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Education

08/2013	Ph.D., Medical Sciences - Physiology & Pharmacology, University of Florida (UF), Gainesville, FL (Advisor: Dr. Weihong Tan)
06/2008	B.S., Biotechnology, Nankai University, Tianjin, China

Employment and Affiliations

2023 –	Ara Garo Paul (Endowed) Associate Professor, Department of Pharmaceutical Science, College of Pharmacy, University of Michigan, Ann Arbor, MI
2023 –	Member, BioInnovations in Brain Cancer (BIBC), Biointerfaces Institute, University of Michigan
2023 –	Member, Developmental Therapeutics Program, Rogel Cancer Center, University of Michigan
2023 –	Member, Center for RNA Biomedicine, University of Michigan
2023 –	Member, MI-AORTA program, Frankel Cardiovascular Center, University of Michigan
2021 –	Co-founder and CSO, AmpedRNA Biosciences LLC
2018 – 2023	Assistant Professor, Department of Pharmaceutics, School of Pharmacy, Virginia Commonwealth University (VCU), Richmond, VA
2018 – 2023	Associate Member, Developmental Therapeutics, VCU Massey Cancer Center
2019 – 2023	Member, Center for Pharmaceutical Engineering and Sciences, VCU
2019 – 2023	Member, Institute for Structural Biology, Drug Discovery and Development, VCU
2014 – 2018	Postdoc, NIH/NIBIB, Bethesda, MD (Advisor: Dr. Xiaoyuan Shawn Chen)
2013 – 2014	Postdoc, Department of Chemistry and Shands Cancer Center, UF (Advisor: Dr. Weihong Tan)
2009 – 2013	Research Assistant, College of Medicine, UF (Advisor: Dr. Weihong Tan)

Primary Areas of Interest

- Discover and engineer nucleic acid vaccines, immunotherapeutics, and gene editing therapeutics for cancers, genetic diseases, and autoimmune diseases;
 - circular RNA (circRNA) therapeutics, vaccines, and gene editors
 - Smart mRNA and circRNA therapeutics
 - Immunomodulatory DNA/RNA therapeutics and vaccine adjuvants
- Engineer multiscale biomaterials and molecular conjugates to deliver nucleic acid therapeutics and vaccines;
- Pulmonary delivery of RNA therapeutics and vaccines for the prophylaxis or treatment of respiratory infectious diseases, genetic diseases, and immune disorders.

Awards and Honors

2022	Mary Ann Liebert publishers Young Investigator Award, Oligonucleotide Therapeutics Society (OTS)
2022	Emerging Leader Award, American Association of Pharmaceutical Scientists (AAPS)
2022	Excellence in Research Award, VCU School of Pharmacy (awarded to one faculty member across all ranks each year)
2022	Nanoscale Emerging Investigator
2022	Department of Defense (DoD) Congressionally Directed Medical Research Programs (CDMRP) Breast Cancer Research Program (BCRP) Breakthrough Award – Level II
2021	AAPS Best Abstract Award, American Association of Pharmaceutical Scientists (AAPS)
2021	Emerging Faculty Scholar Award, VCU School of Pharmacy (awarded to one junior faculty member each year)
2020	Nominated Member, Sigma Xi, The Scientific Research Honor Society
2020	Invited Speaker, TEDx Youth @ RVA
2018 - 2021	KL2 Scholar, National Center for Advancing Translational Sciences (NCATS), NIH
2017	Distinguished Scientist Award, CSSA, NIH
2014	Travel Award, Oligonucleotide Therapeutics Society
2013	Dr. Alan M. Gewirtz Memorial Scholarship, Oligonucleotide Therapeutics Society
2013	Early Career Investigator Fellowship, Nanotechnologies in Cancer Diagnosis, Therapy, and Prevention, New York Academy of Sciences
2008	Grinter Fellowship, College of Medicine, University of Florida
2008	Travel Award, College of Medicine, University of Florida

Awards and Honors for Trainees

2024	Shurong Zhou, Travel Award, University of Michigan Graduate School
2024	Xiang Liu, Travel Award, University of Michigan Graduate School
2023	You Xu, Best Presentation Award, UM Biointerfaces Institute Research Day
2022	Shurong Zhou, Dean's Award Finalist, VCU School of Pharmacy
2022	Shurong Zhou, John Wood Award, Department of Pharmaceutics, VCU School of Pharmacy
2021	Shurong Zhou, Shwartz Award, VCU School of Pharmacy
2021	Ting Su, Best Poster Award - postdoc, Research and Career Day, VCU School of Pharmacy
2021	Shurong Zhou, Best Poster Award - graduate student, Research and Career Day, VCU School of Pharmacy
2020	Shurong Zhou, Travel Award, VCU School of Pharmacy
2019	Wenjie Chen, poster award runner-up, Research and Career Day, VCU School of Pharmacy

Funding

Current

- Forbes Institute for Cancer Discovery Award, UM Rogel Cancer Center
 Zhu (PI), Dlugosz (MPI) 1/2025 – 12/2026
 Small circRNA vaccines for the combination immunotherapy of Merkel cell carcinoma
 Total cost to Zhu: \$125,000
- Discovery Award, UM Rogel Cancer Center Zhu (PI) 12/2024 – 11/2025
Proteolysis-targeting vaccines (PROTAVs) for tumor combination immunotherapy
 Total cost: \$100,000
- NIH/NCI 1R01CA286122-01A1 Zhu (PI), Wang (MPI) 7/2024 – 6/2029
Multivalent circRNA vaccines for melanoma combination immunotherapy
 Total cost to Zhu (PI): \$1.9M
- University of Notre Dame Shultz (PI), Schwendeman (co-I), Zhu (co-I) 2024 – 2027
Developing mRNA Therapeutics and Biomarkers for GSD III

Total cost to Zhu: \$165,000

- NIH/NCI 1R43CA287530-01A1 Perry (PI), Zhu (co-I) 8/2024 – 7/2025
Highly stable mini-circRNA vaccine with maximally activated and long-lasting T cells for HPV-related cancer combination immunotherapy
Total cost to Zhu (co-I): \$99,887
- NIH/NIAID Sun (PI), Zhu (co-I) 05/2025 - 04/2030
Elucidating the Roles of Alveolar Macrophage Inflammation and Self Renewal During Influenza Infection.
Total cost to Zhu: \$163,389
- NIH/NCI R01CA266981-01A1 Zhu (PI) 8/2022 – 6/2027
Lymph node-targeted co-delivery platform for melanoma peptide vaccines based on an albumin-binding nanoscaffold
Total cost: \$2,303,460
- NIH/NIAID R01AI168684 Zhu (PI) 02/2022 – 01/2026
Small circular mRNA vaccine
Total cost: \$2,208,988
- NIH/NIGMS R35GM143014 Zhu (PI) 09/2021 – 08/2026
Nucleic acid modulators and theranostics for ADAR
Total cost: \$1,940,625
- DoD-BCRP Breakthrough Award Level II Zhu (Partnering PI) 08/2022 – 07/2025
Small circular mRNA vaccine for the immunotherapy of breast cancer dormancy
Total cost to Zhu: \$1,112,535
- American Cancer Society Research Scholar Grant Zhu (PI) 1/2023 – 12/2026
Novel and potent cGAS-STING-activating vaccines for combination immunotherapy of melanoma
Total cost: \$759,000
- Research Stimulus Fund, UM College of Pharmacy Zhu (PI) 3/2024 – 2/2025
Pulmonary delivery of circRNA therapeutics for cystic fibrosis
Total cost: \$50,000
- Merck iLT Scientific Collaboration Zhu (PI) 3/2024 – 2/2025
Deconvolution of Lipid Nanoparticle Structure for saRNA and circRNA Delivery
Total cost: \$78,000

