

CURRICULUM VITAE

CHENGPENG CHEN

EDUCATION

Ph.D.	2015	Michigan State University, Chemistry (analytical)
B.S.	2011	Ocean University of China, Chemistry

WORK EXPERIENCE IN HIGHER EDUCATION

2022-present, Member of Stem Cell Center, University of Maryland, School of Medicine
2018-present, University of Maryland Baltimore County, Assistant Professor, Department of Chemistry and Biochemistry
2015-2018, Saint Louis University, Research/Teaching Postdoc Fellow, Department of Chemistry

HONORS RECEIVED AND RECOGNITION

2023, CNMS Early-Career Faculty Excellent Award
2022-present, Review Editor, the Editorial Board of Frontiers in Bioengineering and Biotechnology
2020, Emerging Young Investigator, the Journal of Materials Chemistry B
2018-2022, Early Career Editorial Board Fellow, ACS Biomaterials Science&Engineering
2018, UMBC Summer Research Faculty Fellowship
2017, Saint Louis University Research Award
2014, Michigan State University Graduate Student Travel Award
2014, Tony B. Award for research, Society for Laboratory Automation and Screening
Honors received by advisees/trainees in my lab since 2018
2023, John A. Terrell (Ph.D. student), Chemical and Biological Interface (CBI) program fellowship
2022, John A. Terrell (Ph.D. student), Chemical and Biological Interface (CBI) program fellowship
2021, Giraso Keza Monia Kabandana (Ph.D. candidate), American Association of University Women (AAUW) International Fellowship

2020-2021, Adam Ratajczak (undergraduate researcher in the lab), 1) Undergraduate Research Award (\$1000 for research), 2) ACS Analytical Chemistry Award, and 3) Faculty Award for Excellence in Biochemistry.

2020, Giraso Keza Monia Kabandana (Ph.D. candidate), 2nd place winner in Graduate Poster Presentation at MAPRS

2019, Giraso Keza Monia Kabandana (Ph.D. candidate), Outstanding Research Award, UMBC

RESEARCH SUPPORT AND/OR FELLOWSHIPS (GRANTS AND AWARDS)

Awarded

1. 2022-2027
R35GM146779, A physiological and translational liver model to study the metabolism-modulating roles of extracellular matrix microstructures, NIH (NIGMS), \$1,666,565, PI (100%).
2. 2022-2024
2023-MSCRFL-6015, 3D Model and in-line Assessment of Colon based on iPS cells for Ulcerative Colitis Treatment, Maryland Stem Cell Research Fund, \$350,000, PI (70%, in collaboration with CoI Erin Lavik from Bioengineering at UMBC).
3. 2023-2024
2323442, I-Corps: A point-of-care diagnostic sensor for tuberculosis, NSF, \$50,000, PI and Technical Leader (100%).
4. 2022-2023
Alex Brown Center for Entrepreneurship Award, A new bacteria-killing material for direct 3D printing of self-sterilizing objects, \$10,000, PI (100%).
5. 2022-2023
Maryland Technology Catalyst Fund, A clothes-based microfluidic platform for wearable sensor developments, \$20,000, PI (100%).

In progress

6. A new microfluidic model and metabolomic perspective to unlock the mystery of lingering diabetic CVDs, R01, NIDDK/NIBIB, discussed and scored (CMT study section) in June 2023; a revision is ongoing and will be submitted in November 2023.
7. Bacteria-specific sensor for TB screening, submitted to the Maryland Innovation Initiative (MII) program in September 2023; a budget of \$115,000 was requested.

