

## Elizabeth Stanford Zulick, Ph.D., MPH

**Address:** 49 N. Mead Street, Charlestown, MA 02129 **Phone:** 978.394.3125 **E-Mail:** Elizabeth.Zulick@gmail.com

### Education Experience

#### **Assistant Teaching Professor, Northeastern University, College of Professional Studies** 8/2016 to current

- Faculty Lead in Life Sciences: Biology, Biotechnology and Post-Baccalaureate Pre-Health programs.
- Developing and teaching courses in Biology and Biotechnology, in partnership with industry leaders.
- Curriculum review, design and implementation, including learning outcome development, program-wide assessment, and development of capstone senior project.
- Local community college outreach and program alignment.
- Networking and cultivating relationships with local biotechnology companies to gain hands-on learning opportunities for our diverse student population.
- Member of the Professional Standard Committee in the College of Professional Studies.
- Overseeing faculty of 20+ adjuncts in Biology, Biotechnology, Chemistry, and Physics, including hosting faculty meetings, faculty development workshops, faculty review and curriculum review.

#### **Instructor, University of Massachusetts, Boston, Bridges to Baccalaureate Program** 6/2014 to current

- Course instructor for Laboratory Math.
- Developed a new course curriculum and program layout.
- The objective of the Bridges to Baccalaureate Program is to advance the careers of community college students interested in pursuing a biomedical research career.

#### **Adjunct Professor, Boston University, College of Arts and Sciences** 9/2015 to 12/2017

- Teaching Introduction to Biology for Health Sciences for 150+ students in a lecture hall setting.
- Developed a new course curriculum and integrated cutting-edge technology into course.

#### **Instructor, Boston University, Metropolitan College** 3/2013 to 12/2017

- Course instructor for Introduction to Biology for Health Sciences, Cell Culture and Techniques, Cell Biology, and Introduction to Basic Laboratory Math.
- Developed a new course curriculum and integrated cutting-edge technology into courses.
- Diverse student population of varying ages, ethnic backgrounds and education levels.

#### **Teaching Assistant, Boston University Metropolitan College** 9/2012 to 12/2012

- Teaching Assistant for Basic Laboratory Math and Molecular Biology
- Small group and one-on-one tutoring for at-risk students.
- Diverse student population of varying ages, ethnic backgrounds and education levels.

### Education and Training

#### **Boston University, Center for Regenerative Medicine** 10/2015 to 7/2016

- Post-Doctoral Fellow in the lab of Dr. George Murphy in the Center for Regenerative Medicine.
- Fellow through the Hematology Training Program at Boston University School of Medicine (NRSA T32).
- My project focused on the role of the aryl hydrocarbon receptor in hematopoiesis, using an induced pluripotent stem cell models, and AAVS1 and CRISPR-CAS9 gene editing.

#### **Boston University, School of Medicine** 9/2011 to 9/2015

- Ph.D. in Molecular Medicine in the lab of Dr. David Sherr in the Environmental Health Department in the School of Public Health, studying the effects of environmental chemicals on breast cancer stem cell biology.
- Involved with multiple collaborations on other projects.
- Expertise in multiple techniques, including: cell culture, mouse models, IVIS imaging, western blotting, RT-qPCR, flow cytometry, ChIP, virus production, transfection, transduction, etc.

#### **Boston University, School of Public Health** 9/2009 to 5/2011

- Masters in Public Health, concentration in Environmental Health.

#### **Union College** 9/2005 to 6/2009

- Bachelor of Science, Biology and Anthropology double major. Magna Cum Laude.

## Research Experience

**Research Assistant, Boston University, School of Public Health. PI: Dr. David Sherr** 9/2009 to 8/2011

- Research focused on breast cancer and the regulation of genes that control malignant cell growth.
- Perform retroviral transductions using a lenti-viral system, flow cytometry, RT-qPCR, cell culture, western blotting, and luciferase assays.
- Trained rotating students, new technicians and undergraduate students.

**Intern, Framingham, MA Board of Health** 5/2010 to 5/2011

- Capstone project for Master's Degree. Interned under Director of the Board of Health, Ethan Mascoop, on the re-licensing of a local chemical transfer, storage, disposal facility (TSDF).
- Project focuses on capacity of TSDFs in Massachusetts and the need for one in an underserved community in Framingham, MA.

**Research Assistant, Union College, PI: Dr. Scott Kirkton** 6/2008 to 6/2009

- Research focused on insect respiration and physiology.
- Worked on an individual research project focusing on the effect of varying oxygen concentrations on the production of lactic acid in the legs of American locusts.
- Troubleshot new technologies in the lab, including developing a validated fluorometric assay.

**Research Assistant, Boston Children's Hospital. PI: Dr. Martha Murray** 6/2007 to 12/2009

- Research focused on the regeneration and regrowth of the ACL.
- Worked on an individual research project focusing on the effect of synovial fluid enzymes on the degradation of synthetic sponges used to promote ACL regrowth.
- Assisted on various projects in the lab, including porcine ACL surgeries.

## Awards

**Russek Student Achievement Day, Boston University** 5/1/2015

- 2<sup>nd</sup> Place Student Abstract and Poster

**Environmental Protection Agency STAR Fellowship** 6/2014 to 6/2015

- Award to study the effects of environmental exposures on breast cancer.

**Society of Toxicology Graduate Student Travel Award** 3/2015

- Funding to travel to San Diego, CA for SOT Annual Meeting.

