

ANDREW J. SHOFFSTALL, PH.D.

CURRICULUM VITAE

EDUCATION

Case Western Reserve University, Cleveland, OH May 2013
Ph.D., Biomedical Engineering
Thesis Title: "Synthetic Platelets to Augment Hemostasis"
Advisor: Erin Lavik, Sc.D.

Cornell University, College of Engineering, Ithaca, NY May 2008
Bachelor of Science, Biological and Environmental Engineering

PROFESSIONAL EXPERIENCE

Adjunct Assistant Professor, Dept. of Biomedical Engineering Sept. 2016 - Present
Case Western Reserve University, Cleveland, OH

Post-Doctoral Scientist, VA Research Foundation Sept. 2015 - Present
Louis Stokes VA Medical Center, Cleveland, OH

Healthcare Strategy Consultant, Senior Analyst Sept. 2013 - Aug. 2015
Health Advances LLC, Weston, MA

Ph.D. Student, Research Associate, Dept. of Biomedical Engineering June 2009 - May 2013
Case Western Reserve University, Cleveland, OH

--**President**, Society for Biomaterials, CWRU Chapter Sept. 2011 - Aug. 2012

--**Faculty Representative**, Graduate Student Association Sept. 2012 - Aug. 2013

--**Teaching Assistant**, Department of Biomedical Engineering Jan. 2011 - Dec. 2013

Biomedical Engineer June 2008 - May 2009
Veterans Administration Medical Center, Cleveland, OH

Team Leader, Cornell Solar Decathlon Sept. 2004 - May 2008
Cornell University, Ithaca, NY

NSF Research Experience for Undergraduates (REU) June 2006 - Dec. 2006
Engineering Co-op Program, The Cleveland Clinic, Cleveland, OH

PROFESSIONAL AFFILIATIONS

Society for Biomaterials, Biomedical Engineering Society, American Chemical Society.

ACADEMIC HONORS AND AWARDS

Poster Award, Polymers Initiative Northeast Ohio 2012

Alpha Epsilon/Biological Engineer honor society 2007

Biomedical Engineering Society, Student Travel Award 2006

PUBLICATIONS

Total publications: 11, **Total citations:** 182, **h-index:** 6 [Google Scholar Link](#)
Presentations: 7 oral, 9 poster presentations

In reverse-chronological order:

- 1) Ecker M, Danda V, Shoffstall A, Mahmood S, Joshi-Imre A, Frewin C, Ware T, Capadona J, Pancrazio J, Voit W. "Sterilization of thiol-ene/acrylate based shape memory polymers for biomedical applications." *Macromolecular Materials and Engineering* (2016).
- 2) Lavik E, Kuehn M, **Shoffstall A**, Atkins K, Dumitrescu A, Kwon Y. "Sustained delivery of timolol maleate for over 90 days via subconjunctival injection." *Journal of Ocular Pharmacology and Therapeutics* (2016 In-press).
- 3) **Shoffstall A**, Gaebler J, Kreher N, Niecko T, Douglas D, Strong T, Miller J, Stafford D, Butler M. "The high direct medical costs of prader-willi syndrome: significant financial burden of an orphan condition." *The Journal of Pediatrics* (2016).
- 4) Lashof-Sullivan M, Holland M, Groynom R, Campbell D, **Shoffstall A**, Lavik E. "Hemostatic nanoparticles improve survival following blunt trauma even after 1 week incubation at 50C." *ACS Biomaterials Science & Engineering* (2016).
- 5) Bruckman M, Randolph L, VanMeter A, Hern S, **Shoffstall A**, Taurog R, Steinmetz N. "Biodistribution, pharmacokinetics, and blood compatibility of native and PEGylated tobacco mosaic virus nano-rods and -spheres in mice." *Virology* (2014).
- 6) Lashof-Sullivan M, **Shoffstall A**, Lavik E. "Intravenous hemostats: challenges in translation to patients." *Nanoscale* (2013).
- 7) **Shoffstall A**, Everhart L, Varley M, Soehnen E, Shick A, Ustin J, Lavik E. "Tuning ligand density on intravenous hemostatic nanoparticles dramatically increases survival following blunt liver trauma." *Biomacromolecules* (2013).
- 8) **Shoffstall A**, Atkins K, Groynom R, Varley M, Everhart L, Lashof-Sullivan M, Martyn-Dow B, Butler R, Ustin J, Lavik E. "Intravenous hemostatic nanoparticles increase survival following blunt trauma injury." *Biomacromolecules* (2012).
- 9) **Shoffstall A**, Taylor D, Lavik E. "Engineering therapies in the CNS: what works and what can be translated." *Neuroscience Letters* (2012).
- 10) Thatiparti T, **Shoffstall A**, von Recum H. "Cyclodextrin-based device coatings for affinity-based release of antibiotics." *Biomaterials* (2010).
- 11) **Shoffstall A**, Zaszczurynski P, Butler R, Damaser M. "Development of a device to standardize leak point pressure experiments in rats." *Neurourology & Urodynamics* (2008).