Ph.D. STUDENTS

John A. Terrell, Ph.D. candidate (exam passed 02/23), Chair, to be conferred

Tao Zhang, Ph.D. candidate (exam passed 04/22), Chair, to be conferred

Curtis G. Jones, Ph.D. candidate (exam passed 07/21), Chair, to be conferred
Giraso Keza Monia Kabandana, Ph.D. candidate (exam passed 06/21), Chair, to be conferred
Jacquelyn Cuning, Ph.D. conferred (08/19), Committee Member
Ciara Pitman, Ph.D., conferred (03/22), Committee Member
Haotian Wu, Ph.D. candidate, Committee Member
Ryan Grant, Ph.D. candidate, Committee Member
Amanda Belunis, Ph.D. candidate, Committee Member
Kayry Segarra, Ph.D. candidate, Committee Member
Sarah Wirick, Ph.D. student, Committee Member
Naba Krishna Das, Ph.D. candidate, Committee Member
Prashanta Sharma Roy, Ph.D. student, Committee Member
Aminah Amjad, Ph.D. candidate, Committee Member
Michael Marciniak, Ph.D. student, Committee Member
Patricia Boyd, Ph.D. student (dropped in 2021), Committee Member
Narendra Goud Pandala, Ph.D. conferred, Committee Member (UMBC Bioengineering)
Zakery Sheffield, Ph.D. student, Committee Member (UMBC Chemical Engineering)
Shreyas Patel, Ph.D. candidate, Committee Member (UMBC Bioengineering)
Myo Min Zaw, Ph.D. conferred (01/23), Committee Member (UMBC Mechanical Engineering)

UNDERGRADUATE RESEARCHERS

Sydney Haywood (bioengineering), 3D-printing filament modification, 2023-present
Zumar Meher (biochemistry), microfluidic development for wearable sensing, 2022-present
Rokhaya Kane (biochemistry), ELISA measurement of cytokines, 2022-2023
Ryan Rosen (chemistry), 3D-printing filament chemical modification, 2020-2022
Adam Ratajczak (chemistry), Arduino-based sensor transducer development, 2018-2021
Sahra Khan Sharifi (chemistry), E. coli indole excretion measurement, 2018-2019
Makayla Headly (chemical engineering), Electrospinning into microfluidic structures, 2018-2019
Mark Claycomb (chemistry), 3D-printing filament from recycled lab plasticware, 2018-2019

PUBLICATIONS, PRESENTATIONS, AND CREATIVE ACHIEVEMENTS

Peer-reviewed publications after 2018

1. Tao Zhang, Adam Michael Ratajczak (*undergraduate author*), Hui Chen, John A. Terrell, and Chengpeng Chen*, A step forward for smart clothes—fabric-based microfluidic sensors for wearable health monitoring. **ACS Sensors**. **2022**, 7, 12, 3857–3866.
2. Giraso Keza Monia Kabandana, Tao Zhang, and Chengpeng Chen*, Emerging 3D printing technologies and methodologies for microfluidic development. **Analytical Methods**, **2022**, 14, 2885-2906. *INVITED CONTRIBUTION*.
3. Yueli Liu, Laura E. Hesse, Morgan K. Geiger, Kurt R. Zinn, Timothy J. McMahon*, Chengpeng Chen*, and Dana M. Spence*, A 3D-printed transfusion platform reveals beneficial effects of normoglycemic erythrocyte storage solutions and a novel rejuvenating solution. **Lab on a Chip**, **2022**, 22, 1310-1320.
4. Tao Zhang, Giraso Keza Monia Kabandana, Adam Ratajczak (*undergraduate author*), and Chengpeng Chen*, A quantitative sensing system based on a 3D-printed ion-selective electrode for rapid and sensitive detection of bacteria in biological fluid. **Talanta**, **2022**, 238, 123040.
5. Tianjiao Huang, John A. Terrell, Jay H. Chung, and Chengpeng Chen*, Electrospun microfibers modulate intracellular amino acids in liver cells via integrin $\beta 1$, **Bioengineering**, **2021**, 8 (7), 88. (FRONT COVER).
6. Giraso Keza Monia Kabandana, Adam M. Ratajczak (*undergraduate author*), and Chengpeng Chen*, Making quantitative biomicrofluidics from microbore tubing and 3D-printed adapters, **Biomicrofluidics**, **2021**, 15 (3), 034107.
7. Curtis G. Jones, Tianjiao Huang, Jay H. Chung, and Chengpeng Chen*, 3D-printed, modular, and parallelized microfluidic system with customizable scaffold integration to investigate the roles of basement membrane topography on endothelial cells, **ACS Biomaterials Science & Engineering**, **2021**, 7, 4, 1600-1607 (FRONT COVER).
8. Curtis G. Jones and Chengpeng Chen*, An arduino-based sensor to measure transendothelial electrical resistance, **Sensors and Actuators A**, **2020**, 314, 112216.
9. Tianjiao Huang, Curtis G. Jones, Jay H. Chung, and Chengpeng Chen*, Microfibrous extracellular matrix changes the liver hepatocyte energy metabolism via integrins, **ACS Biomaterials Science & Engineering**, **2020**, 6, 10, 5849-5856.
10. Giraso Keza Monia Kabandana, Curtis G. Jones, Sarah K. Sharifi (*undergraduate author*), and Chengpeng Chen*, 3D-printed microfluidic devices for enhanced online sampling and direct optical measurements, **ACS sensors**, **2020**, 5, 7, 2044-2051. (FRONT COVER).
11. John A. Terrell, Curtis G. Jones, Giraso Keza Monia Kabandana, and Chengpeng Chen*, From cells-on-a-chip to organs-on-a-chip: scaffolding materials for 3D cell culture in microfluidics, **Journal of Materials Chemistry B**, **2020**, 8 (31), 6667-6685. *INVITED CONTRIBUTION*.