Completed

- UM Rogel Cancer Center Discovery Award Zhu (PI) 11/2023 – 10/2024
circRNA vaccines for melanoma combination immunotherapy
Total cost: \$75,000
- NIH/NIGMS R35GM143014-01S1 Zhu (PI) 07/2022
Instrument supplement for NIH/NIGMS project R35GM143014
Total cost: \$175,170
- NIH/NINDS R21NS114455 Zhu (PI), Valerie (MPI) 08/2020 – 06/2023
Radioimmunotherapy for glioblastoma
Total cost: \$426,938

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- VCU Commercialization Fund Zhu (PI) 7/2022 – 6/2023
Nucleic acid-based cGAS agonists as novel and potent immunostimulants for cancer immunotherapy
Total cost: \$50,000
 - VCU Commercialization Fund Zhu (PI) 12/2021 – 11/2022
Small circular mRNA: a novel platform of mRNA vaccines
Total cost: \$50,000
 - METAvivor Young Investigator Award Zhu (PI) 01/2021 – 12/2022
Medico-AlbiVax for the combination immunotherapy of metastatic breast cancer
Total cost: \$100,000
 - Molecule to Medicine grant, Massey Cancer Center Zhu (PI), Wang (MPI) 06/2021 - 05/2022
Small circular mRNA as a novel platform of vaccine for melanoma immunotherapy
Total cost: \$100,000
 - NIH/NCATS KL2 scholarship KL2TR002648 Zhu (PI) 12/2018 – 09/2021
Deliver nanomedicines to lymph nodes and tumor to potentiate melanoma immunotherapy
Total cost: ~\$540,000
 - McGuire VA-VCU Joint Pilot Grant Zhu (PI) 09/2019 - 3/2021
Nanoparticle delivery of SphK2 inhibitors to both tumor cells and cancer-associated fibroblasts for intrahepatic cholangiocarcinoma therapy
Total cost: \$50,000
 - Center Grant on Drug Abuse Research Zhu (PI), Beardsley (MPI) 04/2020-03/2021
Naloxone-delivery patches for anti-opioid therapy
Total cost: \$40,000
 - COVID-19 Rapid Research Fund Zhu (PI) 05/2020 – 10/2020
Self-applicable microneedle patches of COVID-19 mRNA vaccine for mass vaccination
Total cost: \$10,000
 - Presidential Research Quest Fund Zhu (PI) 07/2019 - 12/2020
In vivo albumin-hitchhiking drug: drug delivery for untARGETABLE triple negative breast cancer
Total cost: \$50,000
 - Pilot Project Grant, Massey Cancer Center Zhu (PI) 05/2019 - 04/2020
Combine neoantigen-specific immunotherapy and conformal radiotherapy to treat glioma
Total cost: \$50,000
 - Endowment Fund, VCU CCTR Zhu (PI), Valerie (MPI) 05/2019 - 10/2020
Bi-adjvant neoantigen nanovaccines for glioma radioimmunotherapy
Total cost: \$50,000
 - American Cancer Society IRG Zhu (PI) 05/2019 - 04/2020
Drug delivery to lymph node and tumor for melanoma immunochemotherapy
Total cost: \$30,000

Publications (*: co-first authors; #: co-corresponding authors)

Published manuscripts (including preprints)

1. Zhang Y*, Liu X*, Shen T, Wang Q, Zhou S, Yang S, Liao S, Su T, Mei L, Zhang B, Huynh K, Xie L, Guo Y, Guo C, Katarzyna MT, Qu X, Qu, Wang XY, Liu J, **Zhu G#**. Small circular mRNA vaccines for cancer immunotherapy. **Nature Biomedical Engineering**. 2025. 9(2):249-267

2. Alshehry Y*, Liu X*, Zhang Y, **Zhu G[#]**. Title: Investigation of the impact of lipid nanoparticle compositions on the delivery and T cell response of circRNA vaccine. *Journal of Controlled Release*. 2025
3. Alshehry Y, Liu X, Li W, Wang Q, Cole J, **Zhu G[#]**. Lipid nanocarriers for mRNA immunotherapeutic and vaccines (invited review). *AAPS J*. 2025
4. Qiyang Wang*, Ting Su*[#], Furong Cheng*[#], Shurong Zhou, Xiang Liu, Mi Wang, Ri Tang, You Xu, Shimiao Liao, Jordan Dailey, Guolan Xiao, Hanning Wen, Weijia Zheng, Bo Wen, Katarzyna M Tyc, Venkatesha Basrur, Jinze Liu, Duxin Sun, Shaomeng Wang, **Zhu G[#]**. Proteolysis-targeting vaccines (PROTAXs) for robust tumor combination immunotherapy. *BioRxiv*, 2024
5. Ainslie KM, Bowers AA, Chichewicz RH, Collier LS, Doorn JA, Frei CR, Ghandehari H, Gibbs RB, Lawrence DS, Lee CR, Mager DE, Marker P, Schwendeman A, Suryanarayanan R, Williams RO 3rd, Xi Y, Xie W, Xie XQ, **Zhu G**, Nguyen J. Pharmaceutical Sciences: Insights and Observations from Academic Chairs and Vice Chairs, *AAPS J*. (Perspective). 2025
6. Zhou S, Su T, Cheng F, Cole J, Liu X, Zhang B, Alam S, Liu J, **Zhu G[#]**. Engineering cGAS-agonistic oligonucleotides as therapeutics for cancer immunotherapy. *Molecular Therapy – Nucleic Acids*, 2024. 35(1): 102126.
7. Zhou S, Cheng F, Zhang Y, Su T, **Zhu G[#]**. Engineering and Delivery of cGAS-STING Immunomodulators for the Immunotherapy of Cancer and Autoimmune Diseases. *Accounts of Chemical Research*. 2023. PMID: 37802125
8. Cheng F, Zhou S, Su T, Xiang Liu, Suling Yang, Lin S[#], Guo W[#], **Zhu G[#]**. Single-dose injectable nanovaccine-in-hydrogel for robust immunotherapy of large tumors with abscopal effect. *Science Advances*. 2023. 9(28):eade6257
9. Cheng F, Su T, Liu Y, Qi J, Guo W, **Zhu G[#]**. Targeting lymph nodes for systemic immunosuppression using cell-free-DNA-scavenging and cGAS-inhibiting nanomedicine-in-hydrogel for rheumatoid arthritis immunotherapy. *Advanced Science*. 2023. e2302575
10. Su T*, Cheng F*, Humble N, Zhang F, Yu G, Bos DP, Valerie K[#], **Zhu G[#]**. Lymph node-targeting albumin-binding DNA scaffold for the codelivery of adjuvant and neoantigens in combination tumor immunotherapy. *Theranostics*. 2023. 13 (13), 4304
11. Su T, Liu X, Yang S, Cheng F, **Zhu G[#]**. Ionizable polymeric nanocarriers for the codelivery of bi-adjuvant and neoantigens in combination tumor immunotherapy. *Bioactive Materials*. 2023. 26:169-180
12. Dain L, **Zhu G[#]**. Nucleic acid immunotherapeutics and vaccines: a promising approach to glioblastoma multiforme treatment. *International Journal of Pharmaceutics*. 2023. 638:122924
13. Tan X, Zhao Z, Wang R, **Zhu G[#]**. Molecular and Nanoscale Engineering of Nucleic Acid Theranostics and Vaccines. *Frontiers in Bioengineering and Biotechnology*. (Editorial) 2023. 10:1126876
14. Chen J, Li R, Knapp S, **Zhu G**, Whitener RL, Leiter EH, Mathews CE. Intergenomic and epistatic interactions control free radical mediated pancreatic β -cell damage. *Frontiers in Genetics*. 2022. 13:994501
15. Su T, Cheng F, Zhou S, Mei L, S Fu, F Zhang, Lin S[#], **Zhu G[#]**. pH-responsive multifunctional polymer nanovaccines of STING agonist and neoantigen for cancer immunotherapy. *Advanced Science*. 2022. 9(23):e2201895
16. Liu X, Zhang Y, Zhou S, Dain L, Mei L, **Zhu G[#]**. Circular RNA: an emerging frontier in RNA therapeutic targets, RNA therapeutics, and mRNA vaccines. *Journal of Controlled Release*. 2022. 348:84-94
17. Tang W, Zhang Y, **Zhu G[#]**. Pulmonary delivery of mucosal nanovaccines. *Nanoscale*. 2022, 14, 263-276
18. Shen T, Zhang Y, Mei L, Zhang X, **Zhu G[#]**. Single-stranded circular DNA theranostics. *Theranostics*. 2022; 12(1):35-47
19. Su T, Cheng F, Pu Y, Cao J, Lin S[#], **Zhu G[#]**, He B. Polymeric micelles amplify tumor oxidative stresses through combining PDT and glutathione depletion for synergistic cancer chemotherapy. *Chemical Engineering Journal*. 2021, 411: 128561.
20. Hu L, Chen W, Zhou S, **Zhu G[#]**. ExoHCR: a sensitive assay to profile PD-L1 level on tumor exosomes for immunotherapeutic prognosis. *Biophysics Report*. 2020, 6:290–298
21. Zhang Y, Shen T, Zhou S, Wang W, Lin S[#], **Zhu G[#]**. pH-responsive STING-activating nanovaccines for cancer immunotherapy. *Advanced Therapeutics*. 2020 3(9): 2000083
22. Ni Q, Zhang F, Liu Y, Wang Z, Yu G, Liang B, Niu G, Su T, **Zhu G[#]**, Lu G[#], Zhang L[#], Chen X[#]. A Bi-adjuvant Nanovaccine that Potentiates Immunogenicity of Neoantigen for Combination Immunotherapy of Colorectal Cancer. *Science Advances*. 2020, 6 (12), eaaw607
23. Zhou S, Chen W, Cole J, **Zhu G[#]**. Delivery of nucleic acid therapeutics for cancer immunotherapy. *Medicine in Drug Discovery*. 2020. 6. 100023 (Invited review)

