, 2017. DOI: 10.1083/jcb.201710028.

[72] Yue Shao[#], Kenichiro Taniguchi[#], Ryan F. Townshend, Toshio Miki, Deborah L. Gumucio*, and **Jianping Fu***. A pluripotent stem cell-based model for post-implantation human amniotic sac development. ***Nature Communications***, vol. 8, 208, 2017. DOI: 10.1038/s41467-017-00236-w.

- Recommended in ***F1000Prime*** as being of special significance in its field by F1000 Faculty Member Magdalena Zernicka-Goetz.
- Highlighted by *Michigan News*, *Michigan Engineering News Center*, *Phys.org*, *Michigan Health Lab Report*, *The Scientist*, *EurekAlert! by AAAS*, *Innovators Magazine*, *Health Medicine Network*, *BioSpace*, *eScience News*, *HiTech Days*, *RELIAWIRE*, *ScienceDaily*, *TransBio-Tex*, *Science Newsline*, *MedWorm*, *World University News*, *Jersey Tribune*, *News Wise*, *News-Medical*, *My Science*, and *MedIndia*.

[73] Abhay Kotnala, Yi Zheng, **Jianping Fu**, and Wei Cheng*. Microfluidic-based high-throughput optical trapping of nanoparticles. ***Lab on a Chip***, vol. 17, pp. 2125-2134, 2017. DOI: 10.1039/c7lc00286f.

[74] Dennis W. Zhou, Ted T. Lee, Shinuo Weng, **Jianping Fu**, and Andrés J. García*. Effects of substrate stiffness and actomyosin contractility on coupling between force transmission and vinculin-paxillin recruitment at single focal adhesions. ***Molecular Biology of the Cell***, vol. 28, pp. 1901, 2017. DOI: 10.1091/mbc.E17-02-0116.

[75] Yi Zheng[#], Shue Wang[#], Xuefeng Xue, Alan Xu[&], Wei Liao[&], Alice Deng[&], Guohao Dai, Allen P. Liu*, and **Jianping Fu***. Notch signaling in regulating angiogenesis in a 3D biomimetic environment. ***Lab on a Chip***, vol. 17, pp. 1948-1959, 2017. DOI: 10.1039/c7lc00186j.

- Selected as the inside back cover story by ***Lab on a Chip***.

[76] Xufeng Xue, Xiaowei Hong, Zida Li, Cheri X. Deng*, and **Jianping Fu***. Acoustic tweezing cytometry enhances osteogenesis of human mesenchymal stem cells through cytoskeletal contractility and YAP activation. ***Biomaterials***, vol. 134, pp. 22-30, 2017. DOI: 10.1016/j.biomaterials.2017.04.039.

[77] Yujing Song, Pengyu Chen, Meng Ting Chung, Robert Nidetz, Younggeun Park, Zhenhui Liu, Walker McHugh, Timothy T. Cornell, **Jianping Fu**, and Katsuo Kurabayashi*. AC electroosmosis-enhanced nanoplasmofluidic detection of ultralow-concentration cytokine. ***Nano Letters***, vol. 17, pp. 2374-2380, 2017. DOI: 10.1021/acs.nanolett.6b05313.

[78] Koh Meng Aw Yong, Yubing Sun, Sofia D. Merajver, and **Jianping Fu***. Mechanotransduction induced reversible phenotypic switching in prostate cancer cells. ***Biophysical Journal***, vol. 112, pp. 1236-1245, 2017. DOI: 10.1016/j.bpj.2017.02.012.

[79] Gang Zhao* and **Jianping Fu**. Microfluidics for biopreservation. ***Biotechnology Advances***, vol. 35, pp. 323-336, 2017. DOI: 10.1016/j.biotechadv.2017.01.006.

[80] Zeta Tak For Yu, Jophin George Joseph[&], Shirley Xiaosu Liu[&], Mei Ki Cheung[&], Parker James Haffey[&], Katsuo Kurabayashi, and **Jianping Fu***. Centrifugal microfluidics for sorting immune cells from blood. ***Sensors & Actuators: B. Chemical***, vol. 245, pp. 1050-1061, 2017. DOI: 10.1016/j.snb.2017.01.113.

[81] Yue Shao[#], Kenichiro Taniguchi[#], Katherine Gurdziel, Ryan F. Townshend, Xufeng Xue, Koh Meng Aw Yong, Jianming Sang, Jason R. Spence, Deborah L. Gumucio*, and **Jianping Fu***. Self-organized amniogenesis by human pluripotent stem cells in a biomimetic implantation-like niche. ***Nature Materials***, vol. 16, pp. 419-425, 2017. DOI: 10.1038/NMAT4829.

- Commentary by Martin Pera, "*In vitro* amniogenesis", ***Nature Materials***, vol. 16, pp. 394-395, 2017.

- Highlighted by *Michigan News*, *Michigan Engineering*, *Phys.org*, and *Technology.org*.

[82] Jianming Sang, Xiang Li, Yue Shao, Zida Li, and **Jianping Fu***. Controlled tubular unit formation from collagen film for modular tissue engineering. ***ACS Biomaterials Science & Engineering***, vol. 3, pp. 2860-2868, 2017. DOI: 10.1021/acsbiomaterials.6b00468.

[83] Staci Hill[&], Weiyi Qian, Weiqiang Chen*, and **Jianping Fu***. Surface micromachining of polydimethylsiloxane for microfluidics applications. ***Biomicrofluidics***, vol. 10, 054114, 2016. DOI: 10.1063/1.4964717.

[84] Weiqiang Chen, Steven G. Allen, Ajaya Kumar Reka, Weiyi Qian, Shuo Han[&], Jianing Zhao[&], Liwei Bao, Venkat Keshamouni*, Sofia D. Merajver*, and **Jianping Fu***. Nanoroughened adhesion-based capture of circulating tumor cells with heterogeneous molecular expression and metastatic characteristics. ***BMC Cancer***, vol. 16, 614, 2016. DOI: 10.1186/s12885-016-2638-x.

[85] Bo-Ram Oh, Pengyu Chen, Robert Nidetz, Walker McHugh, **Jianping Fu**, Thomas P. Shanley, Timothy T. Cornell, and Katsuo Kurabayashi*. Multiplexed nanoplasmonic temporal profiling of T-cell response under immunomodulatory agent exposure. ***ACS Sensors***, vol. 1, pp. 941-948, 2016. DOI: 10.1021/acssensors.6b00240.

- Selected to be featured in ***ACS Editors' Choice***.

[86] Shinuo Weng[#], Yue Shao[#], Weiqiang Chen, and **Jianping Fu***. Mechanosensitive subcellular rheostasis drives emergent single-cell tensional homeostasis. ***Nature Materials***, vol. 15, pp. 961-967, 2016. DOI: 10.1038/nmat4654.

[87] Zeta Tak For Yu, Mei Ki Cheung[&], Shirley Xiaosu Liu[&], and **Jianping Fu***. Accelerated biofluid filling in complex microfluidic networks by vacuum-pressure accelerated movement (V-PAM). ***Small***, vol. 12, pp. 4521-4530, 2016. DOI: 10.1002/smll.201601231.

- Selected as the inside cover story by ***Small***.

[88] Zida Li, Xiang Li, Brendan McCracken, Yue Shao, Kevin Ward, and **Jianping Fu***. A miniaturized hemoretractometer for blood clot retraction testing. ***Small***, vol. 12, pp. 3926-3934, 2016. DOI: 10.1002/smll.201600274.

- Selected as the frontispiece story by ***Small***.

[89] Nhung Nguyen, Yue Shao, Alan Wineman, **Jianping Fu**, and Anthony Waas*. Atomic force microscopy indentation and inverse analysis for non-linear viscoelastic identification of breast cancer cells. ***Mathematical Biosciences***, vol. 277, pp. 77-88, 2016. DOI: 10.1016/j.mbs.2016.03.015.

[90] Shuhuan Hu, Guangyu Liu, Weiqiang Chen, Xiang Li, Wei Lu, Raymond H. W. Lam*, and **Jianping Fu***. Multiparametric biomechanical and biochemical phenotypic profiling of single cancer cells using elasticity microcytometer. ***Small***, vol. 12, pp. 2300-2311, 2016. DOI: 10.1002/smll.201503620.

- Selected as the front cover page story by ***Small***.

[91] Yi Zheng, Yubing Sun, Xinwei Yu[&], Yue Shao, Ping Zhang, Guohao Dai, and **Jianping Fu***. Angiogenesis in liquid tumors: An *in-vitro* assay for leukemic cell induced bone marrow angiogenesis. ***Advanced Healthcare Materials***, vol. 5, pp. 1014-1024, 2016. DOI: 10.1002/adhm.201501007.

- Selected as the VIP paper and the front cover page story by ***Advanced Healthcare Materials***.

[92] Kenichiro Taniguchi, Yue Shao, Ryan F. Townshend, Yu-Hwai Tsai, Cynthia J. DeLong, Shawn A. Lopez, Srimonta Gayen, Andrew M. Freddo, Deming J. Chue, Dennis J. Thomas, Jason R. Spence, Benjamin Margolis, Sundeep Kalantry, **Jianping Fu**, K. Sue O'Shea, and Deborah L. Gumucio*. Lumen formation is an intrinsic property of isolated human pluripotent stem cells. ***Stem Cell Reports***, vol. 5, pp. 954-962, 2015. DOI: 10.1016/j.stemcr.2015.10.015.

[93] Christopher Moraes, Joseph M. Labuz, Yue Shao, **Jianping Fu**, and Shuichi Takayama*. Supersoft lithography: Candy-derived soft microstructures to measure microtissue-generated stresses. ***Lab on Chip***, vol. 15, pp. 3760-3765, 2015. DOI: 10.1039/C5LC00722D.

[94] Hui Wang, Yubing Sun, Jinhui Yi, **Jianping Fu**, Jing Di, Alejandra del Carmen Alonso, and Shuiqin Zhou*. Biocompatible PEG-chitosan-carbon dots hybrid nanogels for optical pH-sensing, two-photon fluorescence imaging and near-infrared light/pH dual-responsive drug carrier. ***Advanced Functional Materials***, vol. 25, pp. 5537-5547, 2015. DOI: 10.1002/adfm.201501524.

