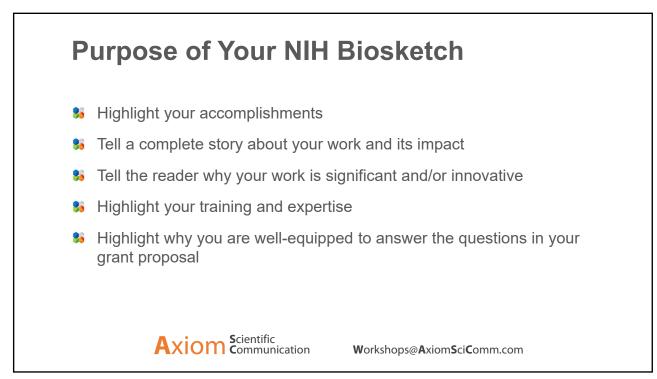




Preparing Your NIH Biosketch

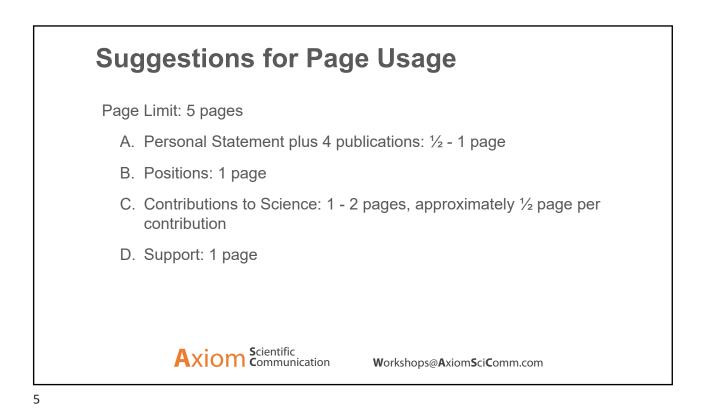
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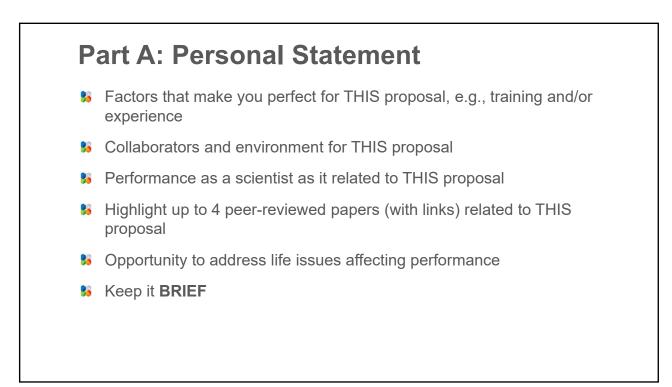
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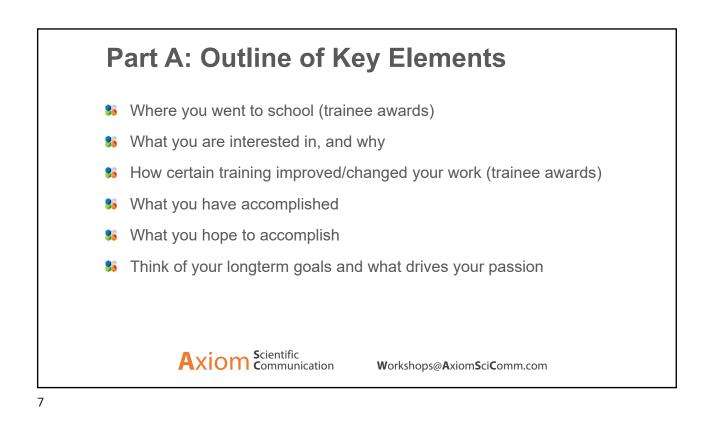


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POSITION TITLE: Graduate Student,	Biology Graduate	Group		
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INSTITUTION AND LOCATION	DEGREE (if applicable)	START DATE MM/YYYY	END DATE (or expected end date) MM/YYYY	FIELD OF STUDY
INSTITUTION AND LOCATION		DATE	(or expected end date)	FIELD OF STUDY Cell and Molecular Biology and Genetics
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Example – Part A

I first became interested in Alzheimer's-associated neurodegeneration while doing my PhD studies in the lab of Dr. (Big Shot) at (State) University. My grandfather had recently been diagnosed with Alzheimer's, so I felt personally invested in the research. After graduation, I moved to a postdoctoral fellowship with (Dr. Fancy Pants) at (R1) University. There, I gained access to cutting-edge technology to accelerate my studies of neurodegeneration. Using this technology, I developed a new technique that revolutionized the field. This new technique earned me a first author publication in a (high-impact factor journal) and a nationally recognized (award for innovation). As a PI at (Excellent) Institution, I now want to apply this technique to drug screening so we can develop therapeutic interventions for Alzheimer's.