PATENTS

Lavik, E; **Shoffstall, A**; and Ustin, J. "Nanoparticles for controlling bleeding and drug delivery" No: 61/546,826.

FUNDING

 NSF REU Fellowship, NIH T32-Graduate Student Fellowship
PRESENTATIONS**Oral Presentations***(Presenter is underlined if not first author)*

- 1) **Shoffstall A**, Ecker M, Pancrazio J, Voit W, Capadona J. "Validation of Ethylene Oxide Sterilization for Shape Memory Polymer Microelectrodes." Society for Biomaterials, Regional Biomaterials Day 2016, Cleveland, OH.
- 2) Lavik E, Holland M, Lashof-Sullivan M, **Shoffstall A**, Groynom R, Ustin J. "Hemostatic nanoparticles to stop internal bleeding." New Frontier 10th World Biomaterials Conference 2016, Montreal, Canada.
- 3) **Shoffstall A**, Gaebler J, Kreher N, Niecko T, Douglas D, Strong T, Miller J, Stafford D, Butler M. "Analysis of direct medical costs of Prader-Willi Syndrome using administrative claims" Prader-Willi Syndrome Association Scientific Day 2015, Buena Vista, FL.
- 4) **Shoffstall A**, Ustin J, Campbell D, Atkins K, Wu L, Groynom R, Martyn-Dow B, Lavik E. "Synthetic platelets: polymeric nanoparticles to halt uncontrollable hemorrhage." American Chemical Society Spring 2012, San Diego, CA.
- 5) Lavik E, **Shoffstall A**, Wu L, Atkins K, Groynom R, Ustin J. "Nanoparticle to halt internal bleeding: Common biopolymers with uncommon outcomes." American Chemical Society Spring 2012, San Diego, CA.
- 6) **Shoffstall A**, Ustin J, Atkins K, Martyn-Dow B, Groynom R, Everhart L, Sullivan M, Lavik E "Hemostatic nanoparticles increase survival in rat liver injury model" Biomedical Engineering Society 2012, Atlanta, GA.
- 7) **Shoffstall A**, Campbell D, Atkins K, Groynom R, Wu L, Chang S, Martyn-Dow B, Ustin J, Lavik E. "Synthetic platelets to halt bleeding after trauma." Society for Biomaterials, Regional Biomaterials Day 2011, West Lafayette, IN.

Posters*(Presenter is underlined if not first author)*

- 1) Danda V, Ecker M, Frewin C, **Shoffstall A**, Capadona J, Pancrazio J, Voit W. "The Impact of Sterilization on the Mechanical Properties of Shape Memory Polymers for Bioelectronic Medicines." Biomedical Engineering Society 2016, Minneapolis, MN. *(Accepted)*
- 2) Hickman D, **Shoffstall A**, Groynom R, Shoffstall E, Lavik E. "Overcoming CARPA while stopping internal bleeding with hemostatic nanoparticles" Biomedical Engineering Society 2014, San Antonio, TX.
- 3) **Shoffstall A**, Ustin J, Groynom R, Varley M, Everhart L, Sullivan M, Lavik E. "Synthetic platelets reduce bleeding in models of trauma." Society for Biomaterials 2012, Cleveland, OH.
- 4) **Shoffstall A**, Sullivan M, Everhart L, Atkins K, Groynom R, Wu L, Martyn-Dow B, Ustin J, Lavik E. "Synthetic platelets to halt bleeding after trauma." Polymers Initiative Northeast Ohio, Cleveland, OH 2012.

