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Curriculum Vitae

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EDUCATION

Ph.D., City University of New York, 2003

Major: Chemistry (Polymer)

Dissertation: Combination of Anionic, Ring-Opening Metathesis, Living Radical Polymerization for Novel Nanostructured Polymer Synthesis

M. S., Beijing University of Chemical Technology, 1996

Major: Polymer Materials

Thesis: Selective Anionic Polymerization of Allyl Methacrylate

B.S., Hefei University of Technology, 1993

Major: Polymer Materials

EMPLOYMENT HISTORY

Professor, UB Department of Chemical and Biological Engineering, 2020-present

Associate Professor, UB Department of Chemical and Biological Engineering, 2013-present

Assistant Professor, UB Department of Chemical and Biological Engineering, 2007-2013

Postdoctoral Research Associate, Washington University at St. Louis, 2003-07

PUBLICATIONS

Referred Journal Papers

1. H. Sun, L. Yan, R. Zhang, J. F. Lovell, Y. Wu, C. Cheng, A Sulfobetaine Zwitterionic Polymer-Drug Conjugate for Multivalent Paclitaxel and Gemcitabine Co-Delivery, *Biomater. Sci.*, **2021**, *9*, 5000-5010.
2. Z. Zhang, M. M. Jones, C. Sabatini, S. T. Vanyo, M. Yang, A. Kumar, Y. Jiang, M. T. Swihart, M. B. Visser, and C. Cheng, Synthesis and Antibacterial Activity of Polymer-antibiotic Conjugates Incorporated into a Resin-based Dental Adhesive, *Biomater. Sci.*, **2021**, *9*, 2043-2052.
3. M. A. Mohamed, A. Shahini, N. Rajabian, J. Caserto, A. M. A. El-Sokkary, M. A. Akl, S. T. Andreadis, C. Cheng, Facile Thiol-ene Elastomers with Tunable Biodegradability, Mechanical and Surface Properties to Enhance Myogenic Differentiation of Myoblasts, *Bioactive Mater.*, **2021**, *6*, 2120-2133.
4. H. Moussa, M. M. Jones, N. Huo, R. Zhang, M. Keskar, M. B. Visser, M. T. Swihart, C. Cheng, C. Sabatini, Biocompatibility, Mechanical, and Bonding Properties of a Dental Adhesive Modified with Antibacterial Monomer and Cross-linker, *Clin. Oral Investig.*, **2021**, *25*, 2877-2889.
5. H. Sun, W. Erdman, Y. Yuan, M. A. Mohamed, R. Xie, Y. Wang, S. Gong, C. Cheng, Crosslinked Polymer Nanocapsules for Therapeutic, Diagnostic, and Theranostic Applications, *WIREs Nanomed Nanobiotechnol.*, **2020**, e1653.