Publications before joining UMBC

12. Chengpeng Chen, Alexandra D. Townsend, Elizabeth A. Hayter, Hanna M. Birk (*undergraduate author*), Scott A. Sell and R. Scott Martin, Insert-based microfluidics for 3D cell culture with analysis, *Analytical and bioanalytical chemistry*, **2018**, 410 (12), 3025-3035.

13. Akash S. Munshi, Chengpeng Chen, Alexandra D. Townsend and R. Scott Martin, Use of 3D printing and modular microfluidics to integrate cell culture, injections and electrochemical analysis, *Analytical Methods*, 2018, 10 (27), 3364-3374.
14. Chengpeng Chen, Alexandra D. Townsend, Scott A. Sell and R. Scott Martin, Microchip-based 3D-cell culture using polymer nanofibers generated by solution blow spinning, *Analytical Methods*, 2017, 9, 3274-3283. (FRONT COVER)
15. Kevin P. Feltz, Emily A. Growney Kalaf, Chengpeng Chen, R. Scott Martin and Scott A. Sell. A review of electrospinning manipulation techniques to direct fiber deposition and maximize pore size, *Electrospinning*, 2017, 2, 16-31.
16. Ruipeng Mu, Chengpeng Chen, Yimeng Wang and Dana M. Spence, A quantitative, in vitro appraisal of experimental low-glucose storage solutions used for blood banking, *Analytical Methods*, 2016, 8, 6856-6864.
17. Chengpeng Chen, Benjamin T. Mehl, Akash S. Munshi, Alexandra D. Townsend, Dana M. Spence and R. Scott Martin, 3D-printed microfluidic devices: fabrication, advantages and limitations—a mini review, *Analytical Methods*, 2016, 8, 6005-6012.
18. Chengpeng Chen, Benjamin T. Mehl, Scott A. Sell and R. Scott Martin, Use of electrospinning and dynamic air focusing to create three-dimensional cell culture scaffolds in microfluidic devices, *Analyst*, 2016, 141, 5311-5320.
19. Yueli Liu, Chengpeng Chen, Suzanne Summers, Wathsala Medawala, and Dana M. Spence, C-peptide and zinc delivery to erythrocytes requires the presence of albumin: implications in diabetes explored with a 3D-printed fluidic device, *Integrative Biology*, 2015, 7(5), 534-543. (BACK COVER)
20. Chengpeng Chen, Yimeng Wang, Sarah Y. Lockwood and Dana M. Spence, 3D-printed fluidic devices enable quantitative evaluation of blood components in modified storage solutions for use in transfusion medicine, *Analyst*, 2014, 139, 3219-3226. (FRONT COVER)
21. Bethany C. Gross, Jayda L. Erkal, Sarah Y. Lockwood, Chengpeng Chen, and Dana M. Spence, Evaluation of 3D Printing and Its Potential Impact on Biotechnology and the Chemical Sciences, *Analytical Chemistry*, 2014, 86 (7), 3240–3253.

