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| CONTACT INFORMATION | 185 Meeting Street Brown University Providence, RI 02906 | <i>e-mail:</i> alejandro_scaffa@brown.edu <i>www:</i> www.alejandroscaffa.com |
| INTERESTS | Research, clinical science, startups, high throughput biology, CRISPR, and physiology. | |
| EDUCATION | Brown University , Providence, Rhode Island USA Ph.D. Candidate, Molecular Pharmacology and Physiology <ul style="list-style-type: none"> • Dissertation Topic: "The effect of senescence in the neonatal lung exposed to hyperoxia" • Adviser: Prof. Phyllis Dennery M.D. M.A., Molecular Pharmacology and Physiology | expected: Dec 2019 May 2016 |
| | Grinnell College , Grinnell, Iowa USA B.A. with honors, Biochemistry | May 2014 |
| | Danish Institute for Study Abroad (DIS) , Copenhagen, Denmark Visiting Student - Biomedicine Semester Abroad | Aug - Dec 2012 |
| HONORS AND AWARDS | Google Developer Challenge Scholarship , Google and Udacity Best Aging in Place Hack , MIT Hacking Medicine Grand Hack, Cambridge, MA Pharmacology Pre-Doctoral Fellow , Brown University, Providence, RI 1st Prize in Biochemistry, Best in Category, and naming rights of a minor planet , Intel International Science and Engineering Fair (ISEF) co-hosted by Google, San Jose, CA | 2018 2016 2015 2010 |
| CURRENT RESEARCH | The Effect of Senescence in Neonatal Lung Exposed to Hyperoxia P.I.: Dr. Dennery Premature infants exposed to hyperoxia and ventilation may develop bronchopulmonary dysplasia (BPD), a chronic lung disorder characterized by arrested alveolar development and damaged alveoli. This results in a continued need for supplemental oxygen beyond 36 weeks of gestation. I aim to describe mechanisms leading to hyperoxia-induced senescence in lung epithelial cells and its connection to metabolism in the lung after trauma. | |
| INDUSTRY EXPERIENCE | Scientific Adviser, Neurocurious , Providence, RI Neurocurious's main product was a smart computer-vision software that analyzed mouse behavior. As the first non C-level employee, my role included giving scientific lectures, translating biology into computer science problems, and fostering connections for sales and collaborations. Neurocurious was sold to Vium. | May 2016 - Feb 2017 |
| PAST RESEARCH | Understanding the effect of Splicing in Autism Spectrum Disorders (ASD) - P.I.: Dr. Fairbrother I used computational biology techniques, high throughput splicing assays, and CRISPR aimed to characterize pre-mRNA splicing abnormalities on mutations relevant to ASD. | |
| | Optimizing expression, purification, and refolding of the MqsR toxin from <i>Y. pestis</i> and <i>P. fluorescens</i> in <i>E. Coli</i> - P.I.: Dr. Page We aimed to purify and refold MqsR, the toxin to antitoxin MqsA, acquired from inclusion bodies in <i>E. Coli</i> in order to obtain large amounts for structural analysis. | |

Elucidating the structure of mutant Protein Tyrosine Phosphatase 1B (PTP1B) using X-Ray Crystallography and NMR - P.I Dr. Peti

We elucidated the structure of the PTP1B with mutation Y152A/Y153A using X-Ray Crystallography after optimization to obtain better crystals.

Determining the structure of the N-terminal domain (NTD) of TAR DNA-binding protein 43 (TDP-43) and the effect of phosphorylation on its assembly - P.I.: Dr. Fawzi

We studied how phosphorylation and point mutations affect TDP-43's monomeric/oligomeric equilibrium in order to stabilize the NTD monomeric form and solve it via NMR.

Improving purification of Torpedo nicotinic acetylcholine receptor (nAChR) for LC-MS Studies - P.I.: Dr. Levandoski and Dr. Marzluff

Improved purification of nAChR for better LC-MS sample preparation and eventual characterization. Also used voltage clamp techniques to study changes in nAChR to mutations in *Xenopus* oocytes. Research done throughout academic year and one full-time summer

PUBLICATIONS,
ABSTRACTS, AND
PRESENTATIONS

Scaffa A. (review) "CRISPR Precision Gene Editing Congress Post Event Report". CRISPR Congress 2016.

Scaffa A., Glidden, D., Soemedi R., Fairbrother W. (abstract) "Engineering splicing mutations in HEK 293 cells using CRISPR/Cas9 system". Genome Engineering: The CRISPR/Cas Revolution, Cold Spring Harbor Laboratories 2015.

Scaffa A. and Page R. (presentation) "Elucidating the structure of Protein Tyrosine Phosphatase 1B YAYA". First Year Talk, Brown University 2015.

Scaffa A., Levandoski M., Marzluff E. (abstract and presentation) "Elucidating the allosteric binding site of nicotinic acetylcholine receptors via liquid chromatography mass spectrometry". Midstates Conf. for Math and Science, U. of Chicago 2013.

SKILLS

Programming Languages: Python, Julia, Unix, and basic knowledge of HTML/CSS

Languages: Fluent: English, Portuguese, Spanish; basic knowledge of Bulgarian and Danish

Laboratory: Experience with NMR, X-Ray Crystallography, LC-MS, protein purification, DNA manipulation, *E. Coli* expression, western blots, senescence, developmental lung, voltage-clamp, frog surgery, splicing assays, CRISPR, scientific writing and scientist to layman communication.

TEACHING
EXPERIENCE

Effective Performance: Improv. and Performance Techniques Brown University 2018

Certificate I: Sheridan Teaching Seminar - Reflective Teaching, Brown University 2015

Brazilian Portuguese Curriculum Developer, Grinnell College Jan 2013 - May 2014
Developed a teaching guide and a syllabus for Portuguese courses and online tests.

Biochemistry (BCM 262) Teaching Assistant, Grinnell College Aug - Dec 2013
Held mentor sessions and provided support to Dr. Elizabeth Trimmer during all class sessions.

General Chemistry (CHM 129) Laboratory Assistant, Grinnell College Jan - May 2013
Helped Dr. Trimmer by enforcing laboratory safety, explaining procedures, and grading students.

Brazilian Portuguese I and II Instructor, Grinnell College Aug 2011 - Jun 2012
Created syllabus and developed dynamic presentations about Portuguese language and culture.

COMMUNITY
INVOLVEMENT

Department Representative, Brown University Oct 2015 - Present

Class Representative of Psychopharmacology, DIS, Copenhagen Aug 2012 - Dec 2012

Leader on the Internat. Pre-Orientation Program, Grinnell College Aug 2011 - Oct 2011