Yunxin (Joy) Jiao

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Education

Massachusetts Institute of Technology 2012, Cambridge, MA
Candidate for Bachelor of Science degree in Biological-Chemical Engineering
GPA: 4.9/5.0

Select Honors and Awards

2011 **Merck Engineering & Technology Fellowship Recipient**
2010 **International Genetically Engineered Machines Competition (iGEM): Gold Medalist, Manufacturing Track Winner, and iGEMer's Prize Winner**
2010 **Tau Beta Pi Engineering Honor Society**
2008 **United States Biology Olympiad Silver Medalist**

Publications and Conferences

AL Slusarczyk, J Jiao, L Deming, and R Weiss. "Synthetic morphogenetic gene circuits for scaffold-free tissue self-assembly". First Annual Retreat, NSF Science and Technology Center on Emergent Behaviors of Integrated Cellular Systems, Atlanta, GA, 2011 (poster)

AL Slusarczyk, L Deming, J Jiao, and R Weiss. "Synthetic morphogenetic gene circuits for tissue self-construction". Third US National Committee on Biomechanics Symposium on Frontiers in Biomechanics, Farmington, PA, 2011 (poster)

AL Slusarczyk, J Jiao, L Deming, and R Weiss. "Synthetic morphogenetic gene circuits to drive tissue self-construction". MIT ILP Systems Biology Conference, Cambridge, MA, 2011 (poster)

Y Jiao, LH Deming, SM Galbiati, AC Yang. "Programmable, Self-Constructing Biomaterials." Institute of Biological Engineering National Conference, 2011. Atlanta, Georgia.

J Joy, JM Milwid, M Yarmush, B Parekkadan. "A Mesenchymal Stem Cell Potency Assay." Suppression and Regulation of Immune Responses. Humana Pr, 2010. Print.

S Jiao, J Wang, Y Jiao, CA Puliafito. "Contrast Enhancement in Imaging the Tears and Contact Lenses with Optical Coherence Tomography". Spring Optics and Photonics Congress, 2008. St. Petersburg, Florida. BMD72.

Professional Experience

2011 **Merck Vaccine Process Development Intern: Expression Systems Development**
Intern—Merck, West Point, PA
- Created viruses for baculovirus-insect cell system, infection and viral titering, microreactors work, flow cytometry
- Development of RT-qPCR assay

2011 **Mass Transfer Studies in Novel Single-Use Bioreactors**
Researcher—MIT, Boston, MA
- Determine oxygen transfer properties of the 25L Nuceo bioreactor from ATMI Life Sciences. Use dynamic method to obtain K_La values for various operating condition for E. coli cultures.

2010-Present **Novel RNA-Based Modular Genetic Circuits for Self-Constructing Morphogenic Programs**
Researcher—MIT, Boston, MA
- Design and construction of synthetic bistable and multi-stable mammalian circuits based on transcription factors and RNA, novel mechanosensitive promoters, and osteogenic parts through Gateway and restriction cloning, Sequence Overlap Extension (SOEing) PCR, mini and midipreps, transformation, transfection, production and purification of lentivirus, infection of mammalian cells, and cell line selection.
- Design and construction of straight channel microfluidic devices, two layer microfluidic devices.
- Fluorescent and confocal microscopy, FACS.

2008-2010 **Mesenchymal Stem Cell (MSC) Therapy Research**
Researcher—Shriners Hospital for Children, Boston, MA
- Optimization of Mesenchymal Stem Cell (MSC)-based dialysis device to treat acute renal failure for phase I clinical trial. Animal surgery, histological analysis.
- Investigation of MSC-CM therapeutic activity through cell and molecule-based assays, HPLC, MACS, SDS-PAGE, DNA electrophoresis, and ELISA. High volume cell culture.
- Project resulted in development of novel MSC potency assay, first author publication in Methods in Molecular Biology.

2008-2009 **Optimization of Biofuel Production in Matlab**
Student—MIT, Boston, MA
- Modeled biofuel production plant in Matlab with multiple reactors, recycle streams, phases, and profit analysis. Project culminated in final paper and oral report to the class.

2007-2008 **Contrast Agent for Optical Coherence Tomography (OCT)**
Researcher—University of Miami, Miami, FL
- Tested effectiveness of a biocompatible contrast agent in Optical Coherence Tomography for the study of dry eye and contact lens wear.
- Analyzed results in Matlab. Resulting paper received Intel STS Semifinalist status.

2006-2007 **Howard Hughes Medical Institute Scholars Program**
Researcher—University of Miami, Miami, FL
- Performed immunohistochemistry on paraffin and cryosections to stain for TNF-alpha and other inflammatory markers. Identified retrograde apoptosis in secondary spinal cord injury.

Select Leadership Positions

2009-2011 **Vice President of Outreach: MIT Society of Women Engineers**
Major expansion and restructuring of committees and programs; started new collaborations programs; created two new committee for off-campus outreach for underprivileged neighborhoods.

2009-2010 **Vice President of Philanthropy: Pi Beta Phi Fraternity for Women**
Successfully planned first large campus-wide philanthropy volleyball tournament, Arrowspike. Established Champions Are Readers (CAR) Literacy program with local elementary school.