- 5) **Shoffstall A**, Kelly K, Ustin J, Campbell D, Wu L, Lavik E. "Intravenously administered nanoparticles to control bleeding." Society for Biomaterials 2011, Orlando FL.
- 6) Ositelu R, **Shoffstall A**, Atkins K, Groynom R, Wu L, Lavik E. "Steroid delivery from functionalized nanoparticles" Biomedical Engineering Society 2011, Hartford, CT.
- 7) **Shoffstall A**, Campbell D, Wu L, Kelly K, Ustin J, Lavik E. "Synthetic platelets to augment hemostasis in internal hemorrhage" Biomedical Engineering Society 2011, Hartford, CT.
- 8) **Shoffstall A**, Lavik E, Dumitrescu A, Kuehn M, Kwon Y. "Translational technology for neural protection: HPLC quantification of timolol maleate drug-delivery" Biomedical Engineering Society 2010. Austin, TX.
- 9) **Shoffstall A**, Zaszczurynski P, Butler R, Damaser M. "Development of a device to standardize leak-point pressure experiments in rats." Biomedical Engineering Society 2006, Chicago, IL

SERVICE

Journal Peer Reviewer: *Biomaterials, Biosensors, Experimental Biology, ACS Applied Materials & Interfaces, Micromachines, Bioengineering & Translational Medicine, Journal of Neurophysiology*

Outreach:

Hathaway Brown High School student mentor (2011-2012)

Invited presentation to Lakewood High School students on careers in science (2013)

Tutoring high school math and science, North Coast Education Services (2012-2013)

TEACHING AND MENTORING

Co-Instructor, Introduction to Biomaterials Engineering – Laboratory EBME 356, Department of Biomedical Engineering, Case Western Reserve University, Fall 2016 and Spring 2017.

Guest Lecturer, Neural Interfacing EBME 407, Department of Biomedical Engineering, Case Western Reserve University, Spring 2017.

Guest Lecturer, Fundamentals of Clinical Information Systems IIME 473, Department of Biomedical Engineering, Case Western Reserve University, Spring 2016 and Fall 2016.

Graduate Teaching Assistant, Polymers in Medicine EBME 406, Department of Biomedical Engineering, Case Western Reserve University, Spring 2013.

Graduate Teaching Assistant, Applied Tissue Engineering Laboratory EBME 315, Department of Biomedical Engineering, Case Western Reserve University, Fall 2010 and Fall 2011.

MENTORING

-Undergraduate research mentees: Taken: 14; Current: 5

-High School research mentees: Taken: 2; Current: 1

-Informal Mentoring Junior Graduate Students: 5

Undergraduate Students Mentored:

- 1) Mr. Larry Wu, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, May 2010 – May 2011
- 2) Ms. Madelaine Daianu, Summer REU Student, Department of Biomedical Engineering, University of Illinois at Chicago, May 2015 – August 2015
- 3) Mr. Adam Shick, Undergraduate Student, Department of Mechanical Engineering, Grove City College, May 2011 – August 2013

- 4) Ms. Alex Kolberg, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, May 2011 – May 2012
- 5) Mr. Zachary Galligher, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, May 2011 – May 2012
- 6) Ms. Ranti Ositelu, Summer REU Student, Department of Biomedical Engineering, Washington University in St. Louis, May 2011 – August 2011
- 7) Mr. Anton Spencer, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, January 2012 – March 2013
- 8) Mr. Matt Varley, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, May 2012 – August 2013
- 9) Mr. Morgan Bolger, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, May 2012 – August 2013
- 10) Ms. Jen Paiz, Undergraduate Student, Department of Biology, Case Western Reserve University, December 2015 – Present
- 11) Mr. David Miller, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, December 2015 – Present
- 12) Mr. Mitchell Willis Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, December 2015 – Present
- 13) Mr. Jeffrey Finster, Volunteer, Department of Biomedical Engineering, Case Western Reserve University, May 2016 – Present
- 14) Ms. Elizabeth Mancuso, Undergraduate Student, Department of Neurosciences, The Ohio State University, May 2016 – August 2016
- 15) Mr. Suraj Srinivasan, Volunteer High School Student, Strongsville High School, June 2016 – August 2016.
- 16) Ms. Dhariyat Menendez, Undergraduate Student, Department of Biomedical Engineering, Case Western Reserve University, September 2016 – Present.

CAREER DEVELOPMENT/TRAINING

Biomedical Engineering Entrepreneurship Academy , UC Davis	2012
Clinical Immersion/Shadowing Experience , Case Western Reserve University	2012
NIH Spinal Cord Injury Training Program , Ohio State University	2011

TECHNICAL SKILLS

Data analysis: Matlab, VBA, R, SQL, Tableau, SAS, Excel
 Instrumentation: HPLC, GPC, NMR, SEM, UV-VIS, Microscopy
 Polymer nanoparticle synthesis and bioconjugation chemistry
In vitro and *in vivo* models, including small and large animal surgery