[95] Xiang Li, Zeta Tak-For Yu, Dalton Geraldo[&], Shinuo Weng, Nitesh Alve[&], Andy Dun[&], Akshay Kini[&], Karan Patel[&], Roberto Shu[&], and **Jianping Fu***. Desktop aligner for fabrication of multilayer microfluidic devices. ***Review of Scientific Instruments***, vol. 86, 075008, 2015. DOI: 10.1063/1.4927197.

[96] Zeta Tak-For Yu, Huijiao Guan[&], Mei Ki Cheung[&], Timothy T. Cornell, Thomas P. Shanley, Katsuo Kurabayashi, and **Jianping Fu***. Rapid, automated, multiplexed quantitative immunoassays using

highly integrated microfluidics and AlphaLISA. ***Scientific Reports***, vol. 5, 11339, 2015. DOI: 10.1038/srep11339.

[97] Yong Li, Dan Lei, William R. Swindell, Wei Xia, Shinuo Weng, **Jianping Fu**, Christal A. Worthen, Toru Okubo, Andrew Johnston, Johann E. Gudjonsson, John J. Voorhees, and Gary J. Fisher*. Age-associated increase of skin fibroblast-derived prostaglandin E2 contributes to reduced collagen levels in elderly human skin. ***Journal of Investigative Dermatology***, vol. 135, pp. 2181-2188, 2015. DOI: 10.1038/jid.2015.157.

[98] Pengyu Chen, Meng Ting Chuang, Walker McHugh, Robert Nidetz, Yuwei Li, **Jianping Fu**, Timothy T. Cornell, Thomas P. Shanley, and Katsuo Kurabayashi*. Multiplex serum cytokine immunoassay using nanoplasmonic biosensor microarrays. ***ACS Nano***, vol. 9, pp. 4173-4181, 2015. DOI: 10.1021/acsnano.5b00396.

[99] Di Chen[#], Yubing Sun[#], Cheri X. Deng*, and **Jianping Fu***. Improving survival of disassociated human embryonic stem cells by mechanical stimulation using acoustic tweezing cytometry. ***Biophysical Journal***, vol. 108, pp. 1315-1317, 2015. DOI: 10.1016/j.bpj.2015.01.033.

[100] Hui Wang, Yubing Sun, Jinhui Yi, **Jianping Fu**, Jing Di, Alejandra del Carmen Alonso, and Shuiqin Zhou*. Fluorescent porous carbon nanocapsules for two-photon imaging, NIR/pH dual-responsive drug carrier, and photothermal therapy. ***Biomaterials***, vol. 53, pp. 117-126, 2015. DOI: 10.1016/j.biomaterials.2015.02.087.

[101] Yue Shao[#], Jianming Sang[#], and **Jianping Fu***. On human pluripotent stem cell control: The rise of 3D bioengineering and mechanobiology. ***Biomaterials***, vol. 52, pp. 26-43, 2015. DOI: 10.1016/j.biomaterials.2015.01.078.

[102] Di Chen, Yubing Sun, Madhu S. R. Gudur, Yising Hsiao, Ziqi Wu, **Jianping Fu***, and Cheri X. Deng*. Two bubble acoustic tweezing cytometry for biomechanical probing and stimulation of cells. ***Biophysical Journal***, vol. 108, pp. 32-42, 2015. DOI: 10.1016/j.bpj.2014.11.050.

[103] **Jianping Fu***, and Donglei Fan. Special section on nanoscale materials, devices, and systems for biosensing, biomanipulation, and biofabrication. ***ASME Journal of Nanotechnology in Engineering and Medicine***, vol. 5, 040201, 2014. DOI: 10.1115/1.4030870.

[104] Lin Han, Jing Zhou, Yubing Sun, Yu Zhang, Jung Han, **Jianping Fu**, and Rong Fan*. Single-crystalline, nanoporous gallium nitride films with fine tuning of pore size for stem cell engineering. ***ASME Journal of Nanotechnology in Engineering and Medicine***, vol. 5, 041004, 2014. DOI: 10.1115/1.4030615.

[105] Weiqiang Chen[#], Yue Shao[#], Xiang Li, Gang Zhao, and **Jianping Fu***. Nanotopographical surfaces for stem cell fate control: Engineering mechanobiology from the bottom. ***Nano Today***, vol. 9, pp. 759-784, 2014. DOI: 10.1016/j.nantod.2014.12.002.

[106] Ying Zhu, Hong Xu, Kaimin Chen, **Jianping Fu**, and Hongchen Gu*. Encoding through the host/guest structure: Construction of multiplexed fluorescent beads. ***Chemical Communications***, vol. 50, pp. 14041-14044, 2014. DOI: 10.1039/c4cc05793g.

[107] Xiang Li, Weiqiang Chen, Zida Li, Ling Li[&], Hongchen Gu*, and **Jianping Fu***. Emerging microengineering tools for functional analysis and phenotyping of blood cells. ***Trends in Biotechnology***, vol. 32, pp. 586-594, 2014. DOI: 10.1016/j.tibtech.2014.09.003.

[108] Zhenyuan Qu, Hong Xu, Ping Xu, Kaimin Chen, Rong Mu, **Jianping Fu**, and Hongchen Gu*. Ultrasensitive ELISA using enzyme-loaded nanospherical brushes as labels. ***Analytical Chemistry***, vol. 86, pp. 9367-9371, 2014. DOI: 10.1021/ac502522b.

[109] Yubing Sun, and **Jianping Fu***. Harnessing mechanobiology of human pluripotent stem cells for regenerative medicine. ***ACS Chemical Neuroscience***, vol. 5, pp. 621-623, 2014. DOI: 10.1021/cn5001155.

- Selected as the front cover story for 2014 Aug. 20 issue of ***ACS Chemical Neuroscience***.

[110] Xiang Li, Weiqiang Chen, Guangyu Liu, Wei Lu, and **Jianping Fu***. Continuous-flow microfluidic blood cell sorting for unprocessed whole blood using surface-micromachined microfiltration membranes. ***Lab on Chip***, vol. 14, pp. 2565-2575, 2014. DOI: 10.1039/c4lc00350k.

[111] Yubing Sun, Koh Meng Aw Yong, Luis G. Villa-Diaz, Xiaoli Zhang, Weiqiang Chen, Renee Philson[&], Shinuo Weng, Haoxing Xu, Paul H. Krebsbach, and **Jianping Fu***. Hippo / YAP-mediated rigidity-dependent motor neuron differentiation of human pluripotent stem cells. ***Nature Materials***, vol. 13, pp. 599-604, 2014. DOI: 10.1038/nmat3945.

- Commentary by Emily Rhodes Lowry & Christopher E. Henderson, "Stem cell differentiation: Yielding substrates for neurons", ***Nature Materials***, vol. 13, pp. 543-544, 2014.

- Commentary by Ning Wang, "Stem cells go soft: Pliant substrate surfaces enhance motor neuron differentiation", ***Cell Stem Cell***, vol. 14, pp. 701-703, 2014.

- Highlighted by *Michigan News*, *Detroit Local 4 News*, *Crain's Detroit Business*, *ABC 7 Sarasota - WWSB*,*ABC News Radio*, *Headlines & Global News*, *Red Orbit*, *The Doctor Will See You Now*, *Consultant*, *Guardian Liberty Voice*, *The Australian*, *International Business Times UK*, *The Times of India*, *Israel Herald*, *Business Standard*, *Milwaukee Wisconsin Journal Sentinelt*, *Medical News Today*.

[112] Bo-Ram Oh, Nien-Tsu Huang, Weiqiang Chen, Jungwhan Seo, Pengyu Chen, Timothy T. Cornell, Thomas P. Shanley, **Jianping Fu**, and Katsuo Kurabayashi***.** Integrated nanoplasmonic sensing for cellular functional immunoanalysis using human blood. ***ACS Nano***, vol. 8, pp. 2667-2676, 2014. DOI: 10.1021/nn406370u.

[113] Yue Shao, Jennifer M. Mann, Weiqiang Chen, and **Jianping Fu***. Global architecture of F-actin cytoskeleton regulates cell shape-dependent endothelial mechanotransduction. ***Integrative Biology***, vol. 6, pp. 300-311, 2014. DOI: 10.1039/c3ib40223a.

[114] Zeta Tak-For Yu, Koh Meng Aw Yong, and **Jianping Fu***. Microfluidic blood sample preparation and analysis: Now and beyond. ***Small***, vol. 10, pp. 1687-1703, 2014. DOI: 10.1002/smll.201302907.

[115] Yue Shao, and **Jianping Fu***. Integrated micro/nanoengineered functional biomaterials for cell mechanics and mechanobiology: A Materials perspective. ***Advanced Materials***, vol. 26, pp. 1494-1533, 2014. DOI: 10.1002/adma.201304431.

[116] Mark T. Breckenridge, Ravi A. Desai, Michael T. Yang, **Jianping Fu***, and Christopher S. Chen*. Substrates with engineered step changes in rigidity suggest a role for subcellular biases in traction force in driving durotaxis. ***Cellular and Molecular Bioengineering***, vol. 7, pp. 26-34, 2014. DOI: 10.1007/s12195-013-0307-6.

[117] Yue Shao[#], Xinyu Tan[#], Roman Novitski[&], Misha Muqaddam[&], Paul T. List[&], Laura Williamson[&], **Jianping Fu***, and Allen P. Liu*. Uniaxial cell stretching device for live-cell imaging of mechanosensitive cellular functions. ***Review of Scientific Instruments***, vol. 84, 114304, 2013. DOI: 10.1063/1.4832977.

[118] Zhenzhen Fan[#], Yubing Sun[#], Di Chen[#], Weiqiang Chen, Cheri X. Deng*, and **Jianping Fu***. Acoustic tweezing cytometry for live-cell subcellular control of intracellular cytoskeleton contractility. ***Scientific Reports***, vol. 3, 2176, 2013. DOI: 10.1038/srep02176.

[119] David W. Dumbauld, Ted T. Lee, Ankur Singh, Jan Scrimgeour, Charles A. Gersbach, Evan A. Zamir, **Jianping Fu**, Christopher S. Chen, Jennifer E. Curtis, Susan W. Craig, and Andrés J. García*. How vinculin regulates traction forces and adhesion strength. ***Proceedings of the National Academy of Sciences of the United States of America***, vol. 110, pp. 9788-9793, 2013. DOI: 10.1073/pnas.1216209110.

