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EDUCATION	HARVARD UNIVERSITY PhD in Molecular and Cellular Biology, March 2020 <i>Secondary Field: Computational Science and Engineering.</i> <i>Honors:</i> Awarded a Harvard Quantitative Biology Student Award (2019); Awarded a Graduate Society Term-time Research Fellowship to allow outstanding GSAS students to focus their time on research (2018); Awarded a James Mills Peirce Fellowship (2014) for exceptional incoming graduate students; Awarded the William Georgetti Scholarship for exceptional students (August 2014 – June 2017); Two-time recipient of the Bok Center Certificate of Distinction in Teaching for Life Sciences 1A (2015) and for Systems Biology 200 (2016). <i>Activities:</i> Writer, Science in the News; Researcher, Harvard Energy Journal Club; Chorister, Harvard Glee Club.	Cambridge, MA, USA
	UNIVERSITY OF CAMBRIDGE Master of Advanced Study in Theoretical Physics (MASt), June 2014 <i>Honors:</i> Awarded Distinction (<i>equivalent to magna cum laude</i>); Awarded a full-tuition Gates-Cambridge Scholarship from the Gates Cambridge Trust; Recipient of the Bateman Scholars Prize from Trinity Hall. <i>Thesis:</i> The BEC-BCS Crossover, supervised by Prof. Ben Simons. <i>Activities:</i> Volunteer, Cambridge Homeless Outreach Program; Chorister, Trinity Hall Chapel Choir; Rower, Trinity Hall Men's A squad.	Cambridge, Cambridgeshire, UK
	VICTORIA UNIVERSITY OF WELLINGTON Bachelor of Science with Honors (BSc Hons), March 2013 <i>Honors:</i> Recipient of the University Medal (Victoria University of Wellington Medal) awarded to the top graduating student in the faculty of science . Awarded First Class Honors (<i>equivalent to magna cum laude</i>) in Physics. <i>Activities:</i> Volunteer teaching with Laulotaha, a community programme for Tongan students; Co-founder of the VUW Science Society, a student representative group; Chorister, Wellington Youth Choir.	Wellington, NZ
EXPERIENCE		
April 2020- Present	ROJAS LAB, NEW YORK UNIVERSITY Postdoctoral Research Associate I am currently excited to be working in the lab of Assistant Professor Enrique Rojas, researching the origin of cell density homeostasis in the gram positive bacterium <i>B. subtilis</i> , using a combination of stochastic modelling and experimental microbiology. This project employs skills that I developed during my PhD, such as developing and testing stochastic mathematical models of cellular processes, performing quantitative microscopy experiments in a microbial context, and employing quantitative image processing as a tool to greater understand cell physiology. At the same time, this project is extending me by prompting me to use different stochastic modelling frameworks, in addition to developing my knowledge and experience by working with a different experimental system.	New York, NY, USA
Aug 2015- Jan 2020	AMIR GROUP AND MURRAY LAB, HARVARD UNIVERSITY PhD Candidate Working with Assistant Professor Ariel Amir and Professor Andrew Murray, I researched the nature of size regulation in budding yeast through a combination of computational, theoretical and experimental approaches. This project resulted in two publications in internationally regarded journals, in addition to a theory-based project studying the growth rate of age-structured populations that is currently in its final stages of completion. Under the mentorship of Andrew and Ariel I developed greatly as a scientist, the practical implications of which included gaining experience mathematically modelling and simulating stochastic biological processes, developing custom image processing routines (available at my GitHub page listed above), analyzing biological data, and designing and performing experiments involving yeast genetic manipulations and quantitative live cell microscopy.	Cambridge, MA, USA
March 2017	HARVARD GSAS SCIENCE POLICY GROUP Delegate During this visit to key U.S. governmental offices I gained an insight into the practical realities of working in science policy. Our visit included meetings at the White House Office of Science and Technology Policy, the Department of Homeland Security, the U.S. State Department and the National Academy of Sciences.	Washington, DC, USA

Aug 2016- Dec 2016	SYSTEMS BIOLOGY 200, HARVARD UNIVERSITY Teaching Fellow As a teaching fellow for this graduate survey course in systems biology under Prof. Jeremy Gunawardena, I helped select scientific literature for the teaching curriculum, ran small group discussion based sections, held office hours and assessed in-class presentations. For my performance in this role I received the Bok Center Certificate of Distinction in Teaching.	Cambridge, MA, USA
Aug 2015- Dec 2015	LIFE SCIENCES 1A, HARVARD UNIVERSITY Teaching Fellow As a teaching fellow for this 3 month introductory course in the biological sciences, my responsibilities including reviewing and assessing student comprehension of the course materials weekly and directing biweekly laboratory-based experiments for a group of 14. For my performance in this role I received the Bok Center Certificate of Distinction in Teaching.	Cambridge, MA, USA
May 2015- July 2015	PHYSIOLOGY COURSE, MARINE BIOLOGICAL LABORATORY Student Participant The intensive and longstanding MBL physiology course provided me with rigorous training in experimental microbiology. My work focused on the application of diverse modern microscopy techniques to investigate projects on diverse biological systems, including tardigrades, ctenophores and the human oral microbiome. This course also exposed me to a wide variety of cellular biology subjects, through daily lectures delivered by over 40 respected researchers from around the world.	Woods Hole, MA, USA
Dec 2013- May 2014	PART III MATHEMATICS, UNIVERSITY OF CAMBRIDGE Masters Student with Professor Ben Simons My Part III Essay (equivalent to a Master's thesis) was titled "The BEC-BCS crossover". For this project I was supervised by Professor Ben Simons. I reviewed the mathematical formulation of the BEC-BCS crossover, a phenomenon by which particles may have their quantum state tuned from the BCS state relevant to superconducting materials to the BEC state relevant to materials such as superfluids. For this project, and my performance in associated coursework, I was awarded the MAST degree with distinction.	Cambridge, Cambridgeshire, UK

PUBLICATIONS

In review	Barber, F. , Min, J., Murray, A. W., Amir, A. (2021) Modeling the impact of single-cell stochasticity and size control on the population growth rate in asymmetrically dividing cells. (In press at <i>PLOS Computational Biology</i>). DOI: 10.1101/2020.11.30.404012
May 2020	Barber, F. , Amir, A., Murray, A. W. (2020). Cell size regulation in budding yeast does not depend on linear accumulation of Whi5. <i>Proceedings of the National Academy of Sciences</i> .
October 2017	Barber, F. , Ho, P. Y., Murray, A., & Amir, A. (2017). Details Matter: noise and model structure set the relationship between cell size and cell cycle timing. <i>Frontiers in Cell and Developmental Biology</i> , 5, 92. Note: Also presented as a poster at ASCB EMBO 2017 Meeting, 12/2/17-12/6/17, Philadelphia PA.
April 2013	Tallon, J. L., Barber, F. , Storey, J. G., & Loram, J. W. (2013). Coexistence of the superconducting energy gap and pseudogap above and below the transition temperature of cuprate superconductors. <i>Physical Review B</i> , 87(14), 140508.

PUBLIC OUTREACH ARTICLES

June 2019	Barber, F. (2019). Is it smoky in here? The importance of the clean air act in the 21 st century. <i>Science In The News</i> .
November 2017	Barber, F. (2017). The future of energy storage: a lost opportunity for the U.S.? (Dec. 6 2017). <i>Science In The News</i> .