6. N. Shahkaramipour, A. Jafari, T. Tran, C. M. Stafford, C. Cheng, H. Lin, Maximizing the grafting of zwitterions onto the surface of ultrafiltration membranes to improve antifouling properties, *J. Membrane Sci.*, **2020**, *601*, 117909.
7. A. Jafari, L. Yan, M. A. Mohamed, Y. Wu, C. Cheng, Well-Defined Diblock Poly(ethylene glycol)-*b*-Poly(ϵ -caprolactone)-based Polymer-Drug Conjugate Micelles for pH-Responsive Delivery of Doxorubicin, *Materials*, **2020**, *13*, 1510.
8. A. Jafari, N. Rajabian, G. Zhang, M. A. Mohamed, P. Lei, S. T. Andreadis, B. Pfeifer, C. Cheng, PEGylated Amine-Functionalized Poly (ϵ -caprolactone) for the Delivery of Plasmid DNA, *Materials*, **2020**, *13*, 898.
9. M. A. Mohamed, A. Fallahi, A. M. A. El-sokkary, S. Salehi, M. A. Akl, A. Jafari, A. Tamayol, H. Fenniri, A. Khademhosseini, S. T. Andreadis, C. Cheng, Stimuli-Responsive Hydrogels for Manipulation of Cell Microenvironment: From Chemistry to Biofabrication Technology, *Prog. Polym. Sci.*, **2019**, *98*, 101147.
10. J. Liu, S. Zhang, D.-e. Jiang, C. M. Doherty, A. J. Hill, C. Cheng, H. B. Park, H. Lin, Highly Polar but Amorphous Polymers with Robust Membrane CO₂/N₂ Separation Performance, *Joule*, **2019**, *3*, 1881-1894.
11. H. Sun, F. M. Haque, Y. Zhang, A. Commisso, M. A. Mohamed, M. Tsianou, H. Cui, S. M. Grayson, C. Cheng, Linear-Dendritic Alternating Copolymers, *Angew. Chem. Int. Ed.*, **2019**, *58*, 10572-10576.
12. H. Sun, L. Yan, M. Y. Z. Chang, K. A. Carter, R. Zhang, L. Slyker, J. F. Lovell, Y. Wu, C. Cheng, A Multifunctional Biodegradable Brush Polymer-Drug Conjugate for Paclitaxel/Gemcitabine Co-Delivery and Tumor Imaging, *Nanoscale Adv.*, **2019**, *1*, 2761-2771.
13. M. A. F. Afzal, M. Haghightarlari, S. P. Ganesh, C. Cheng, J. Hachmann, Accelerated Discovery of High-Refractive-Index Polyimides via First-Principles Molecular Modeling, Virtual High-Throughput Screening, and Data Mining, *J. Phys. Chem. C*, **2019**, *123*, 14610-14618.
14. M. Keskar, C. Sabatini, C. Cheng, M. T. Swihart, Synthesis and Characterization of Silver Nanoparticle-Loaded Amorphous Calcium Phosphate Microspheres for Dental Applications, *Nanoscale Adv.*, **2019**, *1*, 627-635.
15. H. Sun, L. Yan, K. A. Carter, J. Zhang, J. Caserto, J. F. Lovell, Y. Wu, C. Cheng, Zwitterionic Crosslinked Biodegradable Nanocapsules for Cancer Imaging, *Langmuir*, **2019**, *35*, 1440-1449.
16. B. Sun, H. Sun, Y. Li, H. Cui, C. Cheng, A Systematic Synthetic Study of Polyelectrolyte Nanocapsules via Crystallized Miniemulsion Nanodroplets, *Eng. Sci.*, **2019**, *5*, 39-45.
17. P. Chakraborty, G. L. Zhao, C. Zhou, C. Cheng, D. D. L. Chung, Decreasing the Shear Stress-induced In-plane Molecular Alignment by Unprecedented Stereolithographic Delay in Three-dimensional Printing, *J. Mater. Sci.*, **2019**, *54*, 3586-3599.
18. A. Jafari, H. Sun, B. Sun, M. A. Mohamed, H. Cui, C. Cheng, Layer-by-layer Preparation of Polyelectrolyte Multilayer Nanocapsules via Crystallized Miniemulsions, *Chem. Commun.*, **2019**, *55*, 1267-1270.
19. R. Zhang, M. M. Jones, H. Moussa, M. Keskar, N. Huo, Z. Zhang, M. B. Visser, C. Sabatini, M. T. Swihart, C. Cheng, Polymer-Antibiotic Conjugate as Antibacterial Additive in Dental Resin, *Biomater. Sci.*, **2019**, *7*, 287-295.
20. M. A. F. Afzal, C. Cheng, J. Hachmann, Combining first-principles and data modeling for the accurate prediction of the refractive index of organic polymers, *J. Chem. Phys.*, **2018**, *148*, 241712/1-241712/8.
21. H. Guo, P. Liu, H. Li, C. Cheng, Y. Gao, Responsive Emulsions Stabilized by Amphiphilic Supramolecular Graft Copolymers Formed in Situ at the Oil-Water Interface, *Langmuir*, **2018**, *34*, 5750-5758.
22. N. Shahkaramipour, C. K. Lai, S. R. Venna, H. Sun, C. Cheng, H. Lin, Membrane Surface Modification Using Thiol-Containing Zwitterionic Polymers via Bioadhesive Polydopamine, *Ind. Eng. Chem. Res.*, **2018**, *57*, 2336-2345.
23. T. Zeng, D. Yang, H. Li, C. Cheng, Y. Gao, The fabrication of amphiphilic double dynamers for responsive Pickering emulsifiers, *Polym. Chem.*, **2018**, *9*, 627-636.

