

Rebecca A Fisher, PhD

EMPLOYMENT

Education Outreach Scientific Director **2018-2021**
Ochsner Health, New Orleans LA

Education Outreach Program Manager **2016-2021**
Ochsner Health, New Orleans LA

Education Outreach at Ochsner Health is committed to developing a well prepared and informed workforce pipeline for health sciences and positively impacting K-12 education outcomes through connecting classroom to career, increasing equitable access to high-quality learning, enhancing STEM literacy and driving student achievement and confidence in science. This is achieved by providing active learning opportunities and resources for students, supporting professional development opportunities for teachers, building community partnerships and developing inquiry-based, hands-on curriculum.

Post Doctoral Researcher **2012-2016**
Stanley S Scott Cancer Center
Louisiana State University Health Sciences Center, New Orleans LA
Mentor: Michael Hagensee, MD, PhD

Research in the Hagensee Lab focuses on viral interactions in oncology with an emphasis on the influence of human papillomavirus in oncogenesis in persons living with HIV as well as screening protocol development to minimize HPV related morbidity.

EDUCATION

PhD Biochemistry **2012**
Tulane University School of Medicine, New Orleans, LA
Dissertation: "Brevetoxin as a Model Analyte for Aquatic Immunosensor Applications"
Advisor: Diane A Blake, PhD

BS Biomedical Engineering, Magna cum Laude **2004**
Michigan Technological University, Houghton, MI

TEACHING & MENTORING

SCIENCE OUTREACH

Developed, organized and facilitated various programs and events targeted to students, teachers and the general public designed to enhance awareness and interest in science.

iLab Field Trip Manager & Lead Facilitator, Ochsner Health **2016-2021**

- Managed capacity, scheduling and curriculum selection for iLab field trips.
- Taught science concepts and laboratory techniques to students grades 6-12.
- Increased iLab utilization by 50% prior to the COVID-19 pandemic.

Lead Curriculum Developer, Ochsner Health **2016-2021**

- Designed K-12 teacher professional development workshops emphasizing the importance of science and engineering practices in student learning.
- Expanded iLab offerings from a single DNA experiment to five different options, providing a range of biomedical topics and targeted to different student levels.
- Created two new and revised two existing biotechnology experiments for high school students as part of the NIH funded BEST Science! Program.
- Supervised and instructed volunteers guiding students in hands-on science activities at large scale community events.

AWIS Education Outreach Committee Member, LSU HSC **2015-2016**

- Developed a partnership with the New Orleans Public Library system to provide hands-on activities during weekend library hours to promote interest in STEM careers.
- Created curriculum and engaged students in hands-on STEM activities.

RESEARCH MENTORING

Provided formal mentoring and instruction in scientific research to students.

Science Fair Project Mentor, Ochsner Health **2016-2020**

- Guided 2-3 students per year in grades 6-12 in formulation of a project based on their topic of interest including advice on experimental design, data collection and analysis.
- Supervised on campus data collection with provided equipment and supplies.

STAR Summer Program Scientific Lead, Ochsner Health **2016-2021**

- Created new distance learning curriculum for the 2020 program, ensuring the program continued during COVID-19 pandemic restrictions.
- Revised the lab curriculum to increase ease of participation for Ochsner research staff.
- Developed and facilitated a 15 hour research module including sessions on reading and analyzing scientific journal articles, experimental design, and data visualization.

Summer Research Program Mentor, LSU HSC **2014-2016**

- Mentored 1-3 undergraduate students per summer in a research project.
- Assisted PI in developing clinical and basic science student projects.
- Instructed students in basic science lab techniques and supervised all lab activities.
- Ensured students understood scientific concepts, project rationale and the role of the project in the context of the research landscape of the lab.
- Advised students and provided feedback on research poster design.

PROJECT EVALUATION & ASSESSMENT

Analyzed outreach program efficacy data and designed new data collection instruments. Judged student research projects on experimental design, science knowledge and communication skills by conducting interviews, reviewing research posters and assessing other project components.

