Tara Alpert, Ph.D.

tara.alpert@yale.edu | (760) 500-7403

EDUCATION

2014-2020	Ph.D. in Molecular Biophysics and Biochemistry	Yale University
2009-2013	B.A. in Biochemistry	Washington University in St. Louis

RESEARCH EXPERIENCE

2020	**Postdoctoral fellow** at Yale University School of Public Health. Genomic epidemiology of SARS-CoV-2 spread within Connecticut. Supervisor: Dr. Nathan D. Grubaugh
2014 – 2020	**Graduate Student** at Yale University. Thesis title: Coordination between pre-mRNA splicing and cleavage in budding yeast. Supervisor: Dr. Karla M. Neugebauer
2011 – 2013	**Undergraduate Researcher** at Washington University in St. Louis. Thesis title: Biochemical studies of phosphoethanolamine methyltransferase and serine decarboxylase from nematodes, plasmodium, and plants. Supervisor: Dr. Joseph M. Jez
2010 – 2011	**Undergraduate Researcher** at Washington University in St. Louis. Effect of gene expression patterns on behavioral plasticity in the European honey bee *Apis mellifera*. Supervisor: Dr. Yehuda Ben-Shahar
2010	**Intern** at the Human BioMolecular Research Institute (San Diego, CA). Summer project on the cellular response to neurotoxin exposure.
2008	**Intern** at the Scripps Research Institute (San Diego, CA). Summer project aimed at drug discovery for Type II Diabetes. Implemented high-throughput screening of small molecules for insulin production in pancreatic cells.

PUBLICATIONS

1. **Alpert T**, Straube K, Carrillo Oesterreich F, Herzel L, Neugebauer KM (2020) Widespread transcriptional readthrough leads to splicing defects upon Nab2 depletion. *Cell Reports*. https://doi.org/10.1016/j.celrep.2020.108324.
2. Brito A*, **Alpert T***, Fauver J, Watkins A, Grubaugh N (2020) SARS-CoV-2 outbreaks are a result of elevated social contacts: A case study of Danbury CT. *Lancet Microbe* (in preparation).
3. Fauver JR, Petrone ME, Hodcroft EB, Shioda K, Ehrlich HY, Watts AG, Vogels CBF, Brito AF, **Alpert T**, Muyombwe A, Razeq J, Downing R, Cheemarla NR, Wyllie AL, Kalinich CC, Ott IM, Quick J, Loman NJ, Neugebauer KM, Greninger AL, Jerome KR, Roychoudhury P, Xie H, Shrestha L, Huang M, Pitzer VE, Iwasaki A, Omer SB, Khan K, Bogoch II, Martinello RA, Foxman EF, Landry ML, Neher RA, Ko AI, Grubaugh ND (2020) Coast-to-Coast spread of SARS-CoV-2 during the early epidemic in the United States. *Cell*. https://doi.org/10.1016/j.cell.2020.04.021

4. **Alpert T***, Reimer KA*, Straube K, Neugebauer KM (2020) Long read sequencing of nascent RNA from budding and fission yeasts. *Methods in Molecular Biology* (accepted).
5. Herzel L, Ottoz DSM, **Alpert T**, Neugebauer KM (2017) Splicing and transcription touch base: co-transcriptional spliceosome assembly and function. *Nature Rev Mol Cell Biol* 18, 637-650. https://doi.org/10.1038/nrm.2017.63
6. **Alpert T**, Herzel L, Neugebauer KM (2016) Perfect timing: splicing and transcription rates in living cells. *Wiley Interdiscip Rev RNA.* https://doi.org/10.1002/wrna.1401

For a complete list of publications, please visit: https://scholar.google.com/citations?user=lz6CPNUAAAAJ&hl=en&oi=ao

ORAL PRESENTATIONS

2019 Cross Regulation Between Co-transcriptional RNA Splicing and Cleavage
Alpert T, Straube K, Neugebauer KM
University of Massachusetts Medical School – Invited talk

2019 Coupling Between Pre-mRNA Splicing and PolyA Cleavage
Alpert T, Straube K, Reimer K, Neugebauer KM
Cold Spring Harbor – Eukaryotic mRNA Processing – Oral presentation

2018 Gene-Specific Variation in the Kinetics of Co-transcriptional Splicing
Alpert T, Carrillo Oesterreich F, Herzel L, Straube K, Neugebauer KM
Oxford Nanopore Community Meeting – Recorded presentation

2017 Gene-Specific Variation in the Kinetics of Co-transcriptional Splicing
Alpert T, Carrillo Oesterreich F, Herzel L, Straube K, Neugebauer KM
Oxford Nanopore Community Meeting – Lightning Talk