[120] Weiqiang Chen, Nien-Tsu Huang, Xiang Li, Zeta Tak-For Yu, Katsuo Kurabayashi, and **Jianping Fu***. Emerging microfluidic tools for functional immunophenotyping: A new potential paradigm for immune status characterization. ***Frontiers in Oncology***, vol. 3, 98, 2013. DOI: 10.3389/fonc.2013.00098.

[121] Ankur Singh, Shalu Suri, Ted T. Lee, Jamie M.Chilton, Weiqiang Chen, **Jianping Fu**, Steven L. Stice, Hang Lu, Todd C. McDevitt, and Andrés J. García*. Adhesive signature-based, label-free isolation of human pluripotent stem cells. ***Nature Methods***, vol. 10, pp. 438-444, 2013. DOI: 10.1038/nmeth.2437.

- Highlighted by NIH Director's Blog.
- Commentary by Oscar J. Abilez & Joseph C. Wu, "Stem cell isolation: Differential stickiness", ***Nature Materials***, vol. 12, pp. 474-476, 2013.

[122] Weiqiang Chen, Nien-Tsu Huang, Boram Oh, Raymond Hiu-Wai Lam, Rong Fan, Timothy T. Cornell, Thomas P. Shanley, Katsuo Kurabayashi*, and **Jianping Fu***. Surface-micromachined microfiltration membranes for efficient isolation and functional immunophenotyping of subpopulations of immune cells. ***Advanced Healthcare Materials***, vol. 2, pp. 965-975, 2013. DOI: 10.1002/adhm.201200378.

- Selected as the front cover page story by ***Advanced Healthcare Materials***.
- Highlighted by *MaterialsView*, *UM ME Dept. News*.

[123] Yubing Sun, and **Jianping Fu***. Mechanobiology: A new frontier for human pluripotent stem cells. ***Integrative Biology***, vol. 5, pp. 450-457, 2013. DOI: 10.1039/c2ib20256e.

- Selected as the front cover page story and hot article by ***Integrative Biology***.

[124] Weiqiang Chen, Shinuo Weng, Feng Zhang[&], Steven Allen, Liwei Bao, Raymond Hiu-Wai Lam, Jill A. Macoska, Sofia D. Merajver, and **Jianping Fu***. Nanoroughened surfaces for efficient capture of circulating tumor cells without using capture antibodies. ***ACS Nano***, vol. 7, pp. 566-575, 2013. DOI: 10.1021/nn304719q.

- Selected as the front cover page story by ***ACS Nano***.
- Highlighted by *UM Homepage*, *UM News Service*, *UM Health System*, *UM ME Dept. News*, *UM BME Dept. News*, *C&EN Online Story*, *ACS Nano Podcast*, *Medical News Today*, *Medi Lexicon*, *ScienceDaily*, *PhysOrg*, and *Bio-Medicine*.

[125] Weiqiang Chen, Yubing Sun, and **Jianping Fu***. Microfabricated nanotopological surfaces for study of adhesion-dependent cell mechanosensitivity. ***Small***, vol. 9, pp. 81-89, 2013. DOI: 10.1002/smll.201201098.

- Selected as the front cover page story by ***Small***.

[126] Raymond Hiu-Wai Lam, Shinuo Weng, Wei Lu, and **Jianping Fu***. Live-cell subcellular measurement of cell stiffness using a microengineered stretchable micropost array membrane. ***Integrative Biology***, vol. 4, pp. 1289-1298, 2012. DOI: 10.1039/C2IB20134H.

[127] Nien-Tsu Huang[#], Weiqiang Chen[#], Timothy T. Cornell, Thomas P. Shanley, **Jianping Fu***, and Katsuo Kurabayashi*. An integrated microfluidic platform for in-situ cellular cytokine secretion immunophenotyping. ***Lab on Chip***, vol. 12, pp. 4093-4101, 2012. DOI: 10.1039/C2LC40619E.

[128] Yubing Sun, Liang-Ting Jiang, Ryoji Okada, and **Jianping Fu***. UV-modulated substrate mechanics for multiscale study of mechanoresponsive cellular behaviors. ***Langmuir***, vol. 28, pp. 10789-10796, 2012. DOI: 10.1021/la300978x.

[129] Yubing Sun, Shinuo Weng, and **Jianping Fu***. Microengineered synthetic cellular microenvironment for stem cells. ***Wiley Interdisciplinary Reviews (WIREs): Nanomedicine and Nanobiotechnology***, vol. 4, pp. 414-427, 2012.

[130] Yubing Sun, Christopher S. Chen*, and **Jianping Fu***. Forcing stem cells to behave: A biophysical perspective of cellular microenvironment. ***Annual Review of Biophysics***, vol. 41, pp. 519-542, 2012. DOI: 10.1146/annurev-biophys-042910-155306.

[131] Yubing Sun, Luis G. Villa-Diaz, Raymond Hiu-Wai Lam, Weiqiang Chen, Paul H. Krebsbach, and **Jianping Fu***. Matrix mechanics regulates fate decisions of human embryonic stem cells. ***PLoS ONE***, vol. 7, e37178, 2012. DOI: 10.1371/journal.pone.0037178.

- Highlighted by *ESC & iPSC News*, *UM ME Dept News*, and *UM CoE News*.
- Among the top 10% most cited *PLOS ONE* articles.

[132] Weiqiang Chen, Luis G. Villa-Diaz, Yubing Sun, Shinuo Weng, Raymond Hiu-Wai Lam, Paul H. Krebsbach, and **Jianping Fu***. Nanotopography influences adhesion, spreading, and self-renewal of human embryonic stem cells. ***ACS Nano***, vol. 6, pp. 4094-4103, 2012. DOI: 10.1021/nn3004923.

- Highlighted by *ESC & iPSC News*, *C&EN Online Story*, *UM ME Dept News*, and *UM CoE News*.

[133] Raymond Hiu-Wai Lam, Yubing Sun, Weiqiang Chen, and **Jianping Fu***. Elastomeric microposts integrated in microfluidics for shear-mediated endothelial mechanotransduction analysis. ***Lab on Chip***, vol. 12, pp. 1865-1873, 2012. DOI: 10.1039/c2lc21146g.

[134] Yu Wu, Yao Lu, Weiqiang Chen, **Jianping Fu**, and Rong Fan*. *In silico* experimentation of glioma microenvironment development infers new venues for tumor control and therapy. ***PLoS Computational Biology***, vol. 8, e1002355, 2012. DOI: 10.1371/journal.pcbi.1002355.

[135] Jennifer M. Mann[#], Raymond Hiu-Wai Lam[#], Shinuo Weng, Yubing Sun, and **Jianping Fu***. A silicone-based stretchable micropost array membrane for monitoring live-cell subcellular cytoskeletal response. ***Lab on Chip***, vol. 12, pp. 731-740, 2012. DOI: 10.1039/c2lc20896b.

- This paper was selected as one of the top 10% of all ***Lab on Chip*** articles published in year 2012.

[136] Weiqiang Chen, Raymond Hiu-Wai Lam, and **Jianping Fu***. Photolithographic surface micromachining of polydimethylsiloxane (PDMS). ***Lab on Chip***, vol. 12, pp. 391-395, 2012. DOI: 10.1039/c1lc20721k.

- This paper was in ***Lab on Chip***'s top ten most accessed articles during the month of Nov. and Dec. 2011.

[137] Shinuo Weng, and **Jianping Fu***. Synergistic regulation of cell function by matrix rigidity and adhesive pattern. ***Biomaterials***, vol. 32, pp. 9584-9593, 2011. DOI: 10.1016/j.biomaterials.2011.09.006.

[138] Shang-You Tee, **Jianping Fu**, Christopher S. Chen, and Paul A. Janmey*. Cell shape and substrate rigidity both regulate cell stiffness. ***Biophysical Journal***, vol. 100, pp. L25-L27, 2011. DOI: 10.1016/j.bpj.2010.12.3744.

- Selected by the ***Faculty of 1000*** (***F1000***) for open peer evaluation.

[139] Michael T. Yang[#], **Jianping Fu**[#], Yang-Kao Wang, Ravi A. Desai, and Christopher S. Chen*. Assaying stem cell mechanobiology on microfabricated elastomeric substrates with geometrically modulated rigidity. ***Nature Protocols***, vol. 6, pp. 187-213, 2011. DOI: 10.1038/nprot.2010.189.

[140] **Jianping Fu**[#], Yang-Kao Wang[#], Michael T. Yang, Ravi A. Desai, Xiang Yu, Zhijun Liu, and Christopher S. Chen*. Mechanical regulation of cell function with geometrically modulated elastomeric substrates. ***Nature Methods***, vol. 7, pp.733-736, 2010. DOI: 10.1038/nmeth.1487.

- Selected as the front cover page story by ***Nature Methods***.
- Commentary by Amnon Buxboim & Dennis Discher, "Stem cell feels the difference", ***Nature Methods***, vol. 7, pp.695-697, 2010.
- Addendum, ***Nature Methods***, vol. 8, pp.184, Feb. 2011.
- Highlighted by *UM News Service*, *UM ME Dept. News*, *Penn News*, *Popular Science*, *ScienceDaily*, *EurekAlert by AAAS*, and *PhysOrg*.

[141] **Jianping Fu***, Pan Mao, and Jongyoon Han. Continuous-flow bioseparation using microfabricated anisotropic nanofluidic sieving structures. ***Nature Protocols***, vol. 4, pp.1681-1698, 2009. DOI: 10.1038/nprot.2009.176.

[142] Patrick McGarry, **Jianping Fu**, Michel T. Yang, Christopher S. Chen, Robert M. McMeeking, Vikram S. Deshpande, and Anthony G. Evans*. Simulation of the contractile response of cells on an array of micro-posts. ***Proceedings of the Royal Society A***, vol. 367, pp.3477-3497, 2009. DOI: 10.1098/rsta.2009.0097.

[143] Masumi Yamada, Pan Mao, **Jianping Fu**, and Jongyoon Han*. Rapid quantification of disease-marker proteins using continuous-flow immunoseparation in a nanosieve fluidic device. ***Analytical Chemistry***, vol. 81, pp.7067-7074, 2009. DOI: 10.1021/ac901226z.

