

# Christine E. Wang

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## Education

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**University of Washington, Seattle, WA** **July 2011 – present**

Ph.D. Candidate, Doctor of Philosophy in Bioengineering (*Expected 2016*)

Thesis Advisor: Suzie Pun, Ph.D.

GPA: 4.00/4.00

**Northwestern University, Evanston, IL** **September 2007 – June 2011**

Bachelor of Science in Biomedical Engineering, Minor in Global Health

*Summa Cum Laude*, GPA: 3.97/4.00

**University of Cape Town, Cape Town, South Africa** **March 2010 – June 2010**

Global Healthcare Technologies Study Abroad Program

## Research Experience

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**Graduate Research Assistant, University of Washington** **July 2011 – present**

Advisor: Suzie Pun, Department of Bioengineering

- Synthesizing and evaluating polymeric nanostructures for cancer-targeted drug delivery and enhanced tumor penetration.
- Developing polymer coatings to reduce the *in vivo* immunogenicity of adenoviral vectors for gene delivery.

**Undergraduate Research Assistant, Northwestern University** **September 2009 – June 2011**

Advisor: Lonnie Shea, Department of Chemical & Biological Engineering

- Investigated gene delivery from poly(ethylene glycol) (PEG) hydrogels to promote nerve regeneration following spinal cord injury.
- Characterized PEG hydrogels functionalized with affinity peptides for retention of lipid-based gene delivery vectors.
- Identified novel affinity peptide candidate sequences through phage display to optimize lentiviral gene delivery from PEG hydrogels.

**Summer Undergraduate Researcher, University of Washington** **June 2009 – August 2009**

Advisor: Suzie Pun, Department of Bioengineering

- Investigated internalization mechanisms of neuron-targeted and untargeted polymer-based gene delivery vehicles in different cell lines using pathway inhibitors.
- Explored synthesis of a multicomponent peptide vehicle for *in vivo* gene delivery to hepatocytes.

**Undergraduate Research Assistant, Northwestern University** **June 2008 – March 2009**

Advisor: David Kelso, Center for Innovation in Global Health Technologies, Department of Biomedical Engineering

- Assisted in the development of an improved lateral flow antigen assay for the rapid diagnosis of HIV in infants in resource-limited settings.
- Investigated the effectiveness of heat shock for immune complex disruption.
- Independently conceptualized and developed a chemical heating system to replace the electrical heat block used in the lab's HIV assay.

## Publications

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(\* *equally contributing authors*)

**CE Wang**,\* H Wei,\* N Tan, AJ Boydston, SH Pun. "Sunflower polymers for folate-mediated drug delivery." *Biomacromolecules*, accepted.

**CE Wang**, PS Stayton, SH Pun, AJ Convertine. "Polymer nanostructures synthesized by controlled living polymerization for tumor-targeted drug delivery." *Journal of Controlled Release* 2015; 219:345-354.

H Wei,\* **CE Wang**,\* N Tan, AJ Boydston, SH Pun. "ATRP synthesis of sunflower polymers using cyclic multimacroinitiators." *ACS Macro Letters* 2015; 4(9):938-941.

JA Shepard, AC Stevans, SJ Holland, **CE Wang**, A Shikanov, LD Shea. "Hydrogel design for supporting neurite outgrowth and promoting gene delivery to maximize neurite extension." *Biotechnology and Bioengineering* 2012; 109(3):830-839.

JA Shepard, PJ Wesson, **CE Wang**, AC Stevans, SJ Holland, A Shikanov, BA Grzybowski, LD Shea. "Gene therapy vectors with enhanced transfection based on hydrogels modified with affinity peptides." *Biomaterials* 2011; 32(22):5092-5099.

## Presentations

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**CE Wang**,\* H Wei,\* N Tan, R Yumul, AJ Boydston, SH Pun. "Development of sunflower polymers for tumor-targeted drug delivery." Gordon Research Conference in Cancer Nanotechnology, June 28-July 3, 2015. Poster presentation.

**CE Wang**, A Lieber, D Shayakhmetov, SH Pun. "Identification of adenovirus-binding peptides for use in self-assembling polymer shields." Biomedical Engineering Society Annual Meeting, September 25-28, 2013. Poster presentation.

K Saydaminova, R Yumul, **C Wang**, A Hemminki, A Lieber. "The recombinant tight junction opener JO-1\* decreases hypoxia in tumors." American Society of Gene & Cell Therapy Annual Meeting, May 15-18, 2013. Poster presentation.

JA Shepard, **CE Wang**, AC Stevans, S Holland, LD Shea. "Hydrogels that retain gene therapy vectors can enhance gene delivery leading to increased neurite outgrowth." Tissue Engineering & Regenerative Medicine International Society (TERMIS) North America Annual Conference, December 5-8, 2010. Poster presentation.

## Teaching Experience

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### Teaching Assistant, University of Washington

January 2014 – March 2014

Bioengineering 337: Mass Transport and Systems Laboratory

- Guided 50 undergraduate students through wet lab and computational sessions emphasizing principles of electrical systems, control systems, mass transport, enzyme kinetics, COMSOL modeling, MATLAB analysis, and LabVIEW program development.
- Developed assignment rubrics, graded student lab reports and lab notebooks, and created handouts to teach best practices for scientific writing and figure formatting.

## Honors and Awards

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National Science Foundation Graduate Research Fellowship	2012
Northwestern University Biomedical Engineering Outstanding Academic Record Senior Award	2011
Northwestern University Summer Undergraduate Research Grant	2010
Hill-Urbina Global Health Studies Fellowship, Northwestern University Office of International Program Development	2010
Tau Beta Pi Engineering Honor Society	2009
University of Washington Engineered Biomaterials Summer Research Experience for Undergraduates	2009
Murphy Institute Scholar, McCormick School of Engineering	2007 – 2011
Boeing Foundation Special Initiative Grant	2009

## **Outreach Activities**

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**Time to Invent Program, University of Washington Women’s Initiative (UWWI)** 2011 – present

- Leading fifth grade girls through hands-on activities to encourage interest in invention, science, and engineering.

**Boys Hope Girls Hope, Evanston, IL** 2010 – 2011

- Tutored mathematics to high school students enrolled in Boys Hope Girls Hope, a residential program providing at-risk children with stable homes and academic support.

**Engineering World Health, Northwestern University** 2009 – 2011

- Tested and repaired used medical equipment to be sent to hospitals in developing countries.

**Habitat for Humanity, Northwestern University** 2009 – 2011

- As site leader, coordinated groups of student volunteers for builds in the Chicagoland area.

**Alternative Student Breaks, Northwestern University** 2008 – 2011

- Participated in weeklong domestic and international service-learning trips dealing with issues such as disaster relief, low-income housing, and HIV/AIDS awareness and support.