24. Shen T, Zhang Y, Zhou S, Lin S, Zhang XB, **Zhu G[#]**. Nucleic Acid Immunotherapeutics for Cancer. **ACS Applied Bio Materials**. 2020. (Invited review)
25. Su T*, Zhang Y*, Valerie K, Wang XY, Lin S, **Zhu G[#]**. STING activation in cancer immunotherapy. **Theranostics**. 2019 9(25):7759-7771.
26. Zhang Y, Lin S, Wang XY, **Zhu G[#]**. Nanovaccines for cancer immunotherapy. **WIREs Nanomedicine & Nanobiotechnology** 2019: 11(5):e1559. (Invited review).
27. Ni Q, Pham N, Meng W, **Zhu G[#]**, Chen X[#]. Advances in the immunotherapy of type I diabetes. **Advanced Drug Delivery Review**. 2019, 139:83-91.
28. Cheng S, Jacobson O, **Zhu G[#]**, Chen Z, Liang SH, Tian R, Yang Z, Niu G[#], Zhu X[#], Chen X[#]. PET imaging of EGFR expression using an ¹⁸F-labeled RNA aptamer. **European Journal of Nuclear Medicine and Molecular Imaging**. 2019, 46(4): 948-956.

Prior to 2019 (postdoc and graduate research)

First-author or corresponding-author publications

29. **Zhu G**, Chen X. Aptamer-based targeted therapy. **Advanced Drug Delivery Review**. 2018, 134:65-78.
30. Ni Q*, Zhang F*, Zhang Y*, **Zhu G[#]**, Wang Z, Teng Z, Wang C, Yung BC, Niu G, Lu G, Zhang L[#], Chen X[#]. In Situ shRNA Synthesis on DNA-Polylactide Nanoparticles to Treat Multidrug Resistant Breast Cancer. **Advanced Materials**. 2018, 30(10). (Inside Cover Paper)
31. Zhang F*, Ni Q*, Jacobson O, Cheng S, Liao A, Wang Z, He Z, Yu G, Song J, Ma Y, Niu G, Zhang L[#], **Zhu G[#]**, Chen X[#]. Polymeric nanoparticles with a glutathione-sensitive heterodimeric multifunctional prodrug for in vivo drug monitoring and synergistic cancer therapy. **Angewandte Chemie -- International Edition**. 2018, 57(24):7066-70.
32. **Zhu G**, Lynn GM, Jacobson O, Chen K, Liu Y, Zhang H, Ma Y, Zhang F, Tian R, Ni Q, Cheng S, Wang Z, Lu N, Yung BC, Wang Z, Lang L, Fu X, Jin A, Weiss ID, Vishwasrao H, Niu G, Shroff H, Klinman DM, Seder RA, Chen X. Albumin/vaccine nanocomplexes that assemble *in vivo* for combination cancer immunotherapy. **Nature Communications**. 2017, 8(1):1954.
33. **Zhu G**, Mei L, Vishwasrao HD, Jacobson O, Liu Y, Yung BC, Fu X, Jin A, Niu G, Wang Q, Zhang F[#], Shroff H, Chen X[#]. Intertwining DNA-RNA nanocapsules loaded with tumor neoantigens as synergistic nanovaccines for personalized cancer immunotherapy. **Nature Communications** 2017, 1482.
34. Zhang F, **Zhu G[#]**, Jacobson O, Liu Y, Chen K, Yu G, Ni Q, Fan J, Yang Z, Xu F, Fu X, Wang Z, Ma Y, Niu G, Zhao X, X Chen[#]. Transformative nanomedicine of an amphiphilic camptothecin prodrug for long circulation and high tumor uptake in cancer therapy. **ACS Nano**. 2017, 11(9):8838-48.
35. **Zhu G**, Zhang F, Ni Q, Niu G, Chen X. Efficient nanovaccine delivery in cancer immunotherapy. **ACS Nano**. 2017, 11(3):2387-92 (Perspective)
36. **Zhu G**, Zhang H, Jacobson O, Wang Z, Chen H, Niu G, Chen X. Combinatory screening of DNA aptamers for molecular imaging of HER2 in cancer. **Bioconjugate Chemistry**. 2017, 28(4):1068-75.
37. **Zhu G**, Liu Y, Yang X, Kim YH, Zhang H, Jia R, Liao HS, Jin A, Lin J, Aronova M, Leapman R, Nie Z, Niu G, Chen X. DNA-inorganic hybrid nanovaccine for cancer immunotherapy. **Nanoscale**. 2016, 8(12):6684-92.
38. Zhang L*, **Zhu G^{*}**, Mei L, Wu C, Qiu L, Cui C, Liu Y, Teng IT, Tan W. Self-assembled DNA immunonanoflowers as multivalent CpG nanoagents. **ACS Applied Materials Interfaces**. 2015, 7(43):24069.
39. **Zhu G**, Niu G, Chen X. Aptamer-drug conjugates. **Bioconjugate Chemistry**. 2015, 26(11):2186-97.
40. **Zhu G**, Cansiz S, You M, Qiu L, Han D, Zhang L, Mei L, Fu T, Chen Z[#], Tan W[#]. Nuclease-resistant synthetic drug-DNA adducts: programmable drug-DNA conjugation for targeted anticancer drug delivery. **NPG Asia Materials**. 2015, 7, e169.
41. Mei L*, **Zhu G^{*}**, Qiu L, Wu C, Chen H, Liang H, Cansiz S, Lv Y, Zhang X[#], Tan W[#]. Self-assembled multifunctional DNA nanoflowers for the circumvention of multidrug resistance in targeted anticancer drug delivery. **Nano Research**. 2015, 8(11):3447-60.
42. Trinh TL*, **Zhu G^{*}**, Xiao X, Puszyk W, Sefah K, Wu Q, Tan W[#], Liu C[#]. A synthetic aptamer-drug adduct for targeted liver cancer therapy. **Plos One**. 2015, 10(11):e0136673.
43. **Zhu G**, Zheng J, Song E, Donovan M, Zhang K, Liu C, Tan W. Self-assembled, aptamer-tethered DNA nanotrains for targeted transport of molecular drugs in cancer theranostics. **Proceedings of the National Academy of Sciences of the United States of America**. 2013, 110(20):7998-8003. (Highlighted by NCI Alliance for Nanotechnology in Cancer, *Nanomedicine, Nano today*, University of Florida, Gainesville Sun.)