[144] Hansen Bow, **Jianping Fu**, and Jongyoon Han*. Decreasing effective nanofluidic filter size by modulating electrical double layers: Separation enhancement in microfabricated nanofluidic filters. ***Electrophoresis***, vol. 29, pp.4646-4651, 2008. DOI: 10.1002/elps.200800256.

[145] **Jianping Fu**, Ronggui Yang, Gang Chen*, Jean Pierre Fleurial, and G. Jeffrey Snyder. Integrated electroplated heat spreaders for high power semiconductor lasers. ***Journal of Applied Physics***, vol. 104, 064907, 2008. DOI: 10.1063/1.2986888.

[146] **Jianping Fu***, Pan Mao and Jongyoon Han. Artificial molecular sieves and filters: A new paradigm for biomolecule separation. ***Trends in Biotechnology***, vol. 26, pp.311-320, 2008. DOI: 10.1016/j.tibtech.2008.02.009.

[147] Colette Shen, **Jianping Fu**, and Christopher S. Chen*. Engineering tissue form and function. ***Cellular and Molecular Bioengineering***, vol. 1, pp.15-23, 2008. DOI: 10.1007/s12195-008-0005-y.

[148] Jongyoon Han*, **Jianping Fu**, and Reto B. Schoch. Molecular sieving using nanofilters: past, present and future. ***Lab on Chip***, vol. 8, pp.23-33, 2008. DOI: 10.1039/B714128A.

[149] **Jianping Fu**[#], Reto B. Schoch[#], Anna L. Stevens, Steven R. Tannenbaum, and Jongyoon Han*. A patterned anisotropic nanofluidic sieving structure for continuous-flow separation of DNA and proteins. ***Nature Nanotechnology***, vol. 2, pp.121-128, 2007. DOI: 10.1038/nnano.2006.206.

- Selected as a front cover story by ***Nature Nanotechnology***.
- Commentary by Robert Austin, "Nanofluidics: a fork in the nano-road", ***Nature Nanotechnology***, vol. 2, pp.121-128, 2007.

- Highlighted by *MIT News Office*, *MIT Tech Talk*, *ScienceDaily*, *EurekAlert by AAAS*, and *PhysOrg*.

[150] **Jianping Fu**, Juhwan Yoo[&], and Jongyoon Han*. Molecular sieving in periodic free-energy landscapes created by patterned nanofilter arrays. ***Physical Review Letters***, vol. 97, 018103, 2006. DOI: 10.1103/PhysRevLett.97.018103.

- Selected for the July 15 2006 issue of ***Virtual Journal of Biological Physical Research***.
- Selected for the July 24 2006 issue of ***Virtual Journal of Nanoscale Science and Technology***.
- Highlighted by *MIT News Office*.

[151] **Jianping Fu**, Pan Mao, and Jongyoon Han*. Nanofilter array chip for fast gel-free biomolecule separation. ***Applied Physics Letters***, vol. 87, 263902, 2005. DOI: 10.1063/1.2149979.

- Selected for the Jan. 1 2006 issue of ***Virtual Journal of Biological Physical Research***.

## F. BOOK CHAPTERS

(*Corresponding author; [#]Equal contribution; [&]Undergraduate co-author; Underline: Graduate / postdoctoral advisees at UM)

[1] Yubing Sun, Yue Shao, Xufeng Xue, and **Jianping Fu***. Emerging roles of YAP/TAZ in mechanobiology. ***Molecular and Cellular Mechanobiology*** (edited by Shu Chien, Adam J. Engler, and Yingxiao Wang), Springer Science, 2015.

[2] Yue Shao, Shinuo Weng, and **Jianping Fu***. Stretchable micropost array cytometry: A powerful tool for cell mechanics and mechanobiology research. ***Integrative Mechanobiology: Micro and Nano Techniques in Cell Mechanobiology*** (edited by Yu Sun, Craig Simmons, and Deok-Ho Kim), Cambridge University Press, 2014.

[3] Koh Meng Aw Yong, Zeta Tak-For Yu, Huijiao Guan[&], and **Jianping Fu***. Cellular enrichment from clinical samples. ***Micro- and Nanosystems for Biotechnology*** (edited by J. Christopher Love). Wiley Biotechnology Series, 2013.

[4] Yong-Ak Song, **Jianping Fu**, Ying-Chih Wang, and Jongyoon Han*. Biosample preparation by lab-on-a-chip devices. ***Encyclopedia of Microfluidics and Nanofluidics*** (edited by Dongqing Li), Springer-Verlag, 2013. DOI: 10.1007/SpringerReference_66329.

[5] Zeta Tak-For Yu, Koh Meng Aw Yong, and **Jianping Fu***. Microfluidic modeling of cancer metastasis. ***Cells, Forces and the Microenvironment*** (edited by Andrew E. Pelling and Charles M. Cuerrier). Pan Stanford Publishing, in press, 2013.

[6] Shinuo Weng, Yue Shao, Yubing Sun, and **Jianping Fu***. Micromachined elastomeric microposts and their applications for mechanotransduction research. ***Dynamic Control of the Cellular Microenvironment*** (edited by Wendy Liu and Elliot Hui), Springer, in press, 2013.

[7] Pan Mao, and **Jianping Fu***. Nanofluidic devices for bioseparation. ***Nanoproteomics: Methods and Protocols*** (edited by Steven A. Toms and Robert J. Weil), Methods in Molecular Biology, vol. 790, pp. 127-140, 2011. (book chapter)

[8] Jongyoon Han*, **Jianping Fu**, Ying-Chih Wang, and Yong-Ak Song. Sample preparation by lab-on-a-chip devices. ***Encyclopedia of Microfluidics and Nanofluidics*** (edited by Dongqing Li), Springer, 2008. (book chapter)

[9] Chaoguang Lin, Peng Hu, Zeshao Chen*, Wenlong Chen, and **Jianping Fu**. Numerical simulation and experiment research on flow characteristics of capillary in refrigerator. ***Heat Transfer Science and Technology*** (edited by Buxuan Wang), pp.555-562, Higher Education Press of China, 2000.

## G. CONFERENCE PROCEEDINGS

(*Corresponding author; #Equal contribution; &Undergraduate co-author; Underline: Graduate / postdoctoral advisees at UM)

[1] Xufeng Xue, Robin Zexuan Yan, and **Jianping Fu***. A fully patterned human neural tube model. *Proc. 25th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2021*), Palm Springs, CA, Oct. 2021, pp. 5-6.

[2] Xufeng Xue, Yubing Sun, Agnes M. Resto Irizarry, Koh Meng Aw Yong, Yi Zheng, Shinuo Weng, Yue Shao, and **Jianping Fu***. Mechanics-guided emergent patterning of neuroectoderm tissue using human pluripotent stem cells. *Proc. 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2017*), Savannah, Georgia, Oct. 2017, pp. 1151-1153.

[3] Zida Li, Xufeng Xue, David Peyer&, Brendan McCracken, Kevin Ward, and **Jianping Fu***. Capillary-facilitated coating of carbon nanotube thin film for a strain gauge for blood retraction test. *Proc. 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2017*), Savannah, Georgia, Oct. 2017, pp. 1015-1017.

[4] Yue Shao, Kenichiro Taniguchi, Katherine Gurdziel, Ryan F. Townshend, Xufeng Xue, Koh Meng Aw Yong, Jianming Sang, Jason R. Spence, Deborah L. Gumucio, and **Jianping Fu***. Self-organized amniogenesis from human pluripotent stem cells in an engineered biomimetic niche. *Proc. 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2017*), Savannah, Georgia, Oct. 2017, pp. 888-890.

[5] Xiang Li, Weiqiang Chen, Guangyu Liu, Wei Lu, and **Jianping Fu***. Continuous-flow microfluidic blood cell sorting for unprocessed whole blood using surface-micromachined microfiltration membranes. *Proc. 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2014*), San Antonio, Texas, Oct. 2014, pp. 1151-1153.

[6] Bo-Ram Oh, Nien-Tsu Huang, Weiqiang Chen, Jungwhan Seo, **Jianping Fu**, and Katsuo Kurabayashi*. Localized surface plasmon resonance (LSPR) optofluidic biosensor for label-free cellular immunophenotyping. *Proc. 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2013*), Freiburg, Germany, Oct. 2013, pp. 92-94.

[7] Weiqiang Chen, Nien-Tsu Huang, Boram Oh, Timothy T. Cornell, Thomas P. Shanley, Katsuo Kurabayashi, and **Jianping Fu***. Microfluidic immunophenotyping assay platform for efficient isolation and immunomonitoring of subpopulations of immune cells. *Proc. 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2013*), Freiburg, Germany, Oct. 2013, pp. 1761-1763.

[8] Weiqiang Chen, Shinuo Weng, and **Jianping Fu***. Nanotopographic surface for efficient capture of circulating tumor cells. Paper Number NEMB2013-93187. *Proc. 2013 ASME Global Congress on Nano Engineering for Medicine and Biology* (*NEMB2013*), Feb. 2013, Boston, MA, USA. ("Outstanding Paper Award" from the conference)

[9] Weiqiang Chen, Nien-Tsu Huang, Bo-Ram Oh, Katsuo Kurabayashi, and **Jianping Fu***. Integrated microfluidic platform for efficient isolation and functional immunophenotyping of subpopulations of immune cells. Paper Number NEMB2013-93189. *Proc. 2013 ASME Global Congress on Nano Engineering for Medicine and Biology* (*NEMB2013*), Feb. 2013, Boston, MA, USA.

[10] Yue Shao, Jennifer M. Mann, and **Jianping Fu***. Spatiotemporally coordinated cellular contractile force response under uniaxial substrate stretch. Paper Number NEMB2013-93194. *Proc. 2013 ASME Global Congress on Nano Engineering for Medicine and Biology* (*NEMB2013*), Feb. 2013, Boston, MA, USA. ("Outstanding Paper Award" from the conference)

[11] Yubing Sun, Luis G. Villa-Diaz, Raymond Hiu-Wai Lam, Weiqiang Chen, Paul H. Krebsbach, and **Jianping Fu***. Micromechanical elastomeric devices for investigations of mechanobiology in human embryonic stem cells. *Proc. 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2012*), Okinawa, Japan, Oct. 2012, pp. 1714-1716.