INTRADEPARTMENTAL ORAL PRESENTATIONS

2019 Yale Medical School C-Wing Research in Progress Seminar

2018 Yale Medical School C-Wing Research in Progress Seminar

2018 Yale Center for RNA Science and Medicine's RNA Club

2018 Molecular Biophysics and Biochemistry Department Retreat

2017 Cellular and Molecular Biology Research in Progress Seminar

2017 Yale Medical School C-Wing Research in Progress Seminar

2016 Yale Medical School C-Wing Research in Progress Seminar

POSTERS

2019 Yale Center for RNA Science and Medicine Retreat

2019 Molecular Biophysics and Biochemistry Department Retreat

2018 Oxford Nanopore Community Meeting

2017 Molecular Biophysics and Biochemistry Department Retreat

2017	Oxford Nanopore Community Meeting
2017	EMBO - Regulation of RNA 3' end formation
2016	Yale Center for RNA Science and Medicine Retreat
2016	EMBO - Gene Transcription in Yeast: From Chromatin to RNA and Back
2013	ASPB - Plant Biology
2012	American Society for Biochemistry and Molecular Biology Annual Meeting

TEACHING AND CAREER ENRICHMENT

2020	Mentor for MB&B rotation student • Targeted sequencing of DoG RNAs during osmotic stress with Oxford Nanopore MinION in *M. musculus*
2019	Mentor for MB&B rotation student • Generated whole-genome nascent RNA sequencing dataset with Oxford Nanopore MinION for Spt5 depletion in *S. cerevisiae*
2017 - 2019	Discussion coordinator for Bystander Intervention Training workshops in the MB&B Department at Yale University
2018	Bioinformatics and Oxford Nanopore training • Mentored by Smith and Mercer Labs at the Garvan Institute of Medical Research
2018	Mentor for Yale-NUS undergraduate student • Semester project using neural networks to model Oxford Nanopore datasets for optimization of analysis pipeline
2017	Hands-on Oxford Nanopore Sequencing workshop at Oxford Nanopore Community Meeting
2017	Completed the 8-week ASBMB Art of Science Communication Course
2017	Attendance at AAAS Annual Meeting: Serving Society through Science Policy
2016	Teaching fellow and discussion leader • MB&B 449a/749a Medical Impact of Basic Science • MB&B/MCDB 105a An Issues Approach to Biology
2016	Seminar on communicating science to the public by New York Times Science Writer Carl Zimmer
2015	Attended Practical Statistics for Experimentalists Workshop

HONORS, AWARDS, AND FELLOWSHIPS

2020	Secured $59,340 for a 12 Month Fellowship from Yale Center for Clinical Investigation Multidisciplinary Postdoctoral Training Program
2020	Mary Ellen Jones Dissertation Prize for the most distinguished departmental dissertation during the academic year

2017	Sponsored by PEO chapter AL in Wilton, CT for PSA award
2013, 2014, 2015, 2016	National Science Foundation GFRP Honorable Mention
2012	American Society of Plant Biology Summer Undergraduate Research Fellowship
2011	American Society for Biochemistry and Molecular Biology Travel Award
2011	Howard Hughes Medical Institute Summer Undergraduate Research Fellowship

---

LABORATORY AND COMPUTATIONAL SKILLS

- BSL2+ safety protocols for work with potentially infectious respiratory virus material
- Loop-mediated isothermal amplification assay development for SARS-CoV-2 detection
- RNA extraction from patient samples, and amplicon-based viral genome sequencing for consensus genome generation
- Next-generation sequencing experimental design, library preparation, and data analysis
- Experience with Oxford Nanopore and Illumina sequencing instruments
- Proficient using R packages such as ggplot2, dplyr, caret, and deseq2
- Proficient using Linux-based systems for manipulation of sequencing data, genome alignment, and maximum-likelihood phylogeographic analysis
- Familiar with python libraries such as NumPy, Pandas, SciPy, and Matplotlib
- Experience writing custom algorithms for analysis of unconventional datasets
- Cell fractionation, isolation of nuclei and chromatin
- Nascent RNA purification, total RNA/DNA extraction
- qPCR, RT-PCR, and gel electrophoresis, western blots, northern blots, SDS-PAGE gels
- Homologous recombination-mediated cloning in budding yeast, growth curve analysis, and cell harvesting
- Vector-based bacterial cloning and transformations, protein expression and purification
- Hanging drop protein crystallization, screening, and molecular replacement structure resolution