44. **Zhu G***, Hu* R, Zhao Z, Chen Z, Zhang X, Tan W. Noncanonical self-assembly of multifunctional DNA nanoflowers for biomedical applications. **Journal of the American Chemical Society**. 2013, 135(44):16438-45. (Highlighted by Nature's *Science-Business Exchange (SciBX)*, etc.)
45. **Zhu G**, Zhang S, Song E, Zheng J, Hu R, Fang X, Tan W. Building fluorescent DNA nanodevices on target living cell surfaces. **Angewandte Chemie - International Edition**. 2013, 52(21):5490-6. (Frontispiece cover)
46. **Zhu G**, Ye M[#], Donovan MJ, Song E, Zhao Z, Tan W[#]. Nucleic acid aptamers: an emerging frontier in cancer therapy. **Chemical Communications**. 2012, 48(85):10472-80.
47. **Zhu G**, Meng L, Ye M, Yang L, Sefah K, O'Donoghue MB, Chen Y, Xiong X, Huang J, Song E, Tan W. Self-assembled aptamer-based drug carriers for bispecific cytotoxicity to cancer cells. **Chemistry - an Asian Journal**. 2012, 7(7):1630-36.

Other publications

48. Yang W, **Zhu G**, Wang S, Yu G, Yang Z, Lin L, Zhou Z, Liu Y, Dai Y, Zhang F, Shen Z, Liu Y, He Z, Lau J, Niu G, Kiesewetter DO, Hu S, Chen X. In Situ Dendritic Cell Vaccine for Effective Cancer Immunotherapy. **ACS Nano**. 2019. 13(3):3083-3094.
49. Lin LS, Wang JF, Song J, Liu Y, **Zhu G**, Dai Y, Shen Z, Tian R, Song J, Wang Z, Tang W, Yu G, Zhou Z, Yang Z, Huang T, Niu G, Yang HH, Chen ZY, Chen X. Cooperation of endogenous and exogenous reactive oxygen species induced by zinc peroxide nanoparticles to enhance oxidative stress-based cancer therapy. **Theranostics**. 2019;9(24):7200-7209
50. Liu Y, Gong CS, Dai Y, Yang Z, Yu G, Liu Y, Zhang M, Lin L, Tang W, Zhou Z, **Zhu G**, Chen J, Jacobson O, Kiesewetter DO, Wang Z, Chen X. In situ polymerization on nanoscale metal-organic frameworks for enhanced physiological stability and stimulus-responsive intracellular drug delivery. **Biomaterials**. 2019, 218:119365
51. Tian R, Zhu S, Zeng Q, Lang L, Ma Y, Kiesewetter DO, Liu Y, Fu X, Lau J, **Zhu G**, Jacobson O, Wang Z, Dai Y, Yu G, Brooks BR, Liu G, Niu G, Chen X. An Albumin Sandwich Enhances in Vivo Circulation and Stability of Metabolically Labile Peptides. **Bioconjugate Chemistry**. 2019. 30(6):1711-1723.
52. Shan L, Gao G, Wang W, Tang W, Wang Z, Yang Z, Fan W, **Zhu G**, Zhai K, Jacobson O, Dai Y, Chen X. Self-assembled green tea polyphenol-based coordination nanomaterials to improve chemotherapy efficacy by inhibition of carbonyl reductase 1. **Biomaterials**. 2019. 210:62-69.
53. He Z, Dai Y, Li X, Guo D, Liu Y, Huang X, Jiang J, Wang S, **Zhu G**, Zhang F, Lin L, Zhu JJ[#], Yu G[#], Chen X[#]. Hybrid nanomedicine fabricated from photosensitizer-terminated metal-organic framework nanoparticles for photodynamic therapy and hypoxia-activated cascade chemotherapy. **Small**. 2019. 15(4):e1804131
54. Shen Z, Liu T, Li Y, Lau J, Yang Z, Fan W, Zhou Z, Shi C, Ke C, Bregadze VI, Mandal SK, Liu Y[#], Li Z, Xue T, **Zhu G**, Munasinghe J, Niu G, Wu A[#], Chen X[#]. Fenton-reaction-accelerated magnetic nanoparticles for ferroptosis therapy of orthotopic brain tumors. **ACS Nano**. 2018, 12(11):11355-11365.
55. Dai Y, Yang Z, Cheng S, Wang Z[#], Zhang R, Zhu G, Wang Z, Yung BC, Tian R, Jacobson O, Xu C, Ni Q, Song J, Sun X, Niu G, Chen X[#]. Toxic reactive oxygen species enhanced synergistic combination therapy by self-assembled metal-phenolic network nanoparticles. **Advanced Materials**. 2018 30(8).
56. Tian R, Jacobson O[#], Niu G, Kiesewetter D, **Zhu G**, Ma Y, Wang Z, Liu G, Chen X[#]. Evans blue attachment enhances somatostatin receptor subtype-2 imaging and radiotherapy. **Theranostics**. 2018 8(3):735-45.
57. Shan L, Zhuo X, Wang W, **Zhu G**, Gao G, Gu Y[#], Chen X[#]. A paclitaxel prodrug with bifunctional folate and albumin binding moieties for both passive and active targeted cancer therapy. **Theranostics**. 2018, 8(7):2018-30
58. Wu W, Zhang T[#], Han D, Fan H, **Zhu G**, Ding X, Wu C, You M, Qiu L, Li J, Zhang L, Lian X, Hu R, Mu Y, Zhou J, Tan W[#]. Aligner-mediated cleavage of nucleic acids and its application to isothermal exponential amplification. **Chemical Science**. 2018, 9(11):3050-55.
59. Chen H, Zhang W, **Zhu G**, Xie J[#], Chen X[#]. Rethinking cancer nanotheranostics. **Nature Reviews Materials** 2017, 2, 17024.
60. Zhang F, Khan S, Li R, Smolen JA, Zhang S, **Zhu G**, Su L, Jahnke AA, Elsabahy M, Chen X, Wooley KL. Design and development of multifunctional polyphosphoester-based nanoparticles for ultrahigh paclitaxel dual loading. **Nanoscale**. 2017 9(41):15773-7.
61. Liu Y, Wang Z, Liu Y, **Zhu G**, Jacobson O, Fu X, Bai R, Lin X, Lu N, Yang X, Fan W, Yu G, Zhang F, Kalish H, Niu G, Nie Z[#], Chen X[#]. Suppressing nanoparticle-mononuclear phagocyte system interactions of two-dimensional gold nanorings for improved tumor accumulation and photothermal ablation of tumors. **ACS Nano**. 2017, 11(10):10539-48