[12] Weiqiang Chen, Nien-Tsu Huang, Katsuo Kurabayashi, and **Jianping Fu***. Surface micromachining of polydimethylsiloxane (PDMS) for microfluidic biomedical applications. *Proc. 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2012*), Okinawa, Japan, Oct. 2012, pp. 1849-1851.

[13] Nien-Tsu Huang, Weiqiang Chen, Boram Oh, **Jianping Fu***, and Katsuo Kurabayashi*. An integrated microfluidic platform for in-situ cellular cytokine secretion immunophenotyping. *Proc. 16th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2012*), Okinawa, Japan, Oct. 2012, pp. 989-991.

[14] Jennifer M. Mann, Raymond Hiu-Wai Lam, Yubing Sun, Shinuo Weng, and **Jianping Fu***. A microengineered stretching platform for live-cell mechanotransductive response analysis. *Proc. 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2011*), Seattle, USA, Oct. 2011, pp. 9-11.

[15] Shinuo Weng, and **Jianping Fu***. Synergistic regulation of cell functions by matrix rigidity and adhesive pattern using an elastomeric micropost array system. *Proc. 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2011*), Seattle, USA, Oct. 2011, pp. 157-159.

[16] Weiqiang Chen, Yubing Sun, and **Jianping Fu***. Nanotopographic control of human embryonic stem cell function. *Proc. 15th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2011*), Seattle, USA, Oct. 2011, pp. 36-38.

[17] **Jianping Fu***. Nanofluidic devices for rapid analysis of DNA and proteins. Paper Number NEMB2010-13196. *Proc. ASME 2010 First Global Congress on Nano Engineering for Medicine and Biology* (*NEMB2010*), Feb. 2010, Houston, TX, USA.

[18] **Jianping Fu***. Mechanical regulation of stem cell differentiation on geometrically modulated elastomeric substrates. Paper Number NEMB2010-13199. *Proc. ASME 2010 First Global Congress on Nano Engineering for Medicine and Biology* (*NEMB2010*), Feb. 2010, Houston, TX, USA.

[19] Masumi Yamada, Pan Mao, **Jianping Fu**, and Jongyoon Han*. Continuous-flow immunoseparation and rapid quantification of protein binding kinetics in anisotropically-patterned nano-sieve structures. *Proc. 13th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2009*), Jeju, Korea, Nov. 2009.

[20] **Jianping Fu**, Yang-Kao Wang, Michael T. Yang, Ted T. Lee, and Christopher S. Chen*. Mechanical control of stem cell differentiation using micro-engineered matrix. *Proc. 12th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2008*), San Diego, California USA, Oct. 2008, pp. 1229-1231.

[21] **Jianping Fu**, and Jongyoon Han*. Nanofluidic devices for rapid analysis of DNA and proteins. *2007 Digest of the IEEE/LEOS Summer Topical Meeting*, Portland, Oregon, July 2007, pp. 115-116.

[22] **Jianping Fu**, and Jongyoon Han*. Continuous-flow biomolecule separation through patterned anisotropic nanofluidic sieving structure. *Proc. 10th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2006*), Tokyo, Japan, Nov. 2006, pp. 519-521.

[23] **Jianping Fu**, and Jongyoon Han*. A nanofilter array chip for fast gel-free biomolecule separation. *Proc. 9th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2005*), Boston, Massachusetts USA, Oct. 2005, pp. 1531-1533.

[24] Ying-Chih Wang, **Jianping Fu**, Pan Mao, and Jongyoon Han*. Nanofluidic molecular filters for efficient protein separation and preconcentration. *Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems* (*Transducers'05*), Seoul, Korea, June 2005, pp. 352-355.

[25] Jongyoon Han*, and **Jianping Fu**. Biomolecule Separation by steric hindrance using nanofluidic filters. *Proc. 26th IEEE-EMBS conference*, San Francisco, California USA, Sept. 2004, pp. 2611-2614.

[26] **Jianping Fu**, and Jongyoon Han*. Biomolecule separation in nanofluidic filters by steric hindrance mechanism. *Proc. 8th International Conference on Miniaturized Systems for Chemistry and Life Sciences* (*μTAS 2004*), Malmö, Sweden, Sept. 2004, pp. 285-287.

[27] **Jianping Fu,** Ronggui Yang, Gang Chen*, Jean Pierre Fleurial, and Jeffrey G. Snyder. Integrated electroplated heat spreader for high power semiconductor laser. *Proc. 6th ASME-JSME Thermal Engineering Joint Conference*, Hawaii Island, Hawaii USA, March 2003, pp. 332-337.

## H. INVITED SEMINARS AND LECTURES

(*Keynote speaker)

***2024***

[1] "Bioengineering human embryo and organ models", Institute for Cell Engineering, Johns Hopkins University School of Medicine, Sept. 2024.

[2] "Bioengineering human embryo and organ models", Institute of Primate Translational Medicine, Kunming University of Science and Technology, Aug. 2024.

[3] "Bioengineering human embryo and organ models", Berlin Institute of Health, Center for Regenerative Therapies (BCRT), Berlin, July 2024.

[4] "Bioengineering human embryo and organ models", Society for the Study of Reproduction 2024 Annual Conference, Dublin, Ireland, July 2024.

[5] "Bioengineering human embryo and organ models", Institut Curie, Paris, France, July 2024.

[6] "Bioengineering human embryo and organ models", Institut du Fer à Moulin (IFM), Inserm / Sorbonne Université, Paris, July 2024.

[7] "Bioengineering human embryo and organ models", Institut de Bioenginyeria de Catalunya (IBEC), Barcelona, Spain, June 2024.

[8] "Bioengineering human embryo and organ models", SelectBIO Innovations in Microfluidics 2024 Conference, Ann Arbor, MI, May 2024.

[9] "Bioengineering human embryo and organ models", Mechanobiology Institute, National University of Singapore, April 2024. (virtual seminar)

[10] "Bioengineering human embryo and organ models", University of Michigan Association of Chinese Professors Biomedical Saloon, April 2024.

[11] "Bioengineering human embryo and organ models", Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research, University of California, Los Angeles, April 2024.

***2023***

[12] "Developmental bioengineering for building human embryo and organ models", Till & McCulloch Meetings (TMM), Toronto, Canada, Oct. 2023.

[13] "Developmental bioengineering for building human embryo and organ models", Oral Health Sciences Seminar Series, School of Dentistry, University of Michigan, Ann Arbor, Oct. 2023.

[14] "Developmental bioengineering for building human embryo and organ models", 9th International Symposium on Primate Research, Kunming, China, Aug. 2023. (virtual seminar)

[15] "Developmental bioengineering for building human embryo and organ models", Great Lakes Developmental Biology Meeting, Toronto, Canada, June 2023.

[16] "Developmental bioengineering for building human embryo and organ models", Alfred E. Mann Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, April 2023.

[17] "Developmental bioengineering for building human embryo and organ models", Department of Biochemistry, Bhussry Seminar Series, Georgetown University, Washington DC, March 2023.

[18] "Developmental bioengineering for building human embryo and organ models", Cold Spring Harbor Asia (CSHA) Meeting on Human Development, "From Embryos to Stem Cell Models", Awaji, Japan, March 2023.

[19] "Synthetic embryology for building human embryo and organ models", Biophysics of Organoids Workshop, Princeton Center for Theoretical Science, Princeton University, Princeton, NJ, Feb. 2023.

***2022***

[20] "Synthetic embryology for building human embryo and organ models", Suzhou Institute for Advanced Study, University of Science and Technology of China, Nov. 2022. (virtual seminar; *Keynote Speaker*)

[21] "Synthetic embryology for building human embryo and organ models", Southern California Stem Cell Seminar Series, University of California, San Diego, Nov. 2022.

[22] "Synthetic embryology for constructing human embryo and organ models", Greenwald Symposium, University of Kansas Medical Center, Kansas City, KS, Oct. 2022. (*Plenary Speaker*)

[23] "Synthetic embryology for constructing human embryo and organ models", 8th International Conference on Stem Cell Engineering 2022, Boston, MA, Oct. 2022.

[24] "Synthetic embryology for constructing human embryo and organ models", Mechanical Engineering Faculty Seminar Series, Univ. Michigan, Ann Arbor, Oct. 2022.

[25] "Synthetic embryology for constructing human embryo and organ models", Department of Bioengineering, University of Pennsylvania, Philadelphia, Sept. 2022.

[26] "Synthetic embryology for constructing human embryo and organ models", Workshop on Reproductive Organoids, University of Cambridge, UK, July 2022. (virtual seminar)

[27] "Synthetic embryology for constructing human embryo and organ models", Gordon Research Conference: Signal Transduction by Engineered Extracellular Matrices, Manchester, NH, July 2022.

[28] "Synthetic embryology for constructing human embryo and organ models", Wallace H. Coulter Department of Biomedical Engineering, Emory University and Georgia Institute of Technology, Atlanta, GA, June 2022.

[29] "Embryonic limits for human embryo models", *Five Years After Editorial Aspirations: In Search of Limits in the Age of Genome Editing,* Global Observatory for Genome Editing, Harvard Kennedy School of Government, Boston, MA, May 2022.

[30] "Building synthetic human embryo-like structures", Keystone Symposia: Engineering Multi-Cellular Living Systems, Keystone, April 2022.

[31] "Bottom-up synthetic embryology for understanding early human development", EMBO Workshop 'Molecular Mechanisms of Developmental and Regenerative Biology', Kyoto University, Japan, April 2022. (virtual seminar)

[32] "Bottom-up synthetic embryology for understanding early human development", Physical Sciences Onco-development Colloquium (PSOC@Penn), University of Pennsylvania, Philadelphia, April 2022.

[33] "Bottom-up synthetic embryology for understanding early human development", Developmental Biology Seminar Series, Washington University School of Medicine, St. Louis, March 2022.

[34] "Bottom-up synthetic embryology for understanding early human development", 61st Society of Toxicology Annual Meeting and ToxExpo, San Diego, March 2022.