24. H. Sun, M. Y. Z. Chang, W.-I Cheng, Q. Wang, A. Commisso, M. Capeling, Y. Wu, C. Cheng, Biodegradable Zwitterionic Polymer and Its Conjugate with Paclitaxel for Sustained Drug Delivery, *Acta Biomater.*, **2017**, *64*, 290-300.
25. N. Shahkaramipour, S. N. Ramanan, D. Fister, E. Park, S. R. Venna, H. Sun, C. Cheng, H. Lin, Facile Grafting of Zwitterions onto the Membrane Surface To Enhance Antifouling Properties for Wastewater Reuse, *Ind. Eng. Chem. Res.*, **2017**, *56*, 9202-9212.
26. H. Sun, I. Yarovoy, M. Capeling, C. Cheng, Polymers in the Co-delivery of siRNA and Anticancer Drugs for the Treatment of Drug-resistant Cancers, *Top. Curr. Chem.*, **2017**, *375*, 24.
27. R. Aalinkeel, B. Nair, C.-K. Chen, S. D. Mahajan, J. L. Reynolds, H. Zhang, H. Sun, D. E. Sykes, K. C. Chadha, S. G. Turowski, K. D. Bothwell, M. Seshadri, C. Cheng, S. A. Schwartz, Nanotherapy Silencing the Interleukin-8 Gene Produces Regression of Prostate Cancer by Inhibition of Angiogenesis, *Immunology*, **2016**, *148*, 387-406.
28. S. Shah, J. Liu, S. Ng, S. Luo, R. Guo, C. Cheng, H. Lin, Transport Properties of Small Molecules in Zwitterionic Polymers, *J. Polym. Sci., Part B: Polym. Phys.*, **2016**, *54*, 1924-1934.
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30. H. Y. Huang, R. Hernandez, J. M. Geng, H. T. Sun, W. T. Song, F. Chen, S. A. Graves, R. J. Nickles, C. Cheng, W. B. Cai, J. F. Lovell, A Porphyrin-PEG polymer with Rapid Renal Clearance, *Biomaterials*, **2016**, *76*, 25-32.
31. A. M. Bodratti, Z. He, M. Tsianou, C. Cheng, P. Alexandridis, Product Design Applied to Formulated Products: A Course on Their Design and Development that Integrates Knowledge of Materials Chemistry, (Nano) Structure and Functional Properties, *Int. J. Quality Assurance Eng. Tech. Edu.*, **2015**, *4(3)*, 21-43.
32. J. Zou, Y. Yu, Y. Li, W. Ji, C.-K. Chen, W.-C. Law, P. N. Prasad and C. Cheng, Well-Defined Diblock Brush Polymer-Drug Conjugates for Sustained Delivery of Paclitaxel, *Biomater. Sci.*, **2015**, *3*, 1078-1084.
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36. Y. Li, L. Christian-Tabak, V. L. F. Fuan, J. Zou, C. Cheng, Crosslinking-Induced Morphology Change of Latex Nanoparticles: A Study of RAFT-Mediated Polymerization in Aqueous Dispersed Media Using Amphiphilic Double-Brush Copolymers as Reactive Surfactants, *J Polym Sci., Part A: Polym. Chem.*, **2014**, *52*, 3250-3259.
37. Y. Yu, J. Zou, C. Cheng. Synthesis and Biomedical Applications of Functional Poly(α -hydroxyl acid)s, *Polym. Chem.* **2014**, *5*, 5854-5872.
38. G. M. Lin, C. B. Yang, R. Hu, C.-K. Chen, W. C. Law, T. Anderson, B. T. Zhang, Q. T. Nguyen, H. T. Toh, H. S. Yoon, C. Cheng, K. T. Yong. Interleukin-8 Gene Silencing on Pancreatic Cancer Cells using Biodegradable Polymer Nanoplexes, *Biomater. Sci.* **2014**, *2*, 1007-1015.
39. C.-K. Chen, Q. Wang, C. H. Jones, Y. Yu, H. Zhang, W. C. Law, C. K. Lai, Q. H. Zeng, P. N. Prasad, B. A. Pfeifer, C. Cheng. Synthesis of pH-Responsive Chitosan Nanocapsules for the Controlled Delivery of Doxorubicin, *Langmuir*, **2014**, *30*, 4111-4119.
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41. Y. Fan, M. Hsiung, C. Cheng, E. S. Tzanakakis, Facile Engineering of Xeno-Free Microcarriers for the Scalable Cultivation of Human Pluripotent Stem Cells in Stirred Suspension, *Tissue Eng. Part A*,