62. Yang X, Wang Z, Zhang F, **Zhu G**, Song J, Teng GJ[#], Niu G[#], Chen X[#]. Mapping sentinel lymph node metastasis by dual-probe optical imaging. *Theranostics*. 2017, 7 (1):153-63.
63. Kim YH, Min KH, Wang Z, Kim J, Jacobson O, Huang P, **Zhu G**, Liu Y, Yung B, Niu G[#], Chen X[#]. Development of sialic acid-coated nanoparticles for targeting cancer and efficient evasion of the immune system. *Theranostics*. 2017, 7(4):962-73
64. Cheng S, Lang L, Wang Z, Jacobson O, Yung B, **Zhu G**, Gu D, Ma Y, Zhu X[#], Niu G[#], Chen X[#]. Positron emission tomography imaging of prostate cancer with Ga-68-labeled gastrin-releasing peptide receptor agonist BBN₇₋₁₄ and antagonist RM26. *Bioconjugate Chemistry*. 2017, 29(2):410-9.
65. Song J^{*}, Wu B^{*}, Zhou Z, **Zhu G**, Liu Y, Yang Z, Lin L, Yu G, Zhang F, Zhang G, Duan H[#], Stucky GD[#], Chen X[#]. Double-layered plasmonic-magnetic vesicles by self-assembly of janus amphiphilic gold-iron(II,III) oxide nanoparticles. *Angewandte Chemie International Edition*. 2017, 56(28):8110-4.
66. Shen Z, Chen T, Ma X, Ren W, Zhou Z, **Zhu G**, Zhang A, Liu Y, Song J[#], Li Z, Ruan H, Fan W, Lin L, Munasinghe J, Chen X[#], Wu A[#]. Multifunctional theranostic nanoparticles based on exceedingly small magnetic iron oxide nanoparticles for T₁-weighted magnetic resonance imaging and chemotherapy. *ACS Nano*. 2017, 11(11):10992-1004.
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Book chapters and general science articles

105. Zhang Y, **Zhu G**[#]. Chapter 25: DNA theranostics. Book: *Cancer Theranostics* (editors: Drs. Shawn Chen, Stephen Wong, Jingjing Zhang), 2024 (in press)
106. Liu X, **Zhu G**[#]. Circular RNA Therapeutics and Vaccines. Book: *Trends in mRNA Vaccine Research*, 161-176 (Editors: Norbert Pardi, Gábor Tamás Szabó)
107. Su T, Liu X, Zhou S, Ahmed, NT, **Zhu G**[#]. STING activation and STING nanovaccines for cancer immunotherapy. (Editors: Drs. Mansoor M. Amiji, Lara Milane) 2021
108. **Zhu G**, Qiu L, Meng H, Mei L, Tan W. Aptamers-guided DNA nanomedicine for cancer theranostics. *Aptamers Selected by Cell-SELEX for Theranostics* (Editor: Drs. Weihong Tan, Xiaohong Fang) 2015
109. **Zhu G**, Mei L, Tan W. Nanomedicine. *The Scientist* 2014, 28(8):28-33

Patent Applications

1. **Zhu G**, Chen Y.G., Xu J, Tang R. Design and method preparation for circular RNA encoding CFTR, and methods of the use thereof in cystic fibrosis therapy. 2024. (Patent pending)
2. **Zhu G**, Chen Y.G., Guo Y, Liao S. Circular RNA-encoded GLP-1 therapy for diabetes and body weight management. 2024. (Patent pending)
3. **Zhu G**, Liu X. mRNA encoding proteolysis-targeting vaccines (mRNA-PROTAV). 2024. (Patent pending)
4. **Zhu G**, Zhou S. An oligonucleotide agonist for cGAS as adjuvant for mRNA vaccine. 2024. (Patent pending)
5. **Zhu G**, Xu Y. Nanoparticulate delivery of mRNA and circRNA vaccines to elicit respiratory mucosal immunity and resident T cell responses. 2024. (Patent pending)
6. **Zhu G**, Zhou S. Cas13d-encoding mRNA and ADAR1-targeting circular guide RNA, and the methods of the use thereof to sensitize cancer immunotherapy. 2024. (Patent pending)
7. **Zhu G**, Zhang Y. Small circular RNA vaccines for infectious diseases, and the methods of use thereof. 2024. (Patent pending)
8. **Zhu G**, Su T, Cheng F, Wang Q. Degradation-enhanced vaccines, and the methods of their use thereof. 2024. (Patent pending)
9. **Zhu G**, Zhang Y. Mini circular RNA therapeutics and vaccines and methods of use thereof. 2021 (WO2022173730A1; patent pending; licensed out)
10. **Zhu G**, Zhang Y. Immunostimulatory cyclic di-nucleotide delivery system compositions and methods of use thereof. 2022 (WO2022221536A1)
11. Chen X, **Zhu G**. Albumin binding immunomodulatory compositions. (WO2017192874A1).
12. **Zhu G**, Zhou S. Oligonucleotide agonists for Cyclic GMP-AMP synthases (cGAS), and the methods of their use thereof as immunotherapeutics and vaccines. 2020 (patent pending)
13. **Zhu G**, Cheng F. Small molecular degrader for cGAS and the methods of use thereof. 2021 (patent pending;)

Seminar and Conference Presentations

1. 3/2025. "Pulmonary delivery of circular mRNA therapeutics for cystic fibrosis". 9th Annual RNA Symposium: From Sequence to Solutions. Ann Arbor, MI (presented by Ri Tang, MD)
2. 3/2025. "Engineering and delivery of nucleic acid immunotherapeutics and vaccines for cancer and immune-related diseases". Bowling State University.

3. 3/2025. Therapeutic vaccines for cutaneous tumors: the cases of circular mRNA (circRNA) vaccines and proteolysis-targeting vaccines (PROTAX). Cutaneous Oncology Research Interest Group at the Rogel Cancer Center, University of Michigan.
4. 1/2025. "Pulmonary delivery of circular mRNA therapeutics for cystic fibrosis". Cystic Fibrosis Seminar Series, University of Michigan.
5. 1/2025. "Small circular RNA vaccines for cancer immunotherapy and viral infection prophylaxis". GRC RNA Nanotechnology, Ventura, CA.
6. 11/2024. "Small circular mRNA vaccines for cancer immunotherapy". Society for Immunotherapy of Cancer (SITC) annual meeting, Houston, TX.
7. 9/2024. "Engineering and delivery of circRNA therapeutics and vaccines". NanoDDS, Orlando, FL.
8. 10/2024. "Engineering and delivery of nucleic acid immunotherapeutics and vaccines for cancer and immune-related diseases". Tsinghua Medicine and Department of Chemistry, Tsinghua University, China.
9. 10/2024. "Engineering and delivery of nucleic acid immunotherapeutics and vaccines for cancer and immune-related diseases". School of Pharmacy, Peking University, China.
10. 9/2024. "Engineering and delivery of nucleic acid immunotherapeutics and vaccines for cancer and immune-related diseases". Cancer Hematopoiesis and Immunology Program. University of Michigan
11. 6/2024. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer and beyond". Department of Cell and Cancer Biology, University of Toledo, OH
12. 6/2024. "Engineering and delivery of nucleic acid therapeutics and vaccines – a focus on small circRNA vaccines". Graduate Program in Immunology annual retreat, University of Michigan
13. 4/2024. "Small circRNA vaccines for cancer immunotherapy". Rogel Cancer Center annual retreat, University of Michigan
14. 3/2024. "Engineering and delivery of nucleic acid therapeutics and vaccines – a focus on small circRNA vaccines". Frankel Cardiovascular Center, University of Michigan
15. 11/2023. "Nucleic acid therapeutics and vaccines for cancer immunotherapy". The 4th International Molecular Medicine Summit. Hangzhou, China.
16. 5/2023. "Small circular mRNA vaccines". PEGS, Boston, MA.
17. 11/2023. "Small circRNA vaccines". Department of Pharmaceutical Sciences, University of Pittsburg
18. 10/2023. "Engineering and delivery of nucleic acid therapeutics and vaccines – a focus on small circRNA vaccines". Center for RNA Biomedicine, University of Michigan
19. 9/2023. "Engineering and delivery of nucleic acid therapeutics and vaccines – a focus on small circRNA vaccines". BioInnovations in Brain Cancer, Biointerfaces Institute, University of Michigan
20. 8/2023. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy and infectious diseases – a focus on small circRNA vaccines". Nanomedicine Translational Research Program, National University of Singapore, Singapore (virtual)
21. 7/2023. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy and infectious diseases – a focus on small circRNA vaccines". Molecular Medicine Youth Discussion Platform, China (virtual)
22. 5/2023. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy and infectious diseases – a focus on small circRNA vaccines". Department of Pharmaceutical Science, University of Illinois - Chicago
23. 5/2023. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy and infectious diseases – a focus on small circRNA vaccines". VCU Molecules to Medicine webinar
24. 3/2023. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy and infectious diseases – a focus on small circRNA vaccines". CRS Bioengineering Focus Group webinar
25. 10/2022. "Small circular mRNA vaccines". AAPS annual meeting, Boston, MA.
26. 10/2022. "Small circular mRNA vaccines". 18th Oligonucleotide Therapeutics Society annual meeting, Phoenix, AZ.