[35] "Bottom-up synthetic embryology for understanding early human development", Institute of Biology II (Zoology), RWTH Aachen University, March 2022. (virtual seminar)

[36] "Bottom-up synthetic embryology for understanding early human development", American Physical Society March Meeting 2022, Chicago, March 2022. (virtual seminar)

[37] "Rare disease modeling: An engineer's perspective", Rare Disease Day, Michigan Medicine, University of Michigan, Feb. 2022. (virtual seminar)

***2021***

[38] "Synthetic human embryo-like structures: A new paradigm for human embryology", Dr. Kwang Yul Cha Symposium on Regenerative Medicine, Society for the Study of Reproduction 2021 Annual Meeting, St. Louis, Dec. 2021.

[39] "Bottom-up synthetic human embryology", 17th Royan International Virtual Congress on Stem Cell Biology & Technology, Aug. 2021. (virtual seminar)

[40] "Bottom-up synthetic embryology for understanding early human development", Biointerfaces International Zurich 2021 Conference, Aug. 2021. (virtual seminar)

[41] "Embryo models: Where we are and where we are heading", Harvard Annual Bioethics Conference, June 2021. (virtual seminar)

[42] "Bottom-up synthetic human embryology", U-M Monthly Human Pluripotent Stem Cell Group Meetings, June 2021. (virtual seminar)

[43] "Establishing experimental standards of quality and reproducibility for embryo models", Workshop on Multicellular Engineered Living Systems (M-CELS), June 2021. (virtual seminar)

[44] "Establishing experimental standards of quality and reproducibility for embryo models", ISSCR Digital Meeting Series: Stem Cell-Based Embryo Models, May 2021. (virtual seminar)

[45] "Human embryonic-like structures: How far is the science?", 37th Annual Meeting of the European Society of Human Reproduction and Embryology, May 2021. (virtual seminar)

[46] "Bottom-up synthetic human embryology", Biophysics and Mechanobiology Seminar Series, April 2021. (virtual seminar)

[47] "Bottom-up synthetic human embryology", Molecular Biology Seminar Series, University of Texas Southwestern Medical Center, April 2021. (virtual seminar)

[48] "Bottom-up synthetic human embryology", Biomaterials Institute, Syracuse University, March 2021. (virtual seminar)

[49] "Stem cell-based models of early human nervous system development", MODDULO (Models of Human Disease and Development) Seminar Series, Feb. 2021. (virtual seminar)

[50] "Bottom-up synthetic human embryology", Alternative Methods Working Group (AMWG), U.S. Food and Drug Administration, Jan. 2021. (virtual seminar)

***2020***

[51] "Bottom-up synthetic embryology for understanding human development", System1 Biosciences, Dec. 2020. (virtual seminar)

[52] "Bottom-up synthetic embryology for understanding human development", 2020 Materials Research Society (MRS) Fall Meeting & Exhibit, Symposium F.SM06 - Biofabrication for Emulating Biological Tissues, Dec. 2020. (virtual seminar)

[53] "Bottom-up synthetic embryology for understanding human development", Division of Developmental Biology, Chinese Society for Cell Biology (CSCB), Nov. 2020. (virtual seminar)

[54] "Bottom-up synthetic embryology for understanding human development", *Scientific & Ethical Frontiers in Understanding Human Development*, Penn Institute for Regenerative Medicine, Nov. 2020. (virtual seminar)

[55] "Bottom-up synthetic embryology for understanding human development", Center for Computational Toxicology and Exposure, U.S. Environmental Protection Agency (EPA), Oct. 2020. (virtual seminar)

[56] "Bottom-up synthetic embryology for understanding human development", Institute for Cell Engineering, Johns Hopkins University School of Medicine, Oct. 2020. (virtual seminar)

[57] "Bottom-up synthetic embryology for understanding human development", Department of Bioengineering, University of California, Berkeley, Oct. 2020. (virtual seminar)

[58] "Bottom-up synthetic embryology for understanding human development", Bioengineering Highlight Seminar, Princeton University, Oct. 2020. (virtual seminar)

[59] "Building synthetic human embryo-like structures", 24th International Conference on Miniaturized Systems for Chemistry and Life Sciences (μTAS 2020), Oct. 2020. (virtual seminar)

[60] "Building synthetic human embryo-like structures", Division of Drug Safety Research & Development, Pfizer, Oct. 2020. (virtual seminar)

[61] "Synthetic human embryo-like structures: A new paradigm for human embryology", From Stem Cells to Human Development, Workshop by the journal Development and funded by the Company of Biologists, London, UK, Sept. 2020. (virtual seminar)

[62] "Stem cell-derived models of peri-implantation human development and early neural system development", Vertebrate Gastrulation Zoom Talks (VGZT) Series, Aug. 2020. (virtual seminar)

[63] "Synthetic human embryo-like structures: A new paradigm for human embryology", Webinar, Stem Cells @ Lunch Seminar Series, Centre for Stem Cells and Regenerative Medicine, King's College London, June 2020. (virtual seminar)

[64] "Building synthetic human embryo-like structures", Systems Biology Theory Lunch, Department of Systems Biology, Harvard Medical School, Boston, MA, Feb. 2020.

[65] "Stem cell models of peri-implantation human development", Harvard Ethical Frontiers Lecture, Harvard Medical School, Boston, MA, Feb. 2020.

[66] "Controlled modeling of human epiblast and amnion development using stem cells", Examining the State of the Science of Mammalian Embryo Model Systems – A Workshop, National Academies of Sciences, Engineering, and Medicine, Washington, DC, Jan. 2020.

[67] "Synthetic human embryo-like structures: A new paradigm for human embryology", 2020 Biomedical Engineering Society (BMES) Cellular and Molecular Bioengineering (CMBE) Conference, Puerto Rico, Jan. 2020.

***2019***

[68] "Synthetic human embryo-like structures: A new paradigm for human embryology", 7th International Conference on Stem Cell Engineering (Stem Cell Engineering 2019): From Organoids to Synthetic Embryo: Tools, Technologies, and Novel Applications, Barcelona, Spain, Dec. 2019.

[69] "Synthetic human embryo-like structures: A new paradigm for human embryology", Department of Biomedical Engineering, Duke University, Durham, NC, Nov. 2019.

[70] "Synthetic human embryo-like structures: A new paradigm for human embryology", International Workshop on "Engineering and Manufacture of Living Systems", Tsinghua University, Beijing, China, Oct. 2019.

[71] "Synthetic human embryo-like structures: A new paradigm for human embryology", Massachusetts General Hospital, Center for Cancer Research, Boston, Sept. 2019.

[72] "Synthetic human embryo-like structures: A new paradigm for human embryology", Department of Biomedical Engineering, Columbia University, New York, Sept. 2019.

[73] "Synthetic human embryo-like structures: A new paradigm for human embryology", the National Center of Competence in Research Bio-Inspired Materials, Charmey, Switzerland, Sept. 2019.

[74] "Synthetic human embryo-like structures: A new paradigm for human embryology", Institute of Bioengineering, École polytechnique fédérale de Lausanne (EPFL), Lausanne, Switzerland, Sept. 2019.

[75] "Synthetic human embryo-like structures: A new paradigm for human embryology", 7th Sino-American Workshop on Biomedical Engineering and Biomechanics, Chongqing, China, July 2019.

[76] "Microfluidics for studying complex systems: Organoids-on-a-chip", Discussion leader, Gordon Research Conference (GRC) on Physics and Chemistry of Microfluidics, June 2019.

[77] "Why research on early human development using stem cell-derived models is important", International Society for Stem Cell Research (ISSCR) 2019 Annual Meeting, Ethics Committee Focus Session, Los Angeles, June 2019.

[78] "Synthetic human embryo-like structures: A new paradigm for human embryology", George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, May 2019.

[79] "Synthetic human embryo-like structures: A new paradigm for human embryology", Gordon Research Conference (GRC) on Germinal Stem Cell Biology, Hong Kong, May 2019.

[80] "Synthetic human embryo-like structures: A new paradigm for human embryology", Department of Biological Engineering, Massachusetts Institute of Technology, Boston, MA, April 2019.

[81] "Exploring mechanobiology of human pluripotent stem cells for regenerative medicine and disease modeling", Department of Mechanical Engineering, Massachusetts Institute of Technology, Boston, MA, April 2019.

[82] "Synthetic human embryo-like structures: A new paradigm for human embryology", RIKEN Center for Biosystems Dynamics Research (BDR) Symposium 2019 "Control and Design of Biosystems", Kobe, Japan, March 2019.

[83] "Synthetic human embryo-like structures: A new paradigm for human embryology", Stem Cell Institute, University of Minnesota, Minneapolis, MN, Feb. 2019.

[84] "Synthetic human embryo-like structures: A new paradigm for human embryology", 2019 Annual BMES Cell and Molecular Bioengineering (CMBE) Conference, San Diego, CA, Jan. 2019.

***2018***

[85] "Synthetic human embryo-like structures: A new paradigm for human embryology", Memorial Sloan Kettering Cancer Center, Developmental Biology Program, New York, Nov. 2018.

[86] "Synthetic human embryo-like structures: A new paradigm for human embryology", 2018 Materials Research Society (MRS) Fall Meeting & Exhibit, Symposium for Advanced Manufacturing Technologies for Emulating Biological Tissues, Boston, Nov. 2018.

[87] "Synthetic human embryo-like structures: A new paradigm for human embryology", Department of Biosciences, Rice University, Houston, TX, Nov. 2018.

[88] "Synthetic human embryo-like structures: A new paradigm for human embryology", Department of Mechanical Engineering, Steven Institute of Technology, New York, Oct. 2018.

[89] "Synthetic human embryo-like structures: Where from here?", Department of Genetics, University of Cambridge, Cambridge, England, Sept. 2018.

[90] "Programmable microfluidic synthesis of human embryo-like structures", Engineering Multicellular Self-Organization III, Cambridge, England, Sept. 2018.

[91] "Synthetic human embryo-like structures: A new paradigm for human embryology", Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, IL, Aug. 2018.

[92] "Synthetic human embryo-like structures: A new paradigm for human embryology", 2018 Annual BMES Advanced Biomanufacturing (ABioM) Conference, Worcester Polytechnic Institute, Boston, MA, Aug. 2018.

[93] "Synthetic human embryo-like structures: A new paradigm for human embryology", 2018 Michigan China Biomedical Forum, Ypsilanti, MI, Aug. 2018.

[94] "Synthetic human embryo-like structures", the Second Workshop on Engineered Living Systems, NSF STC: Emergent Behavior of Integrated Cellular Systems (EBICS), Chicago, IL, Aug. 2018.

