

ALEX SCHIFFER

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PERSONAL PROFILE

Research biologist with a strong background in molecular biology, extensive microscopy experience, and experience utilizing an array of lab techniques in multiple model organisms.

WORK EXPERIENCE

BOSTON CHILDREN'S HOSPITAL

Research Assistant III, October 2016 to Present

- Performed genetic knockdown (morpholino) and knockout (CRISPR/Cas9) experiments in zebrafish
- Validated candidate genes through in-vivo zebrafish assays using fluorescence and confocal microscopy
- Extracted and quantified total protein from zebrafish embryos and mice tissues
- Analyzed protein expression via western blots and whole-mount in-situ hybridization (WISH)

NORTHEASTERN UNIVERSITY

Intern, August 2016 to October 2016

- Screened *C. elegans* for potential mutants using PCR and digestion based genotyping
- Injected *C. elegans* using CRISPR/Cas9 to create specific mutations through HDR
- Cloned a variety of plasmids through round-the-horn (RTH) PCR and Gibson assembly
- Cut down on genotyping time by over 6 hours by implementing and optimizing tetra-primer ARMS PCR

UCF D3 ECOLOGY LAB

Undergraduate Research Assistant, January 2013 to May 2015

- Ensured quality of large data sets on biogeography and biodistribution of microorganisms
- Assisted with experimental design and construction of tests for analysis
- Wrote R scripts for geospatial analysis of rotifer and zooplankton biodistribution

EDUCATION

BOSTON UNIVERSITY

Master of Engineering in Biomedical Engineering, May 2016, 3.96 GPA

- Emphasis in molecular bioengineering and synthetic biology.
- Laboratory coursework in molecular and synthetic biology labs. Performed research in yeast and mammalian cells, including molecular cloning, expression vector creation, transfection, fluorescence labeling and imaging, and reporter gene assays.

UNIVERSITY OF CENTRAL FLORIDA

Bachelor of Science in Biology, May 2015, 3.78 GPA

- Emphasis in evolutionary biology and pre-professional health sciences.
- Coursework in biochemistry, molecular cell biology, organic chemistry, and immunology.

SKILLS

- **MICROSCOPY:** experience using bright field, fluorescent, and confocal microscopes for standard and custom assays. Familiar with image analysis software (ImageJ, FIJI, Imaris, NIS-Elements, Zeiss Zen, Axiovision).
- **MOLECULAR BIOLOGY:** gel electrophoresis, western blot, RTH PCR, ARMS PCR, colony PCR, DNA assembly through various cloning methods (Gibson, MoClo, traditional, round-the-horn), DNA extraction and purification, protein extraction and quantification, bacterial and yeast transformation, mammalian cell culture, reporter gene assays.
- **BIOINFORMATICS:** DNA alignments, BLAST, BLAT, CRISPR gRNA design, primer design, familiar with many software packages (SnapGene, Benchling, CLC, GIMP), experience with statistical programs (STATA, R, Python, EXCEL).
- **MODEL ORGANISMS:** *C. elegans* (genotyping, phenotyping, microinjection), *Danio rerio* (maintenance of genetic diversity, crossing, microinjection, fin clip, de-chorionation, euthanasia), *Mus musculus* (genotyping, intraperitoneal and subcutaneous injections, breeding).

Publications

1. Khajavi M, Zhou Y, Birsner AE, Bazinet LF, Di Sant AR, **Schiffer AJ**, Rogers MS, Krishnaji ST, Hu B, Nguyen V, Zon L, and D'Amato RJ. (2017) Identification of Padi2 as a novel angiogenesis-regulating gene by genome association studies in mice. PLOS Genetics.
2. Williams LM, Fuess LE, Brennan JJ, Mansfield KM, Salas-Rodriguez E, Welsh J, Awtry J, Banic S, Chacko C, Chezian A, Dowers D, Estrada F, Hsieh Y, Kang J, Li W, Malchiodi Z, Malinowski J, Matuszak S, McTigue T, Mueller D, Nguyen B, Nguyen M, Nguyen P, Nguyen S, Njoku N, Patel K, Pellegrini W, Pliakas T, Qadir D, Ryan E, **Schiffer AJ**, Thiel A, Yunes SA, Spilios KE, Pinzón JH, Mydlarz LD, Thomas D. Gilmore. (2018) A conserved Toll-like receptor-to-NF- κ B signaling pathway in the endangered coral *Orbicella faveolata*. Developmental & Comparative Immunology.