- 2014**, *20*, 588-599.
42. C.-K. Chen, W.-C. Law, R. Aalinkeel, B. Nair, Y. Yu, S. D. Mahajan, J. L. Reynolds, J. Wu, Y. Li, C. K. Lai, E. S. Tzanakakis, S. A. Schwartz, P. N. Prasad, C. Cheng, Biodegradable Cationic Polymer Nanocapsules for Bypassing Multidrug Resistance and Enabling Drug-Gene Co-Delivery to Cancer Cells, *Nanoscale*, **2014**, *6*, 1567-1572.
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 48. C.-K. Chen, W.-C. Law, R. Aalinkeel, B. Nair, A. Kopwiththaya, S. D. Mahajan, J. L. Reynolds, J. Zou, S. A. Schwartz, P. N. Prasad, C. Cheng, Well-Defined Degradable Cationic Polylactide as Nanocarrier for the Delivery of siRNA to Silence Angiogenesis in Prostate Cancer, *Adv. Healthc. Mater.*, **2012**, *1*, 751-761.
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 54. J. Zou, G. Jafr, E. Themistou, Y. Yap, Z. A. P. Wintrob, P. Alexandridis, A. C. Ceacareanu, C. Cheng, pH-Sensitive Brush Polymer-Drug Conjugates by Ring-Opening Metathesis Copolymerization, *Chem. Commun.*, **2011**, *47*, 4493-4495.
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63. Z. Li, K. Zhang, J. Ma, C. Cheng, K. L. Wooley, Facile Syntheses of Cylindrical Molecular Brushes by a Sequential RAFT and ROMP "Grafting-through" Methodology, *J. Polym. Sci., Part A: Polym. Chem.*, **2009**, *47*, 5557-5563.
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Book

1. E. Ruckenstein, H. Li, C. Cheng, *Functional and Modified Polymeric Materials*, Two-volume set, CRC Press, **2019**.

Book Chapters

1. A. M. Bodratti, Z. He, M. Tsianou, C. Cheng, P. Alexandridis, Product Design Applied to Formulated Products: A Course on Their Design and Development that Integrates Knowledge of Materials Chemistry, (Nano)Structure and Functional Properties, book chapter in *Materials Science and Engineering: Concepts, Methodologies, Tools, and Applications*, IGI Global, **2017**, 519-542.
2. Y. Yu, H. Sun, C. Cheng, Brush Polymer-Based Nanostructures for Drug Delivery, book chapter in *Therapeutic Nanostructures*, Ed. A. Grumezescu, Elsevier, **2017**, 271-298.
3. S. D. Mahajan, Y. Yu, R. Aalinkeel, J. L. Reynolds, B. Nair, M. J. Mammen, T. A. Ignatowski, C. Cheng, S. A. Schwartz, Biodegradable Nanoparticle-Based Antiretroviral Therapy across the Blood-Brain Barrier, book chapter in *Handbook of Clinical Nanomedicine: Nanoparticles, Imaging, Therapy and Clinical Applications*, Eds. R. Bawa, G. F. Audette, I. Rubinstein, Pan Stanford, **2016**, 1379-1406.
4. A. Bodratti, C. Cheng, P. Alexandridis, Bridging Materials Properties and Processes - An Innovative Product Design Capstone Course, book chapter in *Handbook of Research on Recent Developments in Materials Science and Corrosion Engineering Education*, Ed. Hwee Ling Lim, IGI Global, **2015**, 1-20.
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