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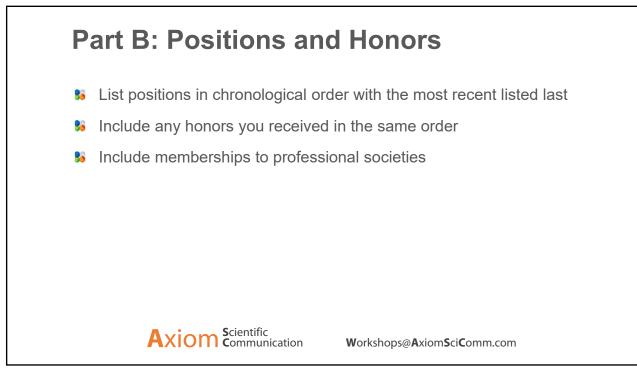
A. Personal Statement

My current research focuses on understanding the function of the ATP-dependent chromatin remodeler Cockayne syndrome protein B (CSB) in the relief of oxidative stress. CSB has known roles in transcription regulation and transcription-coupled nucleotide excision repair. CSB is also suggested to function in response to oxidative stress, yet the role of CSB in this process is largely undefined. My goal is to elucidate the mechanisms by which this multi-functional protein participates in yet another critical process. Oxidative stress relief is critical for genome integrity maintenance, and the accumulation of oxidative damage is suggested to contribute to neurological disorders as well as aging. The significance of research conducted to understand CSB is emphasized by the severe premature aging disorder that results from mutations within this protein as well as a broader spectrum of developmental disorders and cancers that can result from deregulation of chromatin remodelers.

I began my research career as an undergraduate with a broad interest in genetics and molecular biology, which I explored through a strong coursework curriculum and an independent research project in the lab of Dr. Erica Selva. Through these experiences I established a strong foundation in research techniques upon which I am still building. Through coursework and personalized training as a graduate student I have honed these interests in my current training in the field of epigenetics. My rotation with Dr. Hua-Ying Fan truly solidified my desire to pursue research in epigenetics, specifically using human cell lines and the CSB model system to answer biological questions to further understand this complex disorder and the mechanisms that underlie the CSB functions. My rotation project resulted in a second author publication in *PLOS Genetics* and set the tone for my future in the lab. I have since built upon this knowledge to develop my current project exploring the role of CSB in oxidative stress. Under the supervision of Dr. Fan I will continue to develop critical skills and knowledge that will contribute to my success as an academic research scientist.

My previous research experience and the expertise and guidance of my sponsor Dr. Hua-Ying Fan and my co-sponsor Dr. Marisa Bartolomei will greatly contribute to my success as a graduate student and trainee under this fellowship. The extensive support system that I have from my mentors, the Biology Graduate Group, and the Epigenetics Program will directly affect the success of my project and the breadth of my training for a career as an academic scientist. The environment at the University of Pennsylvania is highly collaborative and translational, which will broaden my research knowledge as I apply innovative and relevant research techniques to answer specific biological questions. I believe my scientific background and the atmosphere in which I am conducting my graduate research make me a strong candidate for this fellowship. I will benefit immensely through the support of this fellowship as I work towards my goal of a successful career in academic research.