Program Evaluation Lead, Ochsner Health **2016-2021**

- Reevaluated purpose and intended outcomes for all Education Outreach programs.
- Redesigned data collection instruments to better capture intended outcomes.
- Analyzed and prepared reports and figures on evaluation metrics for all Education Outreach programming.
- Created formal selection rubric for STAR Summer Program applications to enrich diversity among student participants.

Middle and High School Science Fair Judge, Ochsner Health **2016-2020**

- Assessed projects in a wide range of STEM disciplines including chemistry, biology and engineering at 4-5 different schools in the greater New Orleans area.
- Provided students with feedback to improve projects.

Greater New Orleans Science and Engineering Festival Judge, Ochsner Health **2016-2021**

- Judged 6-12 grade student projects in 1-3 categories focused on biology and chemistry.
- Provided students with feedback to improve projects.
- Caucused with other category judges to select top category performers for awards.
- Participated in selection of the overall Grand Award winners.

LSU HSC Research Days Judge, LSU HSC and Ochsner Health **2012-2019**

- Assessed 3-5 student projects per event in biochemistry, immunology or viral oncology.
- Judged across all categories of students from high school interns to medicine subspecialty fellows.

RESEARCH ACTIVITIES

Hagensee Lab, LSU HSC **2012-2016**

- Managed an independent research project including: project development, securing funding (~\$50,000), budgeting, carrying out investigations, and reporting outcomes.
- Supervised sample processing, analysis and data management for 6 distinct research projects involving 5 faculty laboratories and staff at 6 institutions.
- Presented scientific concepts and original research to a wide variety of audiences from elementary school children to physicians and fellow research scientists.
- Analyzed large datasets using Microsoft Excel and IBM SPSS statistical software to determine biologic, demographic, and behavioral factors associated with disease.

Blake Lab, Tulane University **2005-2012**

- Led a multidisciplinary team in validation of a novel water contaminant sensor, culminating in a publication and presentation at an international scientific conference.
- Obtained funds from two sources for travel to an international meeting for a research presentation and to Los Alamos National Laboratory to learn a new research technique.

HONORS & AWARDS

- Brown Foundation, Support STEM, Pilot Grant** **2019**
 “Encouraging Inquiry Teacher Professional Development”
Provided funds to host 100 K-12 educators for professional development on incorporating experiential, inquiry-based teaching practices to better align with the Next Generation Science Standards emphasizing science and engineering practices.
- Association for Women in Science- Southeast Louisiana Chapter (AWIS-SL)** **2014**
Outstanding Young Scientist Travel Award
Presented research at the 29th International Papillomavirus Conference in Seattle, WA.
- Louisiana Clinical & Translational Science Center, Pilot Grant** **2013**
 “HPV and EBV Serum Antibodies as Prognostic Markers for Cervical Cancer”
Provided funds for laboratory supplies and consumables for original research on identification of immunological biomarkers useful for predicting cervical cancer in HIV+ women.
- Louisiana Board of Regents NSF EPSCoRE LINK, Travel Grant** **2011**
 “Use of recombinant display technology for the enhancement of binding characteristics of brevetoxin monoclonal antibodies”
Funded travel to Los Alamos National Laboratory in New Mexico to learn new lab techniques.
- Tulane Student Government Travel Award** **2009**
Funded travel to the 9th Workshop on (Bio)sensors and Bioanalytical Techniques in Environmental and Clinical Analysis in Montreal, Canada to present research.
- Michigan Tech Summer Undergraduate Research Fellowship** **2003**
 “Mechanotransduction in Soft Tissues”
Funded research experience with Tammy L Haut Donahue, PhD, Mechanical Engineering.
- Michigan Space Grant Consortium Undergraduate Research Award** **2003**
 “FAK/MAPK Signal Transduction with Mechanical Loading of Muscle in Vivo”
Transferred to “Mechanotransduction in Soft Tissues” project.
- 3rd place Undergraduate Research, Michigan Tech Undergrad Expo** **2004**
 “Quantification of Type I Collagen Following Mechanical Stimulation of Meniscal Cells ”
Oral & Poster presentation.
- Robert C Byrd Honors Scholarship** **2000-2004**
Federal merit-based program to award exceptional high school seniors who show promise for continued scholastic excellence.
- Michigan Technological University Tuition Scholarship** **2000-2004**
Merit-based university award covering tuition and fees for 8 semesters.