[95] "Modeling human embryogenesis in a dish", 8th World Congress of Biomechanics, Symposium: Biomechanical microengineering of tissue mimics for human disease modeling, Dublin, Ireland, July 2018.

[96] "Modeling human embryogenesis in a dish", Tsinghua University – Peking University Center for Life Sciences, Peking, China, July 2018.

[97] "Modeling human embryogenesis in a dish", School of Biomedical Science and Engineering, South China University of Technology, Guangzhou, China, June 2018.

[98] "Synthetic human embryology", 2018 International Conference of Biomedical Information Perception & Microsystems, Chengdu, China, June 2018.

[99] "Synthetic human embryology", Yale Stem Cell Center, Yale School of Medicine, Yale University, CT, May 2018.

[100] "Synthetic human embryology in a dish", Department of Biomedical Engineering, Northeastern University, Boston, MA, May 2018.

[101] "Synthetic human embryology in a dish", Department of Bioengineering, University of California, San Diego, CA, April 2018.

[102] "Synthetic human embryology in a dish", Department of Biomedical Engineering, University of California, Los Angeles, CA, April 2018.

[103] "Synthetic human embryology in a dish", Department of Mechanical Engineering, Stanford University, CA, March 2018.

[104] "Synthetic human embryology", Microtechnologies in Medicine and Biology (MMB 2018), Monterey, CA, March 2018.

[105] "Synthetic human embryology in a dish", Quantitative Biology Seminar, University of Michigan, Ann Arbor, Feb. 2018.

[106] "Synthetic human embryology in a dish", Institute for NanoBioTechnology (INBT), Johns Hopkins University, Baltimore, Maryland, Feb. 2018.

[107] "Synthetic human embryology in a dish", the Parker H. Petit Institute for Bioengineering and Bioscience and the Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA, Jan. 2018.

[108] "Synthetic human embryology in a dish", Institute of Biomaterials & Biomedical Engineering, University of Toronto, Toronto, Canada, Jan. 2018.

***2017***

[109] "Modeling human embryogenesis in a dish", 2017 Tissue Engineering & Regenerative Medicine International Society (TERMIS) - America (AM) Meeting, Charlotte, NC, Dec. 2017.

[110] "Synthetic human embryology", Department of Chemistry, University at Albany, SUNY, Nov. 2017.

[111] "Synthetic human embryoids in a dish", MacroBio Summer School, the Institute of Biomaterial Science, the Helmholtz-Zentrum Geesthacht, Berlin, Germany, Sept. 2017.

[112] "Modeling human embryogenesis in a dish", Department of Biomedical Engineering, the Chinese University of Hong Kong, Hong Kong, China, Aug. 2017.

[113] "Modeling human embryogenesis in a dish", 8th WACBE World Congress on Bioengineering, Hong Kong, China, Aug. 2017.

[114] "Modeling human embryogenesis in a dish", SUSTech Biomedical Engineering Summit, Southern University of Science and Technology, Shenzhen, China, July 2017.

[115] "Synthetic human embryoids in a dish", Institute of Biomechanics and Medical Engineering, Department of Engineering Mechanics, Tsinghua University, Beijing, China, July 2017.

[116] "Synthetic human embryoids in a dish", Med-X Research Institute, School of Biomedical Engineering, Shanghai Jiao Tong University, Shanghai, China, July 2017.

[117] "Synthetic human embryoids in a dish", International Symposium of Biomedical Micro/nanotechnology, University of Science and Technology of China, Hefei, China, July 2017.

[118] "Mechanobiology, pluripotent stem cells, and early embryonic development", 2017 Physics and Chemistry of Microfluidics Gordon Research Conference, Lucca (Barga), Italy, June 2017.

[119] "Mechanobiology, pluripotent stem cells, and early embryonic development", 2017 Materials Research Society (MRS) Spring Meeting, Symposium NM10: Micro/nano Assembling,

Manufacturing, and Manipulation for Biomolecular and Cellular Applications, Phoenix, AZ, April 2017.

[120] "Mechanobiology, pluripotent stem cells, and early embryonic development", Department of Chemistry, Oakland University, March 2017.

[121] "Mechanobiology, pluripotent stem cells, and early embryonic development", Rockefeller University, New York, Feb. 2017.

[122] "Mechanobiology, pluripotent stem cells, and early embryonic development", 4th Annual University of Science and Technology of China 9108 Science Symposium, Ann Arbor, Feb. 2017.

[123] "Mechanobiology, pluripotent stem cells, and early embryonic development", BME500 Seminar Series, Department of Biomedical Engineering, University of Michigan, Ann Arbor, Jan. 2017.

[124] "Mechanobiology, pluripotent stem cells, and early embryonic development", Biomedical Engineering Society Cellular and Molecular Bioengineering Annual Conference, Big Island, Hawaii, Jan. 2017.

***2016***

[125] "Mechanobiology, pluripotent stem cells, and early embryonic development", Department of Biomedical Engineering, Duke University, Dec. 2016.

[126] "Mechanobiology, pluripotent stem cells, and early embryonic development", Department of Biomedical Engineering, North Carolina State University & University of North Carolina - Chapel Hill, Nov. 2016.

[127] "Mechanobiology, pluripotent stem cells, and early embryonic development", Department of Biomedical Engineering, City University of New York, Sept. 2016.

[128] "Mechanobiology, pluripotent stem cells, and early embryonic development", 6th Sino-American Workshop on Biomedical Engineering and China-Oversea Joint Workshop on Biomechanics, Shanghai, China, Aug. 2016.

[129] "Mechanical control and modeling of human pluripotent stem cells", 2016 International Forum of Biomedical Materials: Biomaterials Interfaces and Nanobiomaterials, Hangzhou, China, Aug. 2016.

[130] "Mechanical control and modeling of human pluripotent stem cells", Department of Computational Medicine & Bioinformatics, University of Michigan, Ann Arbor, April 2016.

[131] "Micro/nanoengineering tools for stem cell mechanobiology", Center for Wireless Integrated MicroSensing & Systems ($WIMS^2$) Seminar, University of Michigan, Ann Arbor, March 2016.

[132] "Mechanical control and modeling of human pluripotent stem cells", Department of Mechanical Engineering, Johns Hopkins University, March 2016.

***2015***

[133] "Mechanobiology: A new frontier for human pluripotent stem cells", Department of Biomedical Engineering, Ohio State University, Nov. 2015.

[134] "Mechanobiology: A new frontier for human pluripotent stem cells", Department of Mechanical and Biomedical Engineering, Pennsylvania State University, Oct. 2015.

[135] “Micro/nanoengineering tools for stem cell mechanobiology”, MicRO Alliance Meeting, University of Freiburg, Sept. 2015.

[136] "Mechanobiology: A new frontier for human pluripotent stem cells", School of Biological Science and Medical Engineering, Beihang University, July 2015.

[137] “Micro/nanoengineering for medicine: Examples of stem cell mechanobiology and systems immunophenotyping”, Kunming University of Science and Technology, July 2015.

[138] "Mechanobiology: A new frontier for human pluripotent stem cells", Department of Mechanical and Biomedical Engineering, City University of Hong Kong, July 2015.

[139] “Micro/nanoengineering for medicine: Examples of stem cell mechanobiology and systems immunophenotyping”, Nanyang Institute of Technology in Health and Medicine (NITHM), Therapeutic Medical Devices Seminar Series, July 2015.

[140] "Mechanobiology: A new frontier for human pluripotent stem cells", 7th WACBE World Congress on Bioengineering, Singapore, July 2015.

[141] "Mechanobiology: A new frontier for human pluripotent stem cells", Department of Cell and Developmental Biology, University of Michigan, June 2015.

[142] "Mechanobiology: A new frontier for human pluripotent stem cells", Bioengineering and Stem Cell Research Symposium, Rensselaer Center for Stem Cell Research, Rensselaer Polytechnic Institute, June 2015.

[143] "Mechanobiology: A new frontier for human pluripotent stem cells", University of Michigan Biophysics Symposium, April 2015.

[144] "Nanoroughened surfaces for efficient capture of circulating tumor cells without using capture antibodies", 5th Annual Circulating Tumor Cells and Cell-Free DNA Conference, San Francisco, Feb. 2015.

[145] "Hippo/YAP-mediated rigidity-dependent motor neuron differentiation of human pluripotent stem cells", Nephrology Basic Science Seminar, University of Michigan, Ann Arbor, Jan. 2015.

***2014***

[146] "Micro/nanoengineering for medicine: Examples of stem cell mechanobiology and systems immunophenotyping", Institute for Nanoscience and Quantum Engineering, Yale University, Dec. 2014.

[147] "Synthetic polymeric structures for mechanobiology studies of human pluripotent stem cells", 2014 Materials Research Society (MRS) Fall Meeting, Symposium B: Multifunctional Polymeric and Hybrid Materials, Boston, Nov. 2014.

[148] "Mechanobiology: A new frontier for human pluripotent stem cells", Department of Mechanical Engineering, Vanderbilt University, Oct. 2014.

[149] "Mechanobiology: A new frontier for human pluripotent stem cells", Department of Mechanical Engineering, University of Colorado at Boulder, Oct. 2014.

[150] "Synthetic micromechanical tools for mechanobiology studies of human pluripotent stem cells", 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS), "Cellular BioMEMS" Mini-Symposium, Chicago, Aug. 2014.

[151] "Mechanobiology: A new frontier for human pluripotent stem cells", Med-X Research Institute, Shanghai Jiao Tong University, Shanghai, China, July, 2014.

[152] "Acoustic tweezing cytometry for mechanobiology applications and our effort of using nanoroughened surfaces for efficient capture of circulating tumor cells", School of Information Science and Technology, Institute of Biomedical Engineering, University of Science & Technology of China, Hefei, China, July 2014.

[153] "Biophysical Regulation of Functional Motor Neuron Generation from Human Pluripotent Stem Cells", 7th World Congress of Biomechanics, Symposium: Response of Cells to Mechanical Cues, Boston, July 2014.

[154] "Hippo-YAP signaling and its functional regulation of mechanosensitive behaviors of human pluripotent stem cells", 7th World Congress of Biomechanics, Symposium: Stem Cell Mechanics, Boston, July 2014.