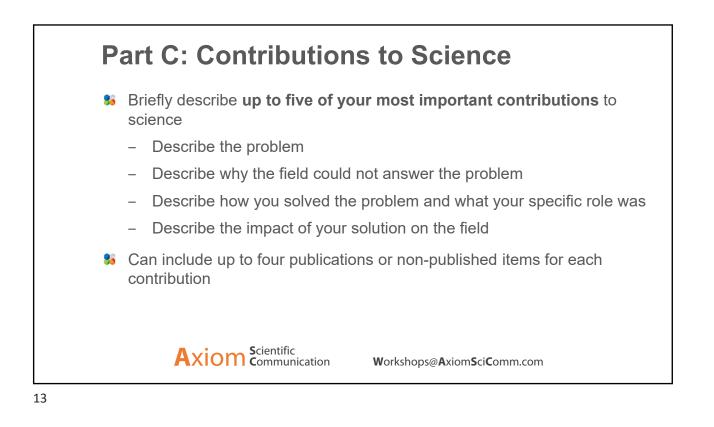


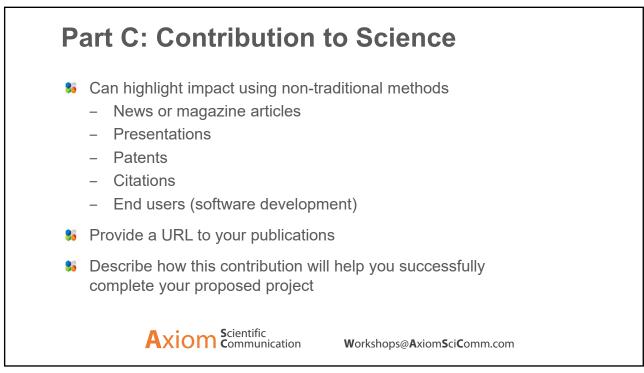


B. Positions and Honors

ACTIVITY/ OCCUPATION	START DATE (mm/yy)	END DATE (mm/yy)	FIELD	INSTITUTION/ COMPANY	SUPERVISOR/ EMPLOYER
HHMI Summer Research Fellow (two appointments)	06/10	08/11	Cell and Molecular Biology and Genetics	University of Delaware	Dr. Erica Selva
Winter Research Scholar (two appointments)	01/11	02/12	Cell and Molecular Biology and Genetics	University of Delaware	Dr. Erica Selva
Summer Research Exchange Student	06/12	08/12	Life Sciences	Imperial College, London	Dr. Huw Williams
Teaching Assistant	08/13	12/13	Biology	University of Pennsylvania	Dr. Veronica Mormon, Dr. Michael Lampson, Dr. Mark Goulian, Dr. Dustin Brisson
Teaching Assistant*	01/14	05/14	Genetics	University of Pennsylvania	Dr. Gregory Guild, Dr. Kimberly Gallagher

Graduate:
 NIH Cell and Molecular Biology Training Grant, 5-T32-GM-007229-37 (July 2014-2015) *Biology Department Award for Excellence in Graduate Student Teaching (Spring 2014)
 First Place Poster Presentation Award, "The Sequence-Specific Transcription Factor c-Jun Targets Cockayne Syndrome Protein B to Regulate Transcription and Chromatin Structure." Symposium on the Epigenetic Regulation of Organismal Function and Response to the Environment (2014) NSF Graduate Research Fellowship Program Honorable Mention (April 2013)
Undergraduate:
Magna Cum Laude, University of Delaware (May 2012)
Sigma Xi Outstanding Senior Thesis Award (May 2012)
The University of Delaware Department of Biology Undergraduate Research Award (May 2012)
University of Delaware Dean's List (2008-2012)
University of Delaware Honors Program Student (2008-2012)
 Beta Beta Beta (Biological Sciences Honor Society), Phi Kappa Phi (Academic Honor Society), and National Society of Collegiate Scholars Member
 University of Delaware Undergraduate Research Scholars Program (June 2010-May 2012)
J.T. Koffenberger Memorial Scholarship Recipient (Fall 2011)
General Honors Award Recipient (December 2010)
 Woman of Promise at the University of Delaware (October 2010)
 2nd Place at UMBC Undergraduate Research Symposium (November 2010)
1 st Place at UMBC Undergraduate Research Symposium (October 2011)
 Travel Award Recipient and Poster Presentation, Experimental Biology 2012, San Diego, CA (April 2012)





