BIOGRAPHICAL SKETCH

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NAME: Reggiardo, Roman

eRA COMMONS USER NAME (credential, e.g., agency login): RREGGIAR
POSITION TITLE: Trainee

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
UC Santa Cruz	BS	10/2012	6/2017	Biochemistry and Molecular Biology
UC Santa Cruz	PhD	9/2017	In Progress	Bioengineering and Bioinformatics

A. Personal Statement

I am a 2nd year PhD student interested in pursuing a career that benefits from my interdisciplinary background. I hope to make meaningful contributions to the advancement of not only scientific discovery but also scientific collaboration and communication.

I have collaborated extensively with my advisor on the design and formulation of approaches to liquid biopsy data generation and analysis. We are currently engaged in multiple projects to attempt to expand our understanding of the clinical relevance of cell free RNA using *in vitro* models and clinical blood plasma samples. It is our shared passion to combine our skillsets and generate impactful analysis of liquid biopsy approaches we undertake in the lab to further understand the transcriptional events that occur in the development of lung cancer. We have devoted significant time and effort to characterizing the cell and cell free transcriptomes of a lung epithelial model *in vitro* and are hoping to submit these results for publication imminently.

As a NHGRI T32 trainee I have endeavored to use the flexibility provided by the fellowship to engage my undergraduate mentees in the science they are exploring. I have made an effort to contribute to multiple outreach programs. I took an officer role in the UCSC Women in Science and Engineering chapter to help plan and execute outreach events for local middle school students. This past summer, I had the opportunity to be a secondary mentor to two high school student interns in the Kim lab and helped them design an *R* script to process the qPCR data they were generating in their project. I also taught a week-long course in data visualization using *R* to half of the internship cohort (~60 students). I designed the lesson plan and put together code notebooks for them to follow and complete. The T32 program has greatly aided in my development of scientific skills, the pursuit of more knowledge in graduate-level classes, and my engagement with my peers and colleagues. I am determined to pursue opportunities that will continue to enhance my experience in graduate school and maintain the rigor and purpose of my training.

B. Positions and Honors

- Modified Supplemental Instruction: Learning Assistant: 1/2017 – 6/2017
- Graduate Student Researcher – Millhauser Lab: Summer 2017
- Teaching Assistant: 1/2018 – 6/2018
- UCSC Women in Science and Engineering Officer: 1/2018 – 12/2018
- Graduate Student Researcher – Kim Lab: Summer 2018
- UCSC Summer Internship Program Secondary Mentor: Summer 2018
- UC Santa Cruz NHGRI T32 Trainee: 9/2018 - Present

C. Contributions to Science

Undergraduate Research:

I was part of two projects during my time in Dr. Millhauser's lab. The first, that would eventually become my undergraduate thesis, was a study of the cleavage events occurring in wild type prion protein (PrP). PrP is known for its role in fatal prion disease where it is observed to aggregate into toxic amyloid structures. I investigated wild-type PrP's interaction with a particular protease, ADAM8, known to be present in the same neuronal context as PrP. As a summer graduate student researcher, I worked on the design of a therapeutic construct of the Agouti-Related Peptide (AgRP). AgRP is known to be a potent stimulator of feeding as an inverse agonist to the Melanocortin 4 Receptor. The goal of my project was to create a peptide therapeutic for the treatment of cancer cachexia. My work on the AgRP peptide resulted in an authorship with a collaborator exploring the effects of a related signaling protein, Kir7.1, and the response to exogenous AgRP stimulation in obese mice[1].

1. Anderson, E. J. P. *et al.* Late onset obesity in mice with targeted deletion of potassium inward rectifier Kir7.1 from cells expressing the melanocortin-4 receptor. *J. Neuroendocrinol.* **31**, e12670 (2019).

Graduate Research:

I am working on two collaborative projects which explore the functional roles of RNA in critical biological contexts. KRAS, a potent oncogene, plays an important role in both oncogenesis and differentiation but has an unclear effect on non-coding genes and transposable elements. We have deeply sequenced the polyadenylated RNA of a lung epithelial cell line expressing mutant KRAS and of induced pluripotent stem cells lacking endogenous KRAS. During these projects I have used my computational skill set to complement the wet lab expertise of my colleagues; my efforts to spearhead the data analysis and interpretation have resulted in two co-first authorships on publications that are in submission. We have also endeavored to begin sequencing cell free RNA in both *in vitro* and clinical contexts. Currently, we have sequenced exosomal RNA extracted from the cell media of the previously mentioned lung epithelial line and are currently sequencing plasma from patients with arterial hypertension. I am developing analytical approaches to study both contexts and begin modelling the clinical and biological states present in the cells and in patients.

D. Additional Information: Research Support and/or Scholastic Performance

YEAR	COURSE TITLE	GRADE
	UC Santa Cruz	
2013	Gen Chem 1A	C
2013	Gen Chem 1B	A-
2013	Gen Chem 1C	A-
2013	Cell & Molec Bio	A
2013	Development & Phys	B

YEAR	COURSE TITLE	GRADE
2014	Calc I	B
2014	Ochem 108A	B-
2015	Ochem 108B	C
2014	Physics I	B-
2015	Physics II	B
2015	Physics III	C
2015	Genetics	B
2015	Org Chem: Apps to Bio	B
2015	Calc II	C+
2015	Biochem I	A
2015	Quantum Mechanics	B
2016	Biochem II	A
2016	Thermodynamics	A
2016	Biochem III	A-
2016	Drug Design/Discovery	A-
2016	Cell Bio	A
2016	Python for Biology	A
2016	Statistical Mechanics	B+
2016	Adv. Biophysical Methods*	P
2016	Senior Research	A
2017	Stat. Methods	B
2017	Undergrad Thesis Writing	A
2017	Adv. Macromolecular Structure*	P
2017	Euk. Cell Bio	A-
2017	Senior Thesis	A
2018	Adv. Molec Bio*	B
2018	Intro Comp. Genomics*	B
2018	Adv. Comp Genomics*	A-
2018	Bioethics*	A

*Graduate Level Courses

Support:

Agency: NHGRI

Activity: T32

Project Number: T32 HG 008345

Award/Supplement: T32HG008345-04

Role: Trainee