

# Kairui Jiang

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## EDUCATION

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### University of Washington

*Doctor of Philosophy in Bioengineering*

Advisor: Dr. Suzie H. Pun

Seattle, Washington

Sep. 2022 – Present

### University of Southern California

*Bachelor of Science in Biomedical Engineering, Minor in Physics*

- Cumulative GPA: **3.94/4.00** (Graduated *Summa Cum Laude*)
- The AMI Award for Outstanding Research in Biomedical Engineering, 2022
- USC Provost's Undergraduate Research Fellowship, 2019 – 2022
- The Trudi Berwin Student Support Fellowship, 2021
- The Dean's List, 2018 – 2022

Los Angeles, California

Aug. 2018 – May 2022

## RESEARCH

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### Pun Laboratory

*Graduate Research Assistant | PI: Dr. Suzie H. Pun*

- Developing polymer-mediated podocyte-targeting drug delivery strategy to treat focal segmental glomerulosclerosis (FSGS)
- Evaluating mouse kidney health via proteinuria monitoring and immunohistochemistry analysis
- Confirming binding activity of aptamer to parietal epithelial cells via flow cytometry and confocal immunofluorescence imaging

Seattle, Washington

Sep. 2022 – Present

### The Chung Laboratory of Biomaterials and Nanomedicine

*Undergraduate Research Assistant | PI: Dr. Eun Ji Chung*

- Synthesizing a library of peptide amphiphile micelles of varying physicochemical properties to examine the effects on nanoparticles' accumulation in the kidney (**Publication 1**)
- Searching the literature to assess the optimal design of nanoparticle physicochemical properties for kidney-targeted drug delivery (**Publication 2**)
- Applying RGD peptide onto the micelle nanoparticle to target the basolateral membrane of renal tubular epithelial cells for drug delivery
- Testing kidney-targeted micelle nanoparticles in animal models (mouse and pig) and assessing the biodistribution and tissue morphology
- Incorporating polycystic kidney disease (PKD) drug candidates into kidney-targeted micelle nanoparticles and assessing the combinatorial therapeutic potential using *in vitro* PKD models (**Publication 3**)

Los Angeles, California

Jun. 2019 – Aug. 2022

## PUBLICATIONS

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3. Combining Metformin and Drug-Loaded Kidney-Targeting Micelles for Polycystic Kidney Disease. **K. Jiang**, Y. Huang, E. J. Chung, *Cellular and Molecular Bioengineering*, 16: 55-67 (2023).
2. Improving kidney targeting: The influence of nanoparticle physicochemical properties on kidney interactions. Y. Huang, J. Wang, **K. Jiang**, E. J. Chung, *Journal of Controlled Release*, 334 (10): 127-137 (2021).
1. The Effect of Size, Charge, and Peptide Ligand Length on Kidney Targeting by Small, Organic Nanoparticles. Y. Huang, **K. Jiang**, X. Zhang, E. J. Chung, *Bioengineering & Translational Medicine*, 5(3): e10173 (2020). *Featured in the Futures issue*

## TEACHING

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**USC Viterbi | Department of Biomedical Engineering**

Los Angeles, California

*BME Courses Grader*

Jan. 2021 – May 2022

BME 459L: Introduction to Nanomedicine and Drug Delivery

Spring 2022

BME 423: Statistical Methods in Biomedical Engineering

Fall 2021

BME 210: Biomedical Computer Simulation Methods

Spring 2021

- Coordinating with instructors to develop the grading rubric for homework assignments and exams
- Grading assignments and exams about drug delivery, statistical application, and computational simulation in BME
- Hosting office hours to help students with coding and analytical problems in homework and conceptual questions from class

## ACTIVITIES

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**Science Outreach**

Los Angeles, California

*Tutoring Group Member*

Aug. 2018 – May 2019

- Teaching basic science to 2nd and 3rd graders of the elementary school in the USC neighborhood
- Performing simple physical and chemical experiments to explain the science in daily life

## SKILLS

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**Laboratory:** peptide synthesis, HPLC, mass spectrometry (MALDI-TOF, ESI), micelle synthesis & characterization, cell culture, cell proliferation assay, cryostat, H&E staining, immunohistochemistry, immunofluorescence, radial immunodiffusion assay, confocal microscopy, flow cytometry

**Software:** ImageJ, GraphPad Prism, FlowJo, MATLAB, LabVIEW, SolidWorks, R, Microsoft Office Suite