C. Contributions to Science 1. Loss of Cockayne syndrome protein B (CSB) results in Cockayne syndrome, a devastating premature aging disorder associated with extreme sun sensitivity and neurological and developmental defects. CSB loss-offunction is associated with changes in gene expression, which could account for some of the clinical features of this disorder. It was not clear, however, whether CSB directly regulates these genes. The Fan lab performed ChIP-seq, providing the first genome-wide map of CSB occupancy. This revealed CSB is enriched at promoters and enhancers as well as the binding motif for the sequence-specific transcription factor c-Jun/AP1. Through this work, we demonstrated CSB is targeted to specific regions of the genome by c-Jun. Importantly, I provided evidence that CSB participates directly in transcription regulation at these sites as well as demonstrated a requirement for CSB's remodeling activity in this process at several loci. Furthermore, we demonstrated for the first time that CSB repositions nucleosomes to regulate nearby gene expression (Lake et al., 2014). Manuscripts: a. Lake RJ, Boetefuer EL, Tsai PF, et al. The sequence-specific transcription factor c-Jun targets Cockayne syndrome protein B to regulate transcription and chromatin structure. PLoS Genet. 2014;10(4):e1004284. Abstracts: a. Boetefuer EL, Lake RJ, Tsai PF, et al. The sequence-specific transcription factor c-Jun targets Cockayne syndrome protein B to regulate transcription and chromatin structure. UPenn Symposium on the Epigenetic Regulation of Organismal Function and Response to the Environment. 2014. Poster, first place award. b. Fan HY, Lake JR, and Boetefuer EL. The sequence-specific transcription factor c-Jun targets Cockayne syndrome protein B to regulate transcription and chromatin structure. Gordon Research Conference. 2014. Poster. c. Boetefuer EL, Lake RJ, Tsai PF, et al. The sequence-specific transcription factor c-Jun targets Cockayne syndrome protein B to regulate transcription and chromatin structure. UPenn Annual Department of Biology Retreat, UPenn, 2014. Poster. d. Boetefuer EL, Lake RJ, Tsai PF, et al. The sequence-specific transcription factor c-Jun targets Cockayne syndrome protein B to regulate transcription and chromatin structure. Dr. George W. Raizzis 31st Annual Retreat, UPenn Department of Biochemistry and Molecular Biophysics. 2014. Poster.

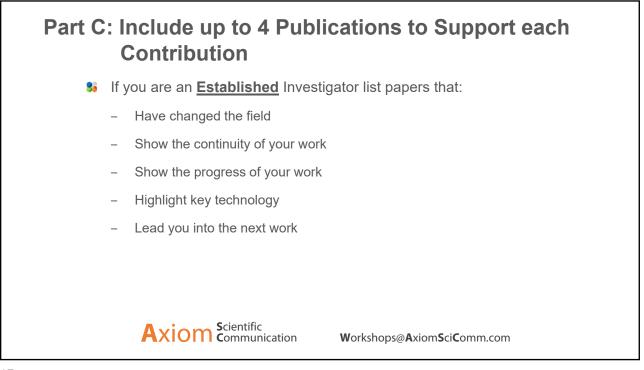
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Part C: Include up to 4 Publications to Support each Contribution

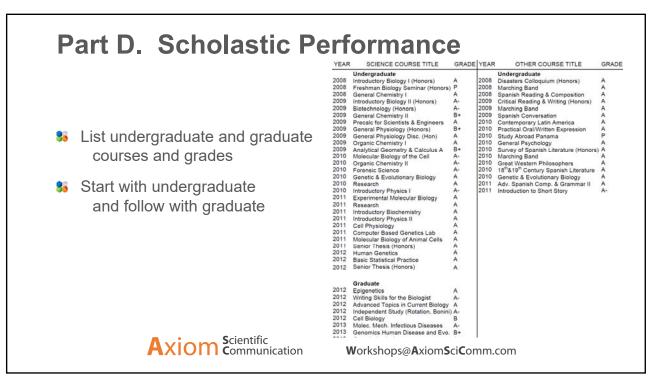
- 8 If you are a Young Investigator pick papers that:
 - Show progression as a scientist
 - Indicate independence
 - Feature your impact
 - Highlight new technology
 - Lead you into the next work

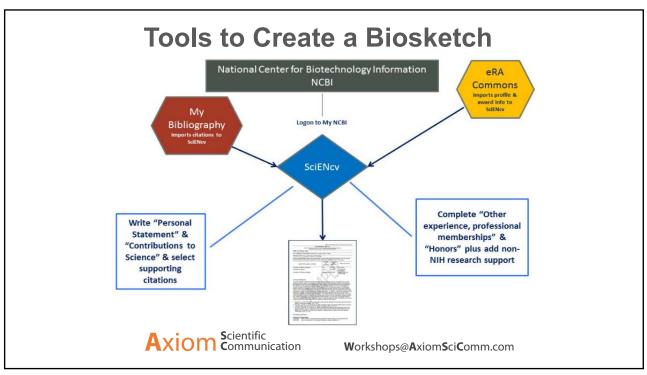
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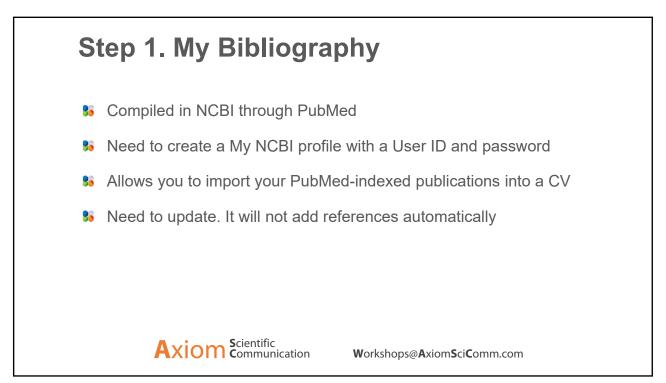
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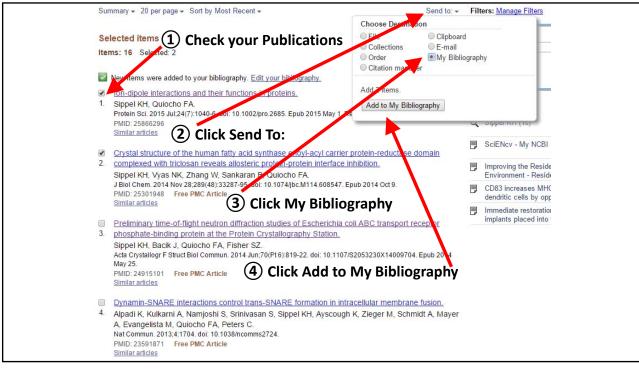