27. 6/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy". The International Conference on Precision Nanomedicine in Theranostics & The 2022 Annual Meeting of Taiwan Nanomedicine Society. 7/2022 (virtual).
28. 6/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy". 2022 Lawrence Research Retreat, VCU Massey Cancer Center, Henrico, VA.
29. 6/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy". The 7th InSight Symposium, organized by AAPS student chapters (virtual).
30. 10/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy and infectious diseases – a focus on small circRNA vaccines". Department of Pharmaceutics, College of Pharmacy, University of Florida, Gainesville, FL (virtual)
31. 10/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy". Department of Pharmacology and Toxicology, R. Ken Coit College of Pharmacy, University of Arizona, Tucson, AZ.
32. 6/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy". Department of Pathology, University of Virginia, VA.
33. 3/2022. "Small circular mRNA (circRNA) vaccines for cancer immunotherapy and beyond". Department of Pharmaceutics and Pharmaceutical Chemistry, University of Utah, UT.
34. 2/2022. "Small circular mRNA (circRNA) vaccines for cancer immunotherapy and beyond". Department of Pharmaceutical Sciences, University of Michigan – Ann Arbor, MI.
35. 1/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy". Department of Chemistry and Institute for Applied Life Sciences, University of Massachusetts Amherst, MA.
36. 1/2022. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy and beyond". Developmental Therapeutics program, Massey Cancer Center, VCU, Richmond, VA.
37. 11/2021. "Small circular mRNA vaccines". The 9th International mRNA Health Conference, Berlin, Germany (virtual)
38. 10/2021. "Small circular mRNA vaccines". AAPS annual meeting. Philadelphia, PA (virtual)
39. 09/2021. "Small circular mRNA vaccines". Oligonucleotide Therapeutics Society annual meeting (virtual)
40. 06/2021. "Small circular mRNA vaccines". The 6th InSight Symposium, organized by AAPS student chapters.
41. 9/2021. "Small circular mRNA (circRNA) vaccines for cancer immunotherapy and beyond". Department of Chemistry, University of Massachusetts Amherst, MA (virtual).
42. 9/2021. "Bivalent small circular mRNA (circRNA) vaccines for melanoma immunotherapy". VCU Massey Cancer Center Molecules to Medicine Seminar.
43. 8/2021. "Engineering and delivery of nucleic acid therapeutics and vaccines for cancer immunotherapy". Department of Chemistry, University of Miami, FL (virtual).
44. 4/2021. "Small circular mRNA vaccines". Immunology Focus Group, VCU, Richmond, VA.
45. 2/2021. "Engineering and delivery of synthetic DNA/RNA for cancer immunotherapy". Towson University, Towson, MD (virtual).
46. 06/2020. "pH-responsive delivery of STING agonists as cancer nanovaccine". Controlled Drug Release (CRS) virtual annual meeting.
47. 11/2020. "Small Patch, Big Impact". TEDxYouth @RVA. Richmond, VA
48. 10/2020. "Engineering nucleic acid immunotheranostics", Department Seminar, Department of Chemical and Life Science Engineering, VCU, Richmond, VA.
49. 10/2020. "Pharmaceutical engineering: a FedEx for drug delivery in the body." Molecules to Medicine - Novel Weapons in the Cancer Arsenal. VCU Massey Cancer Center Drug Innovation Webinar.
50. 06/2020. "Deliver Nanomedicines to Lymph Nodes and Tumor to Potentiate Melanoma Immunotherapy", Georgetown University-Howard University CCTS program, DC.
51. 06/2020. "Engineering immunotheranostics". Immunology Focus Group, VCU, Richmond, VA.
52. 02/2020. "Delivery of nucleic acid therapeutics for cancer immunotherapy". Department of Medicinal Chemistry, VCU, Richmond, VA.

53. 10/2019. "Responsive STING-activating cancer nanovaccine". Oligonucleotide Therapeutics Society (OTS) annual meeting. Munich, Germany.
54. 04/2019. "Albumin-binding DNA/RNA therapeutics: efficient and versatile delivery". RNA Consortium. CA.
55. 03/2019. Pittcon. "*In vivo* pharmacoinaging and delivery of nucleic acid therapeutics and probes". PA.
56. 12/2019. "Drug delivery systems and nucleic acid therapeutics for cancer". The annual retreat of the Developmental Therapeutics program, Massey Cancer Center, VCU, Richmond, VA.
57. 10/2019. "Drug delivery using biocompatible bioconjugates and nanoparticles", VCU Pharmacology and Toxicology Seminar Series.
58. 10/2019. "Nucleic acid nanovaccine". Shanghai Jiaotong University.
59. 10/2019. "Cancer nanomedicine: applications in immunotherapy, chemotherapy, and gene therapy". Nankai University.
60. 10/2019. "Cancer nanomedicine: applications in immunotherapy, chemotherapy, and gene therapy". Tianjin University.
61. 10/2019. "Cancer nanomedicine: applications in immunotherapy, chemotherapy, and gene therapy". Beijing Institute of Technology.
62. 01/2019. "Reinvent nanomedicines for drug delivery in combination cancer therapy". The annual retreat of the Developmental Therapeutics program, Massey Cancer Center, VCU, Richmond, VA.
63. 10/2018. The Society for Immunotherapy of Cancer Annual Meeting "Albumin-binding vaccines for efficient lymph node delivery in combination cancer immunotherapy". Washington DC.
64. 10/2018. OTS Annual Meeting. "Albumin-binding oligonucleotides for efficient drug delivery". Seattle, WA.
65. 10/2018. "Nanotechnologies and Aptamers in Cancer: From Drug Delivery to Cancer Detection". Massey Cancer Center, VCU, Richmond, VA.
66. 05/2018. "Pharmacoengineering and pharmacoinaging of nanovaccines for personalized cancer immunotherapy". The 8th International Symposium on Bioanalysis, Biomedical Engineering and Nanotechnology, Changsha, China.
67. 05/2018. "Pharmacoengineering and pharmacoinaging of nanovaccines for personalized cancer immunotherapy". Hunan University, Changsha, China.
68. 05/2018. "Pharmacoengineering and pharmacoinaging of nanovaccines for personalized cancer immunotherapy". School of Pharmacy, University of North Carolina (UNC) - Chapel Hill, North Carolina
69. 02/2018. "Pharmacoengineering and pharmacoinaging of nanovaccines for personalized cancer immunotherapy". Department of Pharmacy, National University of Singapore, Singapore.
70. 02/2018. "Pharmacoengineering and pharmacoinaging of nanovaccines for personalized cancer immunotherapy". Department of Pharmaceutics, VCU, Richmond, VA.
71. 2016. "Nucleic acid nanovaccines for cancer immunotherapy", College of Pharmacy, Southwest University, Chongqing, China.
72. 2016. "Nucleic acid nanovaccines for cancer immunotherapy", College of Chemistry and Chemical Engineering, Nankai University, Tianjin, China.
73. 12/2017. The 2nd Mid-Atlantic DNA Nanotechnology Symposium (MADNano), "Intertwining DNA-RNA nanocapsules loaded with tumor neoantigens as synergistic nanovaccines for personalized cancer immunotherapy", National Institute of Standards and Technology (NIST), MD.
74. 11/2017. The Society for Immunotherapy of Cancer Annual Meeting. "Albumin/vaccine nanocomplexes that assemble *in vivo* for combination cancer immunotherapy". National Harbor, MD.
75. 10/2017. Cancer Immunology and Immunotherapy: From Conception to Delivery. "Albumin/vaccine nanocomplexes that assemble *in vivo* for combination cancer immunotherapy". NCI, Bethesda, MD.
76. 09/2017. World Molecular Imaging Congress (WMIC) meeting, "Systematic imaging of *in-vivo*-assembled nanovaccines for cancer immunotherapy". Philadelphia, PA.
77. 06/2017. The 2nd NIH-CSSA Annual Research Symposium. "Albumin/vaccine nanocomplexes that assemble *in vivo* for combination cancer immunotherapy". NIH, Bethesda, MD.
78. 09/2016. The 14th International Nanomedicine & Drug Delivery Symposium (nanoDDS'16), "DNA nanovaccine for cancer immunotherapy". Baltimore, MD.
79. 04/2016. Accelerating Anticancer Agent Development and Validation (AAADV) Workshop: "Study design considerations in evaluating combinations of novel immune-modulatory drugs and targeted agents". Bethesda, MD.
80. 10/2014. Cancer Immunology and Immunotherapy: Delivering the Promise. "DNA-inorganic hybrid nanovaccine for cancer immunotherapy". NCI, Bethesda, MD.

