

**Sarah R. Alaei, PhD**

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**Education:**

**Stony Brook University**

Postdoctoral Fellowship, June 2014 – July 2019

Department of Microbiology and Immunology, Thanassi Laboratory

**Columbia University**

PhD, May 2013

MA, February 2008

Department of Biological Sciences, Bulinski Laboratory

**Claremont McKenna College**

BA, May 2004

Biology

**Teaching Experience:**

**University of Washington, Tacoma, WA**

**September 2019 – Current**

Assistant Professor, Biomedical Sciences Program

TBIOL301 – General Microbiology

Taught lecture and laboratory for this core course in Biomedical Sciences program. Lecture content included basic introduction to the physiology and pathogenesis of a variety of microbes and lab focused on handling and identification of bacteria. Lecture sessions included many student centered activities that required problem solving and small/large group discussion.

**SUNY College at Old Westbury, Westbury, NY**

**January – May 2017 and 2019**

IRACDA NY-CAPS Teaching Fellow

Co-taught BS4474 (Microbial Ecology) lecture with Dr. Fernando Nieto, instructor of record for lab.

Responsibilities included independently preparing for and delivering material for one lecture and one lab session per week for this upper division undergraduate microbiology course. Redesigned lab portion of course to focus on oral bacteria and to include hypothesis driven experiments designed by the students. Lecture focused on bacterial communities within the human body and in the environment. Lecture sessions included significant time devoted to data analysis, experimental design and group discussion.

**Suffolk County Community College, Brentwood, NY**

**September-December 2015**

IRACDA NY-CAPS Teaching Fellow

Assisted Dr. Phoebe Smith with lectures and active learning component of Bio150 (fundamentals of biology for science majors) course. Presented lectures on topics ranging from basic chemistry to stem cells to antibiotic resistance and included activities such as clicker questions and group discussion in each session.

**LaGuardia Community College, Long Island City, NY**

**February – June 2014**

Adjunct Instructor, Department of Natural Sciences

Instructor of record for SCB201 (fundamentals of biology for science majors) lecture and two lab sections for a class of approximately 40 students. Responsibilities included preparing and presenting all lectures, writing and grading exams, overseeing all lab exercises, and grading lab reports.

**Columbia University, New York, NY****2006 - 2010**

Graduate Teaching Assistant, Department of Biological Sciences

**2006-2008:** mentored an undergraduate student for ongoing independent study project in Bulinski Lab.**2006:** teaching assistant for intensive undergraduate developmental biology laboratory course (W3040).**2007:** teaching assistant for intensive molecular biology laboratory course for master's students (G4310); designed lab modules, wrote lab quizzes and led lab sessions with minimal oversight from faculty member.**Summer 2009 and 2010:** led research seminar for undergrad research fellows (SURF).**Claremont McKenna College, Claremont CA****2003 - 2004**

Undergraduate Teaching Assistant, Joint Sciences Department

Was invited to TA for a cell biology lab for biology majors and a molecular biology lab for non-majors; assisted with setup/cleanup and provided one-on-one guidance for the students as they conducted experiments.

**Research Experience:****University of Washington, Tacoma, WA****September 2019 – Present**

Assistant Professor, Biomedical Sciences Program

Establishing independent research program in an undergraduate driven laboratory where we will focus on understanding the molecular details of fimbrial and outer membrane vesicle (OMV) biogenesis in *Porphyromonas gingivalis*. Research interests include development of anti-infective therapeutics targeting fimbrial and OMV biogenesis pathways and understanding the regulatory roles of OMVs in biofilms.**Stony Brook University, Stony Brook, NY****June 2014- July 2019**

Postdoctoral Fellow, Department of Molecular Genetics and Microbiology, Thanassi Laboratory

Researching the molecular mechanisms responsible for assembly and adhesive function of fimbriae on the cell surface of *Porphyromonas gingivalis*. Research interests include basic bacteriology, protein secretion, protein-protein interactions on the bacterial cell surface and anti-microbial drug development.**Columbia University, New York, NY****September 2006- May 2013**

Graduate Research Assistant, Department of Biological Sciences, Bulinski Laboratory

Studied the role of acetylation in the regulation of Connexin32 gap junction protein turnover and function using a tissue culture-based model.

**National Institutes of Health, Bethesda, MD****July 2004 - July 2005**

Post-baccalaureate Research Fellow, Brody Laboratory

Conducted research pertaining to the ubiquitin ligase activity of BRCA-1, a tumor suppressor protein that is frequently mutated in hereditary breast cancer.

**Claremont McKenna College, Claremont, CA****June 2002 - May 2004**

Undergraduate Researcher, Joint Sciences Department, Tang Laboratory

Conducted research that was developed into senior thesis project, which focused upon the regulation of cell division by SR kinases in fission yeast.

