ANDREW J ACEVEDO

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EDUCATION

BOSTON UNIVERSITY, College of Engineering Boston, MA
Doctor of Philosophy in Biomedical Engineering, GPA: 3.89 January 2019

- Dissertation Title*:* "Small volume drug release testing using ultrasonic agitation."
- Selected Courses: Biomaterials, Nanomedicine, Biostatistics, Molecular Bioengineering

WASHINGTON UNIVERSITY IN ST. LOUIS, College of Engineering St. Louis, MO
Bachelors of Science in Biomedical Engineering, GPA: 3.61 May 2014
Minor in Economics

- Selected Courses: From Concept to Market, Transport Phenomena I and II, Kinetics in Cell Signaling, Organic Chemistry

RESEARCH EXPERIENCE

BOSTON UNIVERSITY Boston, MA
Doctoral Research Fellow, Department of Biomedical Engineering July 2015 – Present

- Designed and characterized ultrasonic agitation based method for drug release screening of solid dosage forms with applications in early pharmaceutical development and drug quality screening.
- Analyzed how composite polymeric microparticle formation process parameters affect drug release behavior in collaboration with Chemical Engineering Groups in Singapore and MIT.
- Adapted experimental techniques to characterize hydrodynamic environment and investigate fundamental mechanisms of system.
- Automated data collection and analysis processes using equipment and software such as microcontrollers, flow-through setups, MATLAB, R, and ImageJ.
- Created deterministic PDE model tracking particle size distributions to explore solid dissolution processes as controlled by fracture and diffusion events.
- Spearheaded collaborations with cross-disciplinary labs at National University of Singapore, MIT, BU, and graduate students and post-docs in home lab.
- Mentored undergraduate students and assisted with onboarding of new graduate students and post-docs.

Dissolution Scientist, PharmaChk July 2015 – Present

- Built prototype instrument for portable and automated medicine quality screening with multi-disciplinary team at BU and external engineering design firm.
- Integrated ultrasonic agitation drug release screening into larger system consisting of fluid handling, optical, and data analysis components.
- Optimized fluorescent chemistry and aptamer-based assays for small molecule detection in milli-fluidic flow-through cartridge.
- Tested instrument with medicine quality lab in Accra, Ghana, and iterated on instrument design based off of user feedback.
- Defined KPI's for instrument validation in collaboration with Merck Global Health Institute.
- Sourced components for device and maintained working relationships with vendors.
- Presented yearly in-person updates to and wrote monthly and yearly reports for funding sources.

NATIONAL UNIVERSITY OF SINGAPORE Singapore
EAPSI Fellow, Department of Chemical and Biomolecular Engineering June 2016 – August 2016

- Designed and performed experiments to assess drug release behavior from different drug-excipient coformulated microparticles as a function of microparticle formation process parameters.
- Manufactured multiple microparticle systems using microfluidic continuous-flow reactor.
- Analyzed physical and chemical make-up of microparticles using FESEM, DSC, and XRD.
- Completed technology transfer of ultrasonic agitation mediated drug release method with lab in Singapore. Led training session for lab personnel and provided technical support during set up of system.

SCRIPPS FLORIDA Jupiter, FL
Kenan Undergraduate Fellow, Chemistry Department June 2013 – August 2013

- Demonstrated emulsion-based single molecule PCR and *in vitro* transcription/translation as novel method for library generation for directed evolution experiments.
- Quantified extent and homogeneity of bead surface functionalization using qPCR.
- Fabricated PDMS-based microfluidic droplet generators and assessed performance using ImageJ and R.

LEADERSHIP AND AFFILIATIONS

EMORY INTERNATIONAL GLOBAL HEALTH CASE COMPETITION Atlanta, GA
Participant, Boston University Team /Member of International Infectious Disease Advisory Board March 2018

- Devised a strategy to contain the spread of a respiratory disease outbreak at the 2020 World Cup with a cross-disciplinary team comprised of MBA, MPH, and SW students.
- Presented strategy to world leaders in infectious disease control and prevention.

BIOMEDICAL ENGINEERING GRADUATE STUDENT COMMITTEE, Boston University Boston, MA
Executive Co-Chair September 2017 – Present

- Managed activities of 6 sub-committees and budget for all programming and events.
- Initiated professional and career development opportunities including student seminar series and fellowship writing assistance.
- Led discussion between faculty and graduate student body at off-campus retreat to identify areas of improvement in department.

Academic Co-Chair September 2015 – August 2017

- Collected feedback from graduate student body through surveys, Town Halls, and targeted meetings.
- Presented findings to faculty Graduate Committee to revamp core curriculum and Oral Qualifier exam.

BOSTON UNIVERSITY Boston, MA
Graduate Teaching Fellow September 2015 – May 2017

- Assisted professors in Thermodynamics (Biomedical Engineering), Transport Phenomena in Living Systems (Biomedical Engineering), and The Nature of Inquiry II (Kilchand Honors College).
- Created content for and led lab and weekly discussion sections.
- Worked with students individually and in small groups to review and clarify course content.

WEST END HOUSE BOYS AND GIRLS CLUB Boston, MA
Volunteer, STEM programming October 2015 – Present

- Led elementary and middle school students in coding and robotics projects.

SKILLS

Technical: in vitro drug release, UV/Vis spectroscopy, PCR/qPCR, image processing
Software: MATLAB, R, SolidWorks, AutoCAD, ImageJ, Microsoft Excel, PowerPoint, Word

PUBLICATIONS

1. **Acevedo AJ**, Holt RG, Desai D, Zaman MH. Small volume method for drug release screening using ultrasonic agitation. *Analyst.* 2018. 143: 4732-4740.
2. Seager RJ, **Acevedo AJ**, Spill F, Zaman MH. Solid dissolution in a fluid solvent is characterized by the interplay of surface area-dependent diffusion and physical fragmentation. *Scientific Reports.* 2018. 8:7711. doi:10.1038/s41598-018-25821-x
3. Yeap EWQ, NG DZL, Prhashanna A, Somasundar A, **Acevedo AJ**, Xu Q, Salahioglu F, Garland MV, Khan SA; Bottom-up structural design of crystalline drug-excipient composite microparticles via microfluidic droplet-based processing. *Crystal Growth and Dynamics.* 2017, 17 (6), 3030-3039.

REFERENCES

Available upon request