81. 10/2014. The 10th Annual Meeting of the Oligonucleotide Therapeutics Society. "DNA-inorganic hybrid nanovaccine for cancer immunotherapy". San Diego, CA.
82. 08/2014. The 1st MADNano. "DNA-inorganic hybrid nanovaccine for cancer immunotherapy". Johns Hopkins University, Baltimore, MD.
83. 04/2014. The 2nd UF postdoc symposium. "Nuclease-resistant synthetic drug-DNA adducts: programmable and site-specific drug-DNA conjugation for targeted anticancer drug delivery". UF.
84. 03/2014. The 65th *Pittsburgh Conference on Anal. Chem. and Applied Spectroscopy* (Pittcon). "Drug-DNA adduct for simple yet efficient targeted drug delivery". Chicago, IL.
85. 11/2013. BioFlorida Scientific Exchange Event. "Molecular medicines and nanomedicines for disease theranostics". UF. Gainesville, FL.
86. 09/2013. NanoFlorida, "Noncanonical self-assembly of multifunctional DNA nanoflowers for versatile biomedical applications". Gainesville, FL.
87. 06/2013. Nanotechnologies in Cancer Diagnosis, Therapy, and Prevention, the New York Academy of Sciences. "Self-assembled DNA nanotrains for targeted cancer theranostics". NY.
88. 04/2013. UF Shands Cancer Center Research Poster Day, "Nature-inspired drug-DNA adduct for simple yet efficient targeted drug delivery". Gainesville, FL.
89. 03/2013. The 64th Pittcon: Conference & Expo. "Noncanonical self-assembly of multifunctional DNA nanoflowers for biomedical applications". Philadelphia, PA.

Teaching

Teaching at University of Michigan

Course	Title	Time	Semester	Student	Credit	Lecture hours	Role
PSCI701	Equilibria and dose forms	2023 –	Fall	Graduate	2		Coordinator/ Instructor
BSPS 400	Physical Chemistry of Drug Products	2024 –	Fall	Undergraduate	2		Instructor

Teaching at VCU

Course	Title	Time	Semester	Student	Credit	Lecture hours	Role
PESC 709	Pharmaceutical Engineering Laboratory II	2022 –	Spring	Graduate/ undergraduate	1	6	Instructor
PHAR 549	Personalized Medicine	2021 –	Fall	PharmD professional	1	1	Instructor
PESC 605	Advanced Topics in Pharmaceutical Engineering I	2021 –	Spring	Graduate/ undergraduate	3	18	Coordinator, co-founder, instructor
PCEU 509	Pharmaceutics and Biopharmaceutics II	2021 –	Spring	PharmD professional	2	4	Instructor
MEDC 310	Medicinal Chemistry and Drug Design	2021 –	Spring	Graduate	1	1	Instructor
OCMB 702	Oral Pathogenesis	2021 –	Spring	Graduate	2	2	Instructor
PESC 505	Pharmaceutical Engineering Fundamentals I	2020 –	Fall	Graduate/ undergraduate	3	18	Co-founder, instructor
PSCI 607	Introduction to Pharmaceutical Sciences	2019 –	Fall	Graduate	1	1	Co-coordinator
PSCI 607	Introduction to Pharmaceutical Sciences	2019 –	Spring	Graduate	1	0	Co-coordinator

ENGR 591	Pharmaceutical Engineering	2018	Fall	Graduate/ undergraduate	2	2	Instructor
PCEU 691	Special Topics in Pharmaceutics	2018-	Spring/ Fall	Graduate/	1	1	Instructor

Trainee Mentorship

Staff

- Jordan Dailey, PhD (Research Lab Specialist Senior, 2024 -)
- Wenhua Li, MS, (Research Lab Technician Intermediate, 2024 -)

Postdocs

- Xiaoge Liang, PhD, Shanghai Jiaotong University (5/2025 -)
- Ting Xu, PhD, University of Science and Technology of China (4/2025 -)
- Rong Zheng, MD, PhD, Southern Medical University (1/2025 -)
- Qiwei Yao, MD, PhD, Southern Medical University (1/2025 -)
- Sicong Ma, PhD, University of Michigan (7/2024 -)
- Guolan Xiao, PhD, Shanghai Jiaotong University (6/2024 -)
- Shimiao Liao, PhD, University of Science and Technology of China (11/2023 -)
- Ri Tang, MD-PhD, Shanghai Jiaotong University (8/2023 -)
- Yu Hao, PhD, Soochow University (10/2023 -)
- Qiyan Wang, PhD, China Pharmaceutical University (6/2023 -)
- You Xu, PhD, University of Copenhagen, Denmark. (03/2023 -)
- Chunpeng Yang, PhD, Wuhan Institute of Virology (3/2024 – 8/2024). Current position: Hengrui Pharma.
- Suling Yang, PhD, Chinese Academy of Sciences, China. (08/2022 – 7/2024)
- Lei Mei, PhD, University of Maryland – College Park (01/2021 - 6/2023). Current position: Research Investigator, University of Michigan.
- Furong Cheng, PhD, Sichuan University, China. (09/2019 - 12/2022). Current position: Assistant Professor, Shanghai University, Shanghai, China.
- Yu Zhang, PhD, Lanzhou University, China. (01/2019 - 2/2023), Current position: Assistant Scientist, Chinese Academy of Science, China.
- Ting Su, PhD, Sichuan University, China. (12/2018 - 12/2022) Current position: Assistant Professor, Donghua University, Shanghai, China.
- Wei Tang, PhD, University of Georgia (01/2021 – 06/2021). Current position: Assistant Professor of School of Pharmacy, National University of Singapore, Singapore.
- Wenjie Chen, PhD, Macquarie University, Australia (02/2019 – 09/2020). Current position: Professor, College of Pharmacy, Guangzhou Medical University, China.
- Tingting Shen, PhD, Lanzhou University, China (01/2019 – 06/2021). Current position: research scientist, Institute of Cancer and Basic Medicine, Chinese Academy of Sciences, China).