**Awards and Fellowships:**2018-2019 Long Island Biosciences Hub REACH Award: \$50,000 research grant supporting my *Porphyromonas gingivalis* fimbrial assembly inhibitor project.

2014-2017 NIH Institutional Research and Academic Career Development Award (IRACDA) Postdoctoral Fellowship

2007 James Howard McGregor Award for Teaching Excellence - Columbia University Department of Biological Sciences

2004-2005 NIH Post-baccalaureate Intramural Research Training Award (IRTA)

2003 Claremont Colleges Joint Sciences Department Summer Research Fellowship

**Pedagogical Training:**

NY Academy of Sciences “Scientists Teaching Science” Course (online) – Summer 2015

IRACDA NY-CAPS Pedagogy Course – Spring 2015

**Mentorship and Service:**

**Thanassi Lab, Stony Brook University:** served as a research mentor for several high school students and two undergraduate students. Helped both undergraduates prepare successful applications for a competitive summer research fellowship through Stony Brook University (URECA). One of these students (Jin Ho Park) has continued on in the lab for independent study and is an author on my recently accepted publication.

**Center for Inclusive Education, Stony Brook University:** served as a near peer/career mentor for a first year PhD student and a summer student from Suffolk Community College as part of underrepresented minority supporting fellowship programs. Designed and facilitated “Making the Most of 1<sup>st</sup> Year Rotations” and “Coping with Failure” workshops for incoming PhD students supported by NIH-IMSD fellowship.

**STEP Program, SUNY Old Westbury:** designed and presented a bacterial biofilm lab module to high school students as part of a summer research program for underrepresented minority students.

**Bulinski Lab, Columbia University:** served as a research mentor for an undergraduate independent study student, summer masters students, post-bac student, and several rotating PhD students.

**Invited Seminars:**

“Acetylation modulates Cx32 ubiquitination and turnover”. Special Interest Group Post-Translational Regulation of the Cytoskeleton, American Society for Cell Biology Annual Meeting, December 3, 2011.

“Dissecting the molecular mechanisms of *P. gingivalis* fimbrial assembly and function: sorting out a sticky situation”. SUNY Old Westbury Senior Seminar, March 13, 2016.

**Poster Presentations:**

Alaei S, Park JH and Thanassi D. Development of *Porphyromonas gingivalis* assembly inhibitors. Poster presented at: IRACDA Annual Meeting; 2017 June 4-6; Birmingham, AL.

Alaei S, Park JH and Thanassi D. Analysis and inhibition of *Porphyromonas gingivalis* fimbrial assembly. Poster presented at: Zing Protein Secretion in Bacteria Conference; 2016 Nov 9-12; St. Pete’s Beach, FL.

Alaei S and Thanassi D. Dissecting the Molecular Mechanisms of *Porphyromonas gingivalis* Mfa fimbrial assembly. Poster presented at: IRACDA Annual Meeting; 2015 June 13-16; San Diego, CA.

Alaei S and Bulinski JC. Acetylation modulates Connexin32 ubiquitination and turnover". Poster presented at ASCB Annual Meeting; 2011 December 3-7; Denver, CO.

Alaei S, Hertzberg E and Bulinski JC. Acetylation regulates Connexin32 protein turnover. Poster presented at ASCB Annual Meeting; 2010 December 11-15; Philadelphia, PA.

### **Publications:**

Alaei S, Lukin M, Yukubovskaya E, Kozakov D and Thanassi D. (2019). Development of a Potent Peptide Based Anti-infective for the Prevention of Periodontal Disease (in prep).

Alaei SR, Park JH, Walker SG, Thanassi DG. (2019). Peptide-Based Inhibitors of Fimbrial Biogenesis in *Porphyromonas gingivalis*. *Infection and Immunity* Jan 2019, IAI.0075018; **DOI: 10.1128/IAI.00750-18 (selected for Editor's Spotlight in March 2019 issue).**

Alaei S, Abrams CK, Bulinski JC, Hertzberg E, Freidin M. (2018). Acetylation of C-Terminal Lysines Modulates Protein Turnover and Stability of Connexin-32. *BMC Cell Biology* **19**, 22.

Tang, Z., Tsurumi, A., Alaei, S., Wilson, C., Chiu, C., Oya, J., and Ngo, B. (2007). Dsk1p kinase phosphorylates SR proteins and regulates their cellular localization in fission yeast. *Biochem J* **405**, 21-30.

### **References:**

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Mona Freidin, Assistant Professor, Research  
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Toni Sperzel, Assistant Dean for Diversity and Inclusion for the Graduate School  
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