

Julie Shi

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- Education**
- University of Washington** Seattle, WA
Doctor of Philosophy in Bioengineering, began September 2008.
Advisor: Suzie Pun, PhD.
- Massachusetts Institute of Technology** Cambridge, MA
Bachelor of Science in Chemical-Biological Engineering, June 2008.
Minors in Biomedical Engineering and East Asian Studies.
GPA: 4.6/5.0.
- Delaware Valley High School** Milford, PA
Graduated 1st in class of 352, June 2004.
GPA: 4.7/4.0 (weighted).
- Awards**
- National Science Foundation Graduate Research Fellowship (2009).
National Merit Special Scholarship, 4-year (2004).
Placed 1st in Autonomous Robotics Competition (January 2006).
- Research Experience**
- Pun Lab, University of Washington** Seattle, WA
Graduate Student January 2009 - present
- Investigating use of cationic polymers for gene delivery to neurons.
- Giachelli Lab, University of Washington** Seattle, WA
Graduate Student September 2008 – December 2008
- Investigated fluorescence resonance energy transfer (FRET) sensor for intracellular phosphate concentrations for use in vascular calcification studies.
- Colton Lab, MIT** Cambridge, MA
Undergraduate Research Assistant September 2007 – May 2008
- Designed experiments to determine viability of cancer cells after exposure to chemotherapeutic agents encapsulated in polymeric micelles.
- Institute of Bioengineering and Nanotechnology** Singapore
Research Intern June 2007 – August 2007
- Developed protocols for creating injectable biodegradable hydrogels used in therapeutic protein delivery.
 - Synthesized hyaluronic acid-tyramine for use in hydrogel formation.
- Chemical Engineering Projects Laboratory, MIT** Cambridge, MA
Student February 2007 – May 2007
- Developed and conducted experiments to understand how parameters affected molecular weight of polymer used in targeted drug delivery.
 - Created mass transfer model of polymer synthesis.
 - Designed and conducted experiments to obtain kinetic rate constants of polymer synthesis and Henry's Law constant of PEG and methanol.
- Center for Biological Engineering, Grodzinsky Lab, MIT** Cambridge, MA
Undergraduate Research Assistant November 2006 – May 2007
- Conducted experiments to examine effects of growth factor treatment on cartilage after mechanical injury.

Langer Lab, MIT Cambridge, MA
Undergraduate Research Assistant June 2005 – June 2006

- Conducted experiments to investigate use of biodegradable cationic polymers for gene therapy; results contributed to 2 published papers.
- Conducted experiments to compute DNA/polymer binding constants.

Industry Experience **Biogen Idec** Cambridge, MA
Process Development Intern June 2008 – August 2008

- Examined lot-to-lot differences in resin used in manufacturing process of Tysabri; results were presented to Biogen Idec process development research group.

Advanced Electron Beams, Inc. Wilmington, MA
Marketing Intern June 2006 – September 2006

- Analyzed data for assessing viability of new market segment in volatile organic compound (VOC) destruction using low-voltage electron beam emitters; results were used by company to enter the market.
- Performed research into new markets by compiling data from government databases and Internet.
- Performed statistical analysis on 5 years of manufacturing metrology data of electron beam emitters to improve accuracy of manufacturing emitters by 5%.

Teaching Experience **Chemical Engineering Department, MIT** Cambridge, MA
Tutor February 2008 – May 2008

- Tutored undergraduate students in subjects of fluid mechanics, heat transfer, and chemical reactor engineering.

Publications Green, J.J., Chiu, E., Leshchiner, E.S., Shi, J., Langer, R., Anderson, D.G. (2007)
Electrostatic ligand coatings of nanoparticles enable ligand-specific gene delivery to human primary cells. Nano. Lett. 7(4), p. 874-9.

Green, J.J., Shi, J., Chiu, E., Leshchiner, E.S., Langer, R., Anderson, D.G. (2006)
Biodegradable polymeric vectors for gene delivery to human endothelial cells. Bioconjugate Chem. 17(5), p. 1162-1169.

Activities University of Washington Women's Initiative (2008-present)