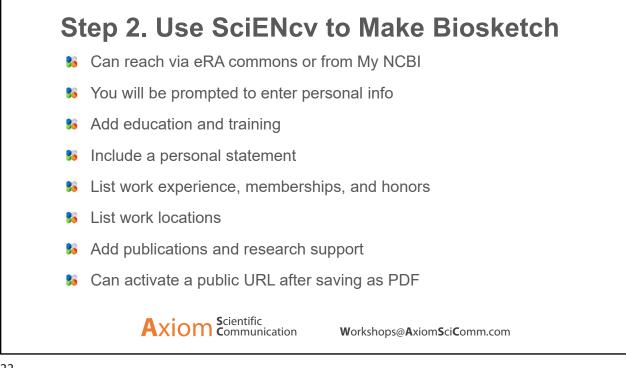


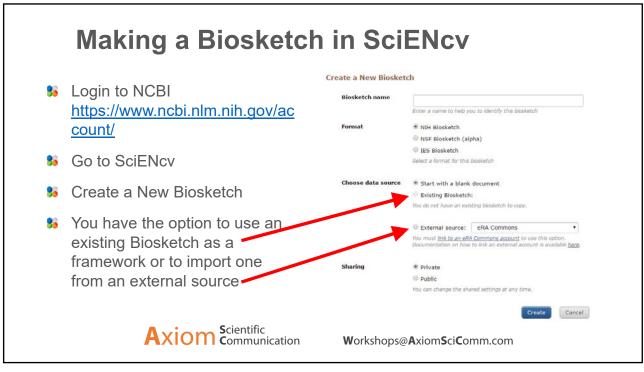


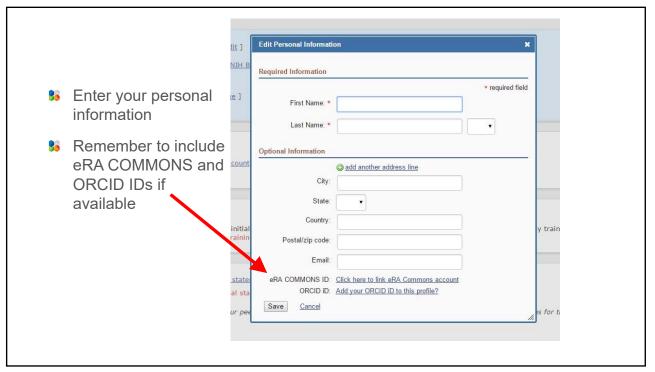


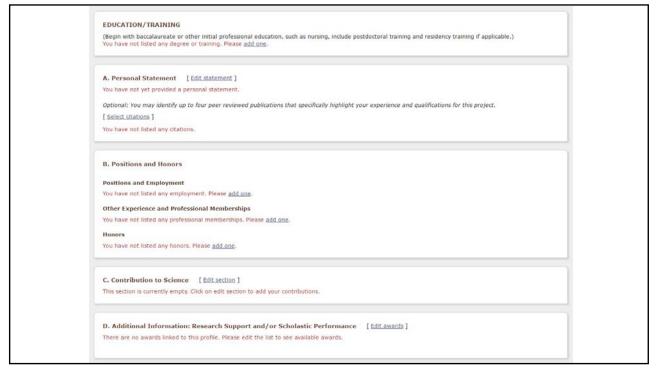












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			cherichia coli ABC transport receptor phosphate-binding protein at the ubMed PMID: 24915101; PubMed Central PMCID: PMC4051545.
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