**New England Society of Toxicology Student Travel Award, 1<sup>st</sup> Place.** 3/2014

- Funding to travel to Phoenix, AZ for SOT Annual Meeting.

**Boston University School of Medicine Student Travel Award** 3/2014

- Funding to travel to Phoenix, AZ for SOT Annual Meeting.

**ArtBecause "Seed the Scientist" Grant Recipient** 10/2012-10/2014

- Award to study breast cancer prevention and the effect of environmental exposures.

**Boston University School of Medicine Levinsky Fellow** 9/2011-9/2013

- Student stipend support awarded to the top-ranked first-year Ph.D. student.

**Union College Dean's List** 2005-2009

## Publications

- Ash PEA, **Stanford EA**, Al Abdulatif A, Ramirez-Cardenas A, Ballance HI, Boudeau S, Jeh A, Murithi JM, Tripodis Y, Murphy GJ, Sherr DH, Wolozin B. (2017) Dioxins and related environmental contaminants increase TDP-43 levels. *Mol Neurodegener*, 12(1):35. PMID: 28476168.
- **Stanford, E.**, Wang, Z., Novikov, O., Mulas, F., Landesman-Bollag, E., Monti, S., Smith, B., Seldin, DC, Murphy, M., Sherr, D. (2016). The role of the AHR in the development of cells with molecular and functional characteristics of breast cancer stem cells. *BMC Biology*, 14(20). DOI:10.1186/s12915-016-0240-y
- **Stanford, E.**, Ramirez-Cardenas, A., Wang, Z., Novikov, O., Alamoud, K., Koutrakis, P., Mizgerd, J., Genco, C., Kukuruzinska, M., Monti, S., Bais, M., M., Sherr, D. (2016). Role for the Aryl Hydrocarbon Receptor and Diverse Ligands In Oral Squamous Cell Carcinoma Migration and Tumorigenesis. *Molecular Cancer Research*. DOI: 10.1158/1541-7786.MCR-16-0069
- Smith, B., **Stanford, E.**, Sherr, D., Murphy, G. (2016). Genome editing of the CYP1A1 locus in iPSCs as a platform to map AHR expression throughout human development. *Stem Cells International*, 2016 Edition. DOI:10.1155/2016/2574152

- Parks, A., Pollastri, M., Hahn, M., **Stanford, E.**, Novikov, O., Franks, D., Haigh S., Narasimhan, S., Ashton, T., Hopper, T., Kozakov, D., Beglov, D., Vajada, S., Schlezinger, J., Sherr, D. (2014). In Silico Identification of an Aryl Hydrocarbon Receptor (AHR) Antagonist with Biological Activity In Vitro and In Vivo. *Mol Pharmacol*, 86:593–608.
- Novikov, O., Wang, Z., **Stanford, E.**, Parks, A., Ramirez-Cardenas, A., Landesman-Bollag, E., Lakloun, I., Sarita-Reyes, C., Gusenleitner, D., Li, A., Monti, S., Manteiga, S., Lee, K., Sherr, D. (2016). An Aryl Hydrocarbon Receptor-mediated Amplification Loop that Enforces Cell Migration in ER-/PR-/Her2- Human Breast Cancer Cells. *Molecular Pharmacology*, 90(5). DOI: <http://dx.doi.org/10.1124/mol.116.105361>
- Palmer, M., **Stanford, E.**, & Murray, M. M. (2011). The Effect of Synovial Fluid Enzymes on the Biodegradability of Collagen and Fibrin Clots. *Materials*, 4(8), 1469–1482.

### **Presentations and Posters (a selection)**

- 3/14/16: Society of Toxicology Annual Meeting (2016), New Orleans, LA. Oral presentation: “The role of the aryl hydrocarbon receptor and its diverse ligands on oral cancer migration and tumorigenesis”.
- 5/18/15: Student Commencement Speaker, Boston University, School of Medicine, Boston, MA.
- 5/1/15: Russek Student Achievement Day, Poster presentation: “The role of the aryl hydrocarbon receptor in molecular and functional characteristics of breast cancer stem cells”.
- 3/22/15: Society of Toxicology Annual Meeting (2015), San Diego, CA. Poster presentation: “The role of the aryl hydrocarbon receptor in molecular and functional characteristics of breast cancer stem cells”.
- 9/23/14: Affinity Research Collaborative Mini-Symposium, Boston University School of Medicine. Oral/PowerPoint Presentation Title: “The Role of the Aryl Hydrocarbon Receptor in Oral Cancers”
- 3/26/14: Society of Toxicology Annual Meeting (2014), Phoenix, AZ. Poster presentation: “The aryl hydrocarbon receptor controls breast cancer stem-like cell development and function”. Research presented orally by Dr. David Sherr.
- 2/7/14: Molecular Medicine Data Club, Boston University School of Medicine. Oral/PowerPoint Presentation Title: “Exploring the role of the AHR in Breast Cancer Stem Cell Development, Maintenance and Function”
- 10/30/13 Boston University Center for Regenerative Medicine Seminar, Boston University School of Medicine. Oral/PowerPoint Presentation Title: “The role of the AHR in Breast Cancer Stem Cell Development, Maintenance and Function”
- 10/30/13 Affinity Research Collaborative Mini-Symposium, Boston University School of Medicine. Oral/PowerPoint Presentation Title: “AhR Mediated Exposures in Breast Cancer”
- 4/2/13: Boston University Scholars Day. Poster title: “The Role of an Environmental Chemical Receptor (the AhR) in Breast Cancer Stem Cell Development, Function and Maintenance”