[155] "Hippo/YAP-mediated rigidity-dependent functional motor neuron differentiation of human pluripotent stem cells", Gordon Research Conference: Signal Transduction by Engineered Extracellular Matrices, Waltham, MA, July 2014.

[156] "Synthetic micromechanical tools for mechanobiology, stem cell culture, and functional immunophenotyping", Department of Mechanical Engineering, Stanford University, April 2014.

[157] "Synthetic micromechanical tools for functional immunophenotyping and engineering human pluripotent stem cell fate", 2014 Materials Research Society (MRS) Spring Meeting, Symposium V: Micro- and Nanofluidic Systems for Materials Synthesis, Device Assembly, and Bioanalysis, San Francisco, April 2014.

[158] "Synthetic micromechanical tools for mechanobiology and stem cell culture", 2nd Nagoya University - University of Michigan JUACEP Faculty Workshop on Engineering, Nagoya, Japan, March 2014.

[159] "Synthetic micromechanical tools for mechanobiology and stem cell culture", Department of Bioengineering, University of Tokyo, Tokyo, Japan, March 2014.

[160] "Synthetic micromechanical tools for mechanobiology and stem cell culture", International Symposium on Advanced Manufacturing Science for Future Systems, University of Tokyo, Tokyo, Japan, March 2014.

[161] "Synthetic micromechanical tools for mechanobiology, stem cell culture, and functional immunophenotyping", Department of Mechanical Engineering, Johns Hopkins University, March 2014.

***2013***

[162] "Biophysical regulation of functional motor neuron derivation from human pluripotent stem cells", School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore, Dec. 2013.

[163] "Biophysical regulation of functional motor neuron derivation from human pluripotent stem cells", Mechanobiology Institute, National University of Singapore, Singapore, Dec. 2013.

[164] "Integrated microfluidics for cellular functional immunophenotyping", 15th International Conference on BioMedical Engineering (ICBME), Symposium: Micro and Nanofluidics for Biomedical Applications, Singapore, Dec. 2013.

[165] "Mechanobiology: A new frontier for human pluripotent stem cells", School of Stomatology, Jilin University, Changchun, Jilin, China, Aug. 2013.

[166] "Mechanobiology: A new frontier for human pluripotent stem cells", National Center for NanoScience and Technology of China (NCNST), Beijing, China, Aug. 2013.

[167] "Synthetic micro/nanoengineered tools to study mechanobiology and its regulatory role in human pluripotent stem cells (hPSCs)", 2013 IEEE International Conference on Nanotechnology, Beijing, China, Aug. 2013.

[168] "Mechanobiology: A new frontier for human pluripotent stem cells", 5th Sino-American Workshop on Biomedical Engineering and China-Oversea Joint Workshop on Biomechanics, Beijing, China, Aug. 2013.

[169] "Mechanobiology: A new frontier for human pluripotent stem cells", School of Information Science and Technology, Institute of Biomedical Engineering, University of Science & Technology of China, Hefei, China, June 2013.

[170] "Synthetic micromechanics tools for mechanobiology, stem cell culture, and functional immunophenotyping", University of Texas at Austin, Center for Nano- and Molecular Science, April 2013.

[171] "Synthetic micro/nanoengineering tools for stem cell culture, functional immunophenotyping, and capture of circulating tumor cells", Massachusetts Institute of Technology, Department of Mechanical Engineering, Feb. 2013.

[172] "Tutorial: Micro/nanoengineering tools for mechanobiology, stem cell culture, and functional immunophenotyping", 2013 ASME Global Congress on Nano Engineering for Medicine and Biology (NEMB2013), Boston, MA, Feb. 2013.

***2012***

[173] "Micromechanics tools for mechanobiology, stem cell culture, and systems immunology", 6th IEEE International Conference on Nano/Molecular Medicine and Engineering (IEEE-NANOMED 2012) conference, Bangkok, Thailand, Nov. 2012.

[174] "Synthetic micromechanical systems for stem cell research and cellular functional immune assays", Med-X Research Institute, Shanghai Jiao Tong University, Shanghai, China, May 8, 2012.

[175] "Synthetic micromechanical systems for biomolecule analysis, stem cell research, and cellular functional immune assays", Shanghai Institute of Microsystem and Information Technology (SIMIT), Chinese Academy of Science, Shanghai, China, May 8, 2012.

[176] "Synthetic micromechanical systems for biomolecule analysis, stem cell research, and cellular functional immune assays", School of Information Science and Technology, Institute of Biomedical Engineering, University of Science & Technology of China, Hefei, China, May 3, 2012.

***2011***

[177] "Synthetic micromechanical systems for mechanobiology research", 8th International Symposium on Organogenesis and Tissue Engineering, Center for Organogenesis, University of Michigan, May 14, 2011.

[178] "Synthetic micromechanical systems for mechanobiology research", 1st SJTU-UMich Bilateral Symposium on Biomedical Engineering (BSBE), Shanghai, China, Jan. 24-25, 2011.

***2010***

[179] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Department of Mechanical Engineering, Division of Bioengineering, National University of Singapore, Singapore, Oct. 5, 2010.

[180] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Microelectromechanical Systems (MEMS) Center, Institute of Microelectronics, Peking University, Beijing, China, Sept. 9, 2010.

[181] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Institute of Mechanics, Chinese Academy of Sciences, Beijing, China, Sept. 9, 2010.

[182] "Mechanical regulation of stem cell differentiation on geometrically modulated elastomeric substrates", 6th World Congress on Biomechanics 2010 (WCB 2010), Singapore, August 1-6, 2010.

[183] "Mechanical Regulation of Stem Cell Differentiation on Geometrically Modulated Elastomeric Substrates", 2010 ASME Summer Bioengineering Conference, Naples, Florida, June 16-19, 2010.

[184] "Nanofluidic Devices for Rapid Analysis of DNA and Proteins", 1st ASME Global Congress on NanoEngineering for Medicine and Biology, Houston, Texas, Feb. 7-10, 2010.

[185] "Mechanical Regulation of Stem Cell Differentiation on Geometrically Modulated Elastomeric Substrates", 1st ASME Global Congress on NanoEngineering for Medicine and Biology, Houston, Texas, Feb. 7-10, 2010.

***2006 - 2009***

[186] "Electric field driven partitioning of biomolecules in confining nanofluidic structures", University of Pennsylvania, NSF Soft Matter-Materials Research Science and Engineering Center (NSF-MRSEC) Chalk Talk, May 15th, 2009.

[187] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Cornell University, Sibley School of Mechanical and Aerospace Engineering, April 2009.

[188] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", California Institute of Technology, Department of Electrical Engineering, Mixed-Signal, RF, and Microwave Seminar, April 2009.

[189] "Microengineered extracellular matrix directs stem cell differentiation", 237th American Chemical Society National Meeting and Exposition, Salt Lake City, Utah, March 2009.

[190] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Illinois Institute of Technology, Department of Mechanical, Materials, and Aerospace Engineering, March 2009.

[191] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Drexel University, Department of Mechanical Engineering and Mechanics, March 2009.

[192] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Washington University at St. Louis, Department of Mechanical, Aerospace, and Structural Engineering, Feb. 2009.

[193] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", University of Florida, Department of Mechanical and Aerospace Engineering, Feb. 2009.

[194] "Synthetic micro/nanosystems for rapid biomolecule analysis and stem cell research", Lehigh University, Bioengineering Program and Department of Mechanical Engineering and Mechanics, Jan. 2009.

[195] "Nanofluidic devices for rapid analysis of DNA and proteins", IEEE Lasers and Electro-Optics Society (LEOS) Summer Topical Meeting, Portland, Oregon, July 2007.

[196] "Nanofluidic devices for rapid analysis of DNA and proteins", Living MicroSystems Inc., Boston, MA, May 2007.

[197] "Nanofluidic devices for rapid analysis of DNA and proteins", MIT Senturia Prize Lecture, MIT Micro/Nano-technology Seminar Series (MNSS), May 2007.

[198] "Nanofluidic devices for rapid biomolecule analysis", University of Illinois at Urbana-Champaign, Department of Mechanical Science and Engineering, April 2007.

[199] "Nanofluidic devices for rapid biomolecule analysis", University of Washington, Department of Mechanical Engineering, March 2007.

[200] "Nanofluidic devices for rapid biomolecule analysis", University of California at San Diego, Department of Electrical and Computer Engineering, March 2007.

[201] "Nanofluidic devices for rapid biomolecule analysis", University of Pennsylvania, Department of Mechanical Engineering and Applied Mechanics, Feb. 2007.

[202] "Nanofluidic devices for rapid biomolecule analysis", Microfluidics Technology Fair by Massachusetts Technology Transfer Center, Northeastern University, Egan Center, Oct. 2006.

[203] "Nanofluidic devices for rapid biomolecule analysis", MIT Program in Polymer Science and Technology (PPST), New Frontiers in Polymer Research and Education, Sept. 2006.

## I. PATENTS

[1] **Jianping Fu**, Shiyu Sun, and Yi Zheng. A human embryo model with amniotic sac, yolk sac, and gastrulating germ layers. U.S. Patent Application No.: 63/553,448.

[2] **Jianping Fu**, Xufeng Xue, and Huaijing Tang. Microfluidic devices and methods for the development of neural tube-like tissues or neural spheroids. PCT/US2021/058090, filed on 11/04/2021. U.S. Patent Application No.: 18/035,222**.**

[3] **Jianping Fu**, and Yi Zheng. Development of embryonic-like tissue from stem cells. US2020049721; PCT/US2020/49721.

[4] Koh Meng Aw Yong, and **Jianping Fu**. Microfluidic three-dimensional cell culture device. US20200181566A1.

[5] Todd Herron, and **Jianping Fu**. Cardiac microtissue and uses thereof. US20190185816; WO2019126315; EP2018892814.

[6] **Jianping Fu**, Deborah L. Gumucio, Yue Shao, Kenichiro Taniguchi, Yi Zheng, and Sajedeh Nasr Esfahani. Development of amnion-like tissue from human pluripotent stem cells. US20190321415; WO2018106997.

[7] **Jianping Fu**, Kevin Ward, Zida Li, and Xiang Li. Microscale whole blood coagulation assay platform. US20190041380; WO2017155736; CN109416308.

[8] **Jianping Fu**, and Jongyoon Han. Continuous biomolecule separation in a nanofilter. US20110114486.