PRESENTATIONS

Fisher, R.A.; Messina, S.; Muller, D.; Cusacks, K.; Sharai, A. (2019) "How to Create an Effective Partnership Between Industry and Education." LaSTEM Statewide Summit 2019, Baton Rouge LA, September 7. *Oral Presentation*.

Fisher, R.A.; Messina, S.; Muller, D.; Sharai, A. (2018) "Creating NGSS Aligned Science Curriculum." LaSTEM Statewide Summit 2018, Baton Rouge, LA, September 7. *Oral Presentation*.

Fisher, R.A.; Messina, S.; Gregory, P.; Tsien, F.; Beckers, G.; Thomas, A.K.; Sharai, A.; Alam, J. (2017) "BEST *Science!* Bioscience Enrichment for Students and Teachers". NIH SciEd Conference, Washington DC, May 31. *Poster Presentation*.

Fisher, R.A.; Melton, S.J.; Ferguson, A.; Oddo, H.; Hagensee, M.E.(2015) "The role of Epstein-Barr Virus in cervical cancer: Exploring the immunological mechanisms for production of anti-EBV IgA in high risk women with dysplasia." American Association of Immunologists Annual Meeting, New Orleans, LA, May 11. *Poster Presentation*.

Fisher, R.; Crosby, R; Nelson, N; Hagensee, M; Cameron, J (2015) "Risk factors for cervical Epstein-Barr Virus detection in rural Appalachian women." Louisiana Cancer Research Consortium Retreat, April 10. *Poster Presentation*.

Fisher, R.A.; Melton, S.J.; Ferguson, A.; Oddo, H.; Hagensee, M.E.(2014) "Serum antibodies against HPV and Epstein-Barr virus as predictors of cervical disease in HIV+ women". 29th International Papillomavirus Conference, Seattle WA, August 24. *Poster Presentation*.

Fisher, R.A.; Melton S.J.; Ferguson, A.; Oddo, H.; and Hagensee, M. E. (2013) "Association of EBV and HPV Serum Antibodies with Cervical Dysplasia in HIV+ Women". Texas & South Central Branch of American Society for Microbiology Meeting, November 1. *Oral Presentation*.

Fisher, R.A. (2011) "Brevetoxin monitoring: Selection of monoclonal and recombinant antibodies". New Orleans Protein Folding Intergroup, December 1. *Oral Presentation*.

Fisher, R.A. and Blake, D.A. (2009) "A prototype autonomous submersible immunosensor for the analysis of marine contaminants". 9th Workshop on (Bio)sensors and Bioanalytical Techniques in Environmental and Clinical Analysis. Montreal, Canada, June 14-17. *Poster Presentation*.

PUBLICATIONS

Ware SL, Crosby R, **Fisher R**, Hagensee ME. Human Papillomavirus Prevalence Is Associated With Socioeconomic Gradients Within a Medically Underserved Appalachian Region. Sex Transm Dis. 2017 Dec;44(12):750-755. doi: 10.1097/OLQ.0000000000000675. PubMed PMID: 28876304.

Crosby RA, Hagensee ME, **Fisher R**, Stradtman LR, Collins T. Self-collected vaginal swabs for HPV screening: An exploratory study of rural Black Mississippi women. Prev Med Rep. 2017 Sep;7:227-231. doi: 10.1016/j.pmedr.2016.12.014. eCollection 2017 Sep. PubMed PMID: 28879068; PubMed Central PMCID: PMC5575437.

Fisher RA, Melton SJ, Blake DA. A Submersible Immunosensor. International Journal of Environmental Analytical Chemistry. 2011; 91:123137. <https://doi.org/10.1080/03067311003628653>

PROFESSIONAL MEMBERSHIPS

National Science Teaching Association	2020-
Association for Women in Science, Southeast Louisiana Chapter	2013-2016
American Association of Immunologists	2015-2016