

Yonghui (Kelly) Wang

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Professional Skills

- 4-year professional experience at Precision NanoSystems developing lipid nanoparticle formulations for nucleic acid delivery on microfluidic platforms (preclinical, tech-transfer, scale up, GMP manufacturing)
- Current research in cancer immunotherapy, cancer vaccines, polymeric drug delivery at University of Washington.
- Working on >40 projects of developing nanoparticle formulations (lipids, polymers) for delivery of nucleic acid (DNA, mRNA, siRNA), peptides and small molecule drugs for preclinical studies.
- Expertise in preparation and characterization of nanoparticles including using microfluidic-based platforms, DLS, NTA, RiboGreen/PicoGreen assay, in vitro drug release assay, potency assay, as well as mammalian tissue culture and transfections of mammalian cell lines.
- Practical knowledge in molecular biology techniques such as gel electrophoresis, Bioanalyzer, NanoDrop, qPCR, ELISA, Western blotting, etc.
- Strong analytical capability in NMR, Mass Spectrometry, UPLC, UV-Vis, flow cytometry, size exclusion chromatography (SEC), mass spectroscopy (MS), fluorescent spectroscopy etc.
- Project management, academic writing, and communication skills.
- Data analysis skills using professional software, such as Prism, OriginPro, Excel, Topspin, Flowjo
- Fluent in English and Mandarin.

Education

Ph.D. Candidate, Department of Bioengineering

University of Washington, Seattle, USA

Advisor: Dr. Suzie H. Pun and Dr. Patrick Stayton

09/2023-2028 (anticipated)

Master of Science, Department of Chemistry

The University of British Columbia, Vancouver, Canada

09/2016 – 05/2019

Bachelor of Engineering, Department of Polymer Science and Engineering

Sichuan University, Chengdu, China

09/2012 – 06/2016

Publication

Song K*, Nguyen DC, **Wang Y**, Jokonya S, Yazdani O, Sellers DL, Stayton PS, and Pun SH, Peptide Vaccine Formulations with Structurally Distinct STING Agonist Drugamers Induce Discrete, Efficacious Antitumor Responses, in submission at PNAS

Nguyen DC*, Song K*, Jokonya S, Yazdani O, Sellers DL, **Wang Y**, Pun SH, Stayton PS, Mannosylated STING Agonist 'Drugamers' for Dendritic Cell-Mediated Cancer Immunotherapy, *ACS Central Science* (2024)

Shao F, **Wang Y**, Sauvé E, Tonge CM, Z, Hudson ZM*, Self-assembly of luminescent triblock bottlebrush copolymers in solution, *Polymer Chemistry* (2020)

Wang Y, Shao F, Sauvé E, Tonge CM, Hudson ZM*, Self-Assembly of giant bottlebrush copolymer surfactants from luminescent organic electronic materials, *Soft Matter* (2019)

Chen Y, Wang R, **Wang Y**, Zhao W, Sun S, Zhao C*, Heparin-mimetic polyurethane hydrogels with anticoagulant, tunable mechanical property and controllable drug releasing behavior, *International Journal of Biological Macromolecules* (2017)

Industrial Experience

Senior Research Associate

01/2022 – 09/2023

Research Associate

08/2019 – 12/2021

Precision NanoSystems (Cytiva, Danaher) Vancouver, Canada

- Design and perform experiments on developing lipid/polymer-based nanoparticle formulations to deliver nucleic acids, small molecules or peptides for gene therapy and vaccines.
- Develop analytical assays to study the physical, chemical properties and stability of nanoparticle formulations
- Perform tech-transfer and pilot studies of large-scale (GMP /GLP) manufacturing of nanoparticle formulations.
- Prepare batch record for GLP toxicology and GMP production, SOPs, reports, meeting minutes and client-faced presentations
- Train and lead laboratory technicians
- Coordinate and communicate with external clients to update project progress.

Research Experience

Research Assistant, Department of Bioengineering, University of Washington

Vancouver, Canada

09/2023 – Present

- Design polymer-based cancer vaccines to target dendritic cells and suppress tumor growth in mice models by activating STING pathway

Research Assistant, Department of Chemistry, The University of British Columbia

Vancouver, Canada

09/2016 – 01/2019

- Designed experiments to synthesize emissive bottlebrush copolymers through multiple step reactions and purifications.
- Analyzed polymer structures by NMR, MALDI-ToF MS and SEC, then troubleshoot and optimized experiment protocols.
- Investigated morphologies and size distributions of self-assembled micelles using DLS, TEM, Cryo-TEM, NTA and AFM, which have potential applications in drug delivery and bioimaging.
- Published the relevant results on the soft matter journal and polymer chemistry journal.

Research Assistant, Department of Polymer Science and Engineering, Sichuan University

Chengdu, China

10/2014– 04/2016

- Designed elastic β -cyclodextrin-based polyacrylamide hydrogels for drug delivery, then characterized by element analysis, FTIR, TGA and DSC (First prize of Outstanding Undergraduate Thesis).
- Synthesized anticoagulant heparin-mimetic polyurethane hydrogels, then characterized by SEM, FT-IR and element analysis. Also studied drug releasing profile and blood compatibility. (Published on *Int. J. Bio. Macromol.*)

Research Assistant, Mitacs Globalink Internship, INRS-Institut Armand-Frappier

Montreal, Canada

06/2015 – 09/2015

- Investigated the effect of cellulose nanocrystals (CNC) in polylactic acid (PLA) film on antioxidant properties (using electrolysis and DPPD reagent) and mechanical properties (tensile strength and Young's Modulus).

Teaching Experience

Teaching Assistant, Department of Chemistry, The University of British Columbia

Vancouver, Canada

09/2016-04/2019

- Assisted with four undergraduate chemistry courses (CHEM121, CHEM154, CHEM123, CHEM211), in charge of 20-30 students each class.
- Held lectures, tutorial sessions, and office hours. Provided verbal and written feedback to students weekly.
- Provided verbal and written feedback to students weekly.
- Demonstrated the use of analytical instruments and troubleshoot experimental problems.