

Debra T. Auguste

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Education

Ph.D., Dept. of Chemical Engineering, Princeton University, 2005
M.A., Dept. of Chemical Engineering, Princeton University, 2004
S.B., Dept. of Chemical Engineering, Massachusetts Institute of Technology, 1999

Professional Experience

Assistant Professor, Dept. Vascular Biology, Children's Hospital Boston, 2011 - Present
Lecturer, Dept. of Surgery, Harvard Medical School, 2011 - Present
Assistant Professor, School of Engineering and Applied Sciences, Harvard University, 2006 - Present
Postdoctoral Associate, Dept. of Chemical Engineering, MIT, 2004 - 2006
Research Assistant, Dept. of Chemical Engineering, Princeton University, 1999 - 2005

Awards and Honors

National Science Foundation CAREER AWARD, 2011
Elected to "50 Most Influential African American in Technology List," 2010
Participant, US Frontiers of Engineering Meeting hosted by the National Academy of Engineering, 2010
DARPA Young Faculty Award, 2009
Percy Julien Award for Outstanding Scientist of the Year, 2008
Juvenile Diabetes Research Foundation Innovation Award, 2007
Office of Naval Research Young Investigator Program Award, 2007
NJ Biomaterials Research Award, 2004
1930 Wallace Memorial Honorific Fellowship, 2003
GEM Fellowship, 1999, 2001
Ronald McNair Award, MIT, 1999

Professional Memberships

American Institute of Chemical Engineers, 2003
American Chemical Society, 2003
Biomedical Engineering Society, 2004
Harvard Stem Cell Institute, 2006
Society for Biomaterials, 2011
Tissue Engineering and Regenerative Medicine International Society, 2011

Peer-Reviewed Publications

14. You J, Almeda D, Ye GJC, Auguste DT. Bioresponsive matrices in drug delivery. *Journal of Biological Engineering* 2010; 4:15.
13. Gunawan R, Auguste DT. Immunoliposomes that target endothelium in vitro are dependent on lipid raft formation. *Molecular Pharmaceutics* 2010; 7(5):1569-1575.
12. You J, Auguste DT. The effect of swelling and cationic character on gene transfection by pH-sensitive nanocarriers. *Biomaterials* 2010; 31(26):6859-6866.
11. You J, Auguste DT. Conductive, physiologically responsive hydrogels. *Langmuir* 2010; 26(7):4607-4612.
10. Gunawan R, Auguste DT. The role of antibody synergy and membrane fluidity in the vascular targeting of immunoliposomes. *Biomaterials* 2010; 31(5):900-907.
9. You J, Auguste DT. Nanocarrier cross-linking density and pH sensitivity regulate intracellular gene transfer. *Nano Letters* 2009; 9(12):4467-4473. *Highlighted in MRS Bulletin 2010; 35.*
8. Horton R, Millman J, Colton C, Auguste DT. Engineering microenvironments for embryonic stem cell differentiation to cardiomyocytes. *Regenerative Medicine* 2009; 4(5):721-732.
7. Rafat M, Raad D, Rowat A, Auguste DT. Fabrication of reversibly adhesive fluidic devices using magnetism. *Lab on a Chip* 2009; 9(20):3016-3019.
6. Sachlos E, Auguste DT. Embryoid body morphology influences diffusive transport of inductive biochemicals: A strategy for stem cell differentiation. *Leading Opinion Paper, Biomaterials* 2008; 29(34):4471-4480.
5. You J, Auguste DT. Feedback-regulated paclitaxel delivery based on poly(N,N-dimethylaminoethyl methacrylate-co-2-hydroxyethyl methacrylate) nanoparticles. *Biomaterials* 2008; 29(12):1950-1957.
4. Auguste DT, Furman K, Wong A, Fuller J, Armes S, Deming T, Langer R. Triggered release of siRNA from poly(ethylene glycol)-protected, pH-dependent liposomes enhances RNAi delivery. *Journal of Controlled Release* 2008; 130:266-274.
3. Auguste DT, Kirkwood J, Kohn J, Fuller GG, Prud'homme RK. Surface rheology of hydrophobically-modified PEG polymers associating with a phospholipid monolayer at the air-water interface. *Langmuir* 2008; 24(8):4056-4064.
2. Auguste DT, Armes S, Brzezinska K, Deming T, Kohn J, Prud'homme RK. pH-triggered release of protective poly(ethylene glycol)-b-polycation copolymers from liposomes. *Biomaterials* 2006; 27:2599-2608.
1. Auguste DT, Prud'homme RK, Ahl PL, Meers P, Kohn J. Association of hydrophobically-modified poly(ethylene glycol) with fusogenic liposomes. *Biochimica et Biophysica Acta (BBA)* 2003; 1616:184-195.