Work Submitted or In Preparation as of September 2023

22. Curtis G. Jones and Chengpeng Chen*, A customizable continuous and near real-time microfluidic platform to monitor anti-cancer drug's toxicity in barrier tissues, submitted to *Cell Reports Methods* in August 2023.
23. Tao Zhang and Chengpeng Chen*, Recent advances in wearable sensor infrastructure development, INVITED CONTRIBUTION by *WIRES Nanomedicine and Nanobiotechnology*.
24. John A. Terrell and Chengpeng Chen*, Extracellular matrix microstructures modulate hepatic DNA methylation via regulating methionine metabolism, to be submitted.
25. Giraso Keza Monia Kabandana, John A. Terrell, Tao Zhang, and Chengpeng Chen*, Indole regulates itaconate metabolism in macrophages, to be submitted.

Creative Achievements after Joining UMBC

1. Chengpeng Chen, Tao Zhang, Zumar Meher, Curtis G. Jones, A Microfluidic Sensor for Bacteria

Detection in Biofluids. Disclosure filed in May 2023.

2. Chengpeng Chen, Tao Zhang, Adam M. Ratajczek. A Step Forward for Smart Clothes—Fabric-based Microfluidic Sensors for Wearable Health Monitoring. Disclosure filed in Oct. 2022.
3. Chengpeng Chen, Giraso Keza Monia Kabandana, Adam M. Ratajczek. A modular and reusable toolkit to make functional microfluidic devices without fabricating microchannels. Patented, No. 626-572-PROV

Opinion Articles Published in Scientific Media Outlets

Chengpeng Chen, Organ-on-a-chip models allow researchers to conduct studies closer to real-life conditions – and possibly grease the drug development pipeline, The Conversation, Jan.10, 2023

Media Report

“UMBC professor hopes his new NIH-funded research can speed up the drug approval process”, The Business Journals, Oct. 10, 2022.

Invited presentations and seminars after joining UMBC

1. 10/2023, Invited symposium speaker, ACS Midwest-Great Lakes meeting, St. Louis
2. 08/2023, Invited symposium speaker, ACS Meeting, San Francisco
3. 05/2023, FCBIS speaker, UMB, Baltimore
4. 04/2023, Invited seminar speaker, Department of Chemistry, University of North Carolina Chapel Hill, NC
5. 03/2023, Invited symposium presenter, Pittcon, Philadelphia, PA
6. 04/2022, Invited seminar speaker, Department of Chemistry, Wichita State University, KS
3. 02/2022, Invited seminar speaker, Department of Chemistry, Hood College, MD
4. 09/2021, Invited seminar speaker, Department of Chemistry, Millersville University, PA
5. 12/2020, Invited seminar speaker, Department of Chemistry, American University, MD
6. 2019-present, 12 oral presentations by the Ph.D. students in my lab at conferences such as Pittcon and ACS Meetings.
7. Multiple local presentations.

SERVICE TO THE DEPARTMENT, UNIVERSITY, COMMUNITY, AND PROFESSION

2021. Organized a symposium for ACS Fall Conference, “3D printing and Chemistry”

2020-2022. Organizing departmental seminars, including online seminars during the pandemic

2018-present. Member of the Graduate Recruitment Committee of the department

2018-present. Poster judges for various symposiums on campus

2018-present. Voluntary reviewer for 10+ journals in the fields of analytical chemistry and biomaterials. Examples are Analyst, Analytical Methods, Bioengineering, Scientific Reports, and RSC Advances.

I certify that all contents are up to date (as of 09/15/2023) and accurate.

A handwritten signature in black ink, appearing to read 'Chengpeng Chen', written in a cursive style.