Graduate students

- Zitong Wang, PhD student in Pharmaceutical Sciences (2024 -)
- Qing Sun, PhD student in Pharmaceutical Sciences (co-mentored with Dr. James Moon; 2024 -)
- Xiang Liu, PhD student in Pharmaceutical Sciences (2021 -)
- Shurong Zhou, PhD candidate in Pharmaceutical Sciences (2019 -)
- Yasir Abdulaziz Alshehry, MS student in Pharmaceutical Sciences (08/2022 - 06/2023) (stayed at VCU)
- Lauren Dain, MD-PhD student in Immunology and Microbiology (01/2022 - 12/2022) (stayed at VCU)
- Jialong Qi, PhD candidate (Visiting, 2019 – 2021)

PharmD students

- Erica Liang, PharmD student (08/2023 -)
- Janet Cole (08/2019 - 2020)

Undergraduate students

- Charlie Freese (2024)
- Ali Azeem (1/2024)
- Diana Barr (VCU PharmEng REU student) (06/2021 – 07/2021)

- Jenille Jade Llorico (undergraduate student, Virginia State University. VCU PharmEng REU student) (06/2022 – 07/2022)
- Mariam Obaji (VCU PharmEng REU student) (06/2022 – 07/2022)
- Jaila Walton (undergraduate student, Virginia State University. Massey Cancer Center REU student) (06/2022 – 07/2022)
- Shaheer Alam (VCU Honors College) (enrolled in VCU Honors Summer Undergraduate Research Program in 2022) (02/2022 - 06/2023)
- John Pham (VCU Chemistry) (10/2020 – 7/2021)
- Moazan Rehman (VCU Biology) (08/2020 – 06/2021)
- Kush Shah (VCU Honors College) (06/2019 – 02/2020)
- Jay Bisen (VCU Guaranteed Medical Program) (2019)

Visiting scholars

- Weinan Wang, PhD, Peking University, China. (05/2019 – 07/2020)
- Lujun Hu, PhD, Jiangnan University, China. (04/2019 – 07/2020)
- Yongjian Wang, PhD, Nankai University, China. (04/2019)

Graduate Student Advisory Committees

- May Phoo (Department of Pharmaceutical Sciences, University of Michigan) (2024 -)
- Julia Catalano (Department of Pharmaceutical Sciences, University of Michigan) (2024 -)
- Xingwu Zhou (Department of Pharmaceutical Sciences, University of Michigan) (2023 -)
- Alexander Meyer (Department of Pharmaceutical Sciences, University of Michigan) (2023 -)
- Chengyi Li (Department of Pharmaceutical Sciences, University of Michigan) (2023 - 2024)
- Reid Williams (Graduate Program of Immunology, University of Michigan) (2024 -)
- Jun Zhou (School of Medicine, University of Michigan) (2023 -)
- Ningyuan Ye (Department of Biomedical Engineering, University of Michigan) (2025 -)
- Yinying Yang (Department of Biomedical Engineering, University of Michigan) (2024 -)
- Mona Alkhairi (VCU Department of Medicinal Chemistry)
- Hadi Sudarjat (VCU Department of Pharmaceutics)
- Hanming Zhang (VCU Department of Pharmaceutics)
- Sulaiman Alhudaithi (VCU Department of Pharmaceutics)
- Fatemah Sunbul (VCU Department of Pharmaceutics)
- Sarah Aboeela (VCU Department of Pharmaceutics)

Professional Service

Selected grant review

- 2025 – Reviewer, NIH Nucleic Acid Therapeutic Delivery (NATD) study section.
- 2023 – 2024 (5x) *Ad hoc* reviewer, NIH NATD study section.
- 2024 *Ad hoc* reviewer, CDMRP BCRP Clinical and Experimental Therapeutics.
- 2024 *Ad hoc* reviewer, NIH Translational Immuno-Oncology (TIO) study section.
- 2024 *Ad hoc* Reviewer, NIH Transformative Award.
- 2024 *Ad hoc* reviewer, NCI K99/R00 study section.
- 2023 *Ad hoc* reviewer, NCI Cancer Immune Prevention network (CIP-NET) study section.
- 2023 *Ad hoc* reviewer, NIH/NIAID SEP for BAA-NIAID-75N93022R00009: Vaccine Adjuvant Development Program in Infectious and Immune-Mediated Diseases.
- 2023 *Ad hoc* reviewer, Natural Sciences and Engineering Research Council of Canada (NSERC)
- 2022 *Ad hoc* reviewer, Oak Ridge Associated Universities (ORAU).
- 2022 *Ad hoc* reviewer, NIH ZRG1 OTC D08 study section.
- 2021 *Ad hoc* reviewer, NIH SBIR/STTR (ZRG1 AIDC-P11) study section.
- 2020 *Ad hoc* reviewer, NIH Radiation Therapy and Biology (RTB) study section.

- 2019 *Ad hoc* reviewer, Breast Cancer Research in New Zealand
- 2019 *Ad hoc* reviewer, Oak Ridge Associated Universities (ORAU).

- **Service to Institution**

- **University of Michigan College of Pharmacy**

- 2024 – Graduate Chair, Department of Pharmaceutical Science, College of Pharmacy
 - 2024 – Member, Graduate Education Committee, College of Pharmacy
 - 2024 Member, Research Retreat Committee, College of Pharmacy
 - 2023 – Member, Executive Committee, College of Pharmacy
 - 2023 – Member, Graduate Admission Committee, Department of Pharmaceutical Science, College of Pharmacy

- **VCU School of Pharmacy**

- 2022 – 2023 Advisor Committee, Bioinformatics Shared Resource, VCU Massey Cancer Center
 - 2022 Dean Search Committee, VCU School of Pharmacy
 - 2023 DPOS faculty search committee, VCU School of Pharmacy
 - 2021 – 2023 ACPE Self-study Subcommittee, VCU School of Pharmacy
 - 2021 – 2023 Dean’s Award Committee, VCU School of Pharmacy
 - 2019 – 2021 Lead Judge, Research and career day, VCU School of Pharmacy
 - 2020 – 2023 Academic Performance Committee, VCU School of Pharmacy
 - 2020 – 2023 Faculty Awards Committee, VCU School of Pharmacy
 - 2018 – 2020 Outcomes & Assessment Committee, VCU School of Pharmacy
 - 2019 – 2020 Graduate Affairs Committee, VCU School of Pharmacy
 - 2019 – 2020 Promotion and Tenure Guidelines Committee, VCU School of Pharmacy

- **VCU Department of Pharmaceutics**

- 2019 – 2023 Student award selection committee, VCU Department of Pharmaceutics

- **Service in Professional Societies**

- 2022 – Abstract reviewer, AAPS, CRS, Biomedical Engineering Society (BMES), etc
 - 2021 – 2022 *Equity, Diversity, and Inclusion (ED&I) committee*, Controlled Release Society

- **Journal Editorial**

- 2022. Guest editor, Special Issue “Molecular and Nanoscale Engineering of Nucleic Acid Theranostics and Vaccines”, *Frontiers In Bioengineering and Biotechnology*

- **Editorial board membership**

- *AAPS Journal*
 - *Exploration*

- **Reviewer for the following selected journals**

Nature Biomedical Engineering, Nature Cancer, Nature Communications, Science Advances, Molecular Therapy, Molecular Therapy – Nucleic Acids, ACS Nano, Adv. Sci., Adv. Thera., Adv. Mater., Biomaterials, Bioactive Materials, Adv. Funct. Mater., Adv. Healthc. Mater., ACS Appl. Mater. Interfaces, ACS Materials Letter, Anal. Chem., Bioconjug. Chem. Biomaterial Science, ChemMedChem., Chemical Reviews, Chem. Mater., J. Am. Chem. Soc., Medicine in Drug Discovery, Molecular Pharmaceutics, Nanoscale, Nano Res., Plos One, Small, Theranostics, WIREs-Nanomedicine and Nanotechnology

Professional Membership (past and current)

- American Society of Gene & Cell Therapy (ASGCT)
- American Association for Cancer Research (AACR)
- Society for Immunotherapy of Cancer (SITC)
- Sigma Xi, The Scientific Research Honor Society
- Oligonucleotide Therapeutics Society (OTS)
- American Association of Pharmaceutical Scientists (AAPS)

- Controlled Release Society (CRS)