Tara Alpert, Ph.D.

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SUMMARY

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RESEARCH EXPERIENCE

Postdoctoral Fellow – Yale University School of Public Health 2020
Department of Epidemiology and Microbial Diseases

EDUCATION

Yale University	*Ph.D. in Molecular Biophysics and Biochemistry* Thesis title: Coordination between pre-mRNA splicing and cleavage in budding yeast.	2014 - 2020
Washington University in St. Louis	*B.A. in Biochemistry* Thesis title: Biochemical studies of phosphoethanolamine methyltransferase and serine decarboxylase from nematodes, plasmodium, and plants.	2009 - 2013

SELECTED 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

LABORATORY AND COMPUTATIONAL SKILLS

- Excellent communication skills and experience with oral research presentations at 4 conferences as well as poster presentations at 4 international conferences, 2 national conferences, and 4 Yale conferences.
- BSL2+ safety protocols for work with potentially infectious respiratory virus material
- Loop-mediated isothermal amplification assay development for SARS-CoV-2 detection
- 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

TEACHING EXPERIENCE

- Teaching fellow and discussion leader for two undergraduate courses: 1) MB&B 449a/749a Medical Impact of Basic Science & 2) MB&B/MCDB 105a An Issues Approach to Biology where I received strongly positive reviews from the students.
- Mentored two rotation students on projects for 1) targeted sequencing of unique long RNA species during stress response in *M. musculus* (mouse) and 2) whole-genome sequencing of the nascent RNA transcriptome during depletion of proteins of interest in *S. cerevisiae* (budding yeast).
- Mentored undergraduate student from Yale-NUS (Singapore) on a project to use neural networks for modeling Oxford Nanopore data relating unique sample type.
- Discussion coordinator for Bystander Intervention Training workshops in the MB&B department at Yale University.

CAREER ENRICHMENT

- One month training on bioinformatics and Oxford Nanopore data analysis at the Garvan Institute of Medical Research (Sydney, Australia).
- Completed 8-week ASBMB Art of Science Communication Course
- Attended ‘Communicating Science to the Public’ workshop by New York Times & renowned author Carl Zimmer
- Attended ‘Practical Statistics for Experimentalists’ workshop at Yale University

AWARDS AND FELLOWSHIPS

Awarded $59,340 for 12 month fellowship from the 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	2020
Sponsored by PEO chapter AL in Wilton, CT for the PSA award	2017
National Science Foundation GRFP Honorable Mention	2013, 2014, 2015, 2016
American Society of Plant Biology Summer Undergraduate Research Fellowship	2012
American Society for Biochemistry and Molecular Biology Travel Award	2011
Howard Hughes Medical Institute Summer Undergraduate Research Fellowship	2011