Chapters

1. **Auguste DT**, Satterstrom FK, Rafat M, You J, "Emerging technologies in nanomedicine," Nanobiomaterials Handbook, CRC Press, 2011.
2. Luo Y, Engelmayer G, Auguste DT, Ferreira L, Karp JM, Saigal R, Langer R. Three-dimensional scaffolds, in Principles of Tissue Engineering, 3rd Ed., Lanza, R., Langer, R., and J. Vacanti (Eds.), Elsevier, 2007.
3. Auguste DT, Prud'homme RK, Ahl PL, Meers P, Kohn J. Polymer-protected liposomes: association of hydrophobically-modified PEG with liposomes. (p. 95-120) in Polymeric Drug Delivery Volume I -Particulate Polymeric Matrices and Drug Particle Engineering, Svenson, S. (Ed.), ACS Symposium Series, Vol. 924, American Chemical Society, 2004.

Patents

1. Feedback-regulated materials including pH-triggered particles. U.S. Provisional Patent Application No.: 61/062,387. Filed January 25, 2008.

Invited Talks/Seminar Presentations (since starting at Harvard)

Engineering Stem Cells of the Vascular System
Frontiers of Engineering Symposium, Harvard University, 2006

pH-triggered, Poly(Ethylene Glycol)-Coated Liposomes for siRNA delivery
University of California Santa Barbara, Society of Biological Engineering, 2006

pH-Sensitive Nanoparticles as a Cancer Therapeutic
Northwestern University, NSF US-Japan Symposium, 2008

Diffusive Transport in Embryoid Bodies
Boston University, Biophysics, 2008

Diffusive Barriers in Stem Cell Differentiation
Hilton Head workshop, Regenerative Medicine, 2009

Responsive Biomatrices for Drug and Gene Delivery
University of Texas at Austin, Biomedical Engineering, 2009

Bioresponsive Therapies for Cancer and Cardiovascular Disease
Polymers in Medicine and Biology, ACS, 2009

Nanocarrier Crosslinking Density and pH-Sensitivity Regulate Gene Transfer
American Chemical Society, 2010

Leukocyte Analogues
Biomedical Engineering Innovator Series, Georgia Tech, 2010

Invited Talks/Seminar Presentations (since starting at Harvard), continued

Leukocyte Analogues for Drug Delivery
University of California at San Diego, College of Pharmacy, 2010

Tissue Origami
Biomedical Engineering Society, 2010

Cellular Analogues for Drug Delivery
University of Michigan, Chemical Engineering, 2011 (rescheduled for fall)

Tissue Origami: Multicellular, Heterogeneous Tissue Engineering
4th International Conference on Tissue Engineering, Crete, Greece, 2011

Other Seminar Presentations

Tumor Biology and Liposome Delivery, Harvard SEAS, Applied Physics 298r, 2006

Drug Delivery and Tissue Engineering, Research Engineering for Undergraduates, Harvard SEAS, 2007

Bioresponsive Matrices for Drug Delivery, Harvard, Systems Biology Retreat, 2007

Leukocyte Analogues, Harvard, Systems Biology Retreat 2009