

Kyle A Nilson

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Education

- May 2016 **PhD in Molecular and Cellular Biology**, University of Iowa, Iowa City, IA
May 2010 **BS in Molecular Biology**, University of Texas at Dallas, Richardson, TX

Research Experience

- 2018–present **Postdoctoral Research Scholar** with B Franklin Pugh, PhD
Center for Eukaryotic Gene Regulation, Penn State, University Park, PA
Ongoing study of co-regulation of Pol II transcription and nuclear organization
- 2016–2018 **Postdoctoral Research Scholar** with David H Price, PhD
Department of Biochemistry, University of Iowa, Iowa City, IA
Studied Pol II initiation and pausing of human cytomegalovirus using PRO-Cap
- 2010–2016 **Graduate Research Fellow** with David H Price, PhD
Molecular and Cellular Biology Program, University of Iowa, Iowa City, IA
Studied regulation of Pol II transcription and co-transcriptional mRNA capping
- 2009 **Undergraduate Research Assistant** with Richard D King, MD, PhD
Department of Neurology, UT Southwestern Medical Center, Dallas, TX
Processed MRIs using FreeSurfer and NeuroQuant for Alzheimer's research
- 2008 **Laboratory Assistant**
McDonnell Genome Institute, Washington University, St. Louis, MO
Prepared reagents and tracked samples in a production sequencing facility
- 2006–2007 **Clark Research Fellow** with Dennis L Miller, PhD
Department of Biological Sciences, University of Texas at Dallas, Richardson, TX
Co-developed cloning methods and studied reverse RNA editing in *Physarum*

Honors and Awards

- 2017 **Research Week Outstanding Poster**, University of Iowa, Iowa City, IA
One of 3 awarded to Carver College of Medicine postdoctoral scholars
- 2015 **NVIDIA Academic GPU Grant**, NVIDIA Corporation, Santa Clara, CA
Wrote grant and awarded a Tesla K40c to accelerate sequence alignment
- 2010–2015 **Presidential Graduate Fellowship**, University of Iowa, Iowa City, IA
One of about 25 awarded annually across all doctoral programs and one of only 5 offered to a Molecular and Cellular Biology student from 2008-2014
- 2006–2010 **National Merit Scholarship**, University of Texas at Dallas, Richardson, TX
- 2006–2010 **Collegium V Honors**, University of Texas at Dallas, Richardson, TX
Participated in a merit-based honors program with thesis requirement
- 2006–2007 **Clark Research Fellowship**, University of Texas at Dallas, Richardson, TX
One of 20 awarded campus-wide to fund research by incoming students;
competitively renewed for second summer
- 2005 **Excellence in Research**, Solutia Inc., St. Louis, MO
Awarded to one student (out of 100) in the Students and Teachers as Research Scientists program for outstanding research progress and presentation

Publications

- Feb 2019 Parida M*, **Nilson KA***, Li M, Ball CB, Fuchs HA, Lawson CK, Luse DS, Meier JL, and Price DH. *Nucleotide-resolution comparison of transcription of human cytomegalovirus and host genomes reveals universal use of RNA polymerase II elongation control driven by dissimilar core promoter elements*. mBio. [10.1128/mBio.02047-18](https://doi.org/10.1128/mBio.02047-18)
- Feb 2019 Ball CB, **Nilson KA**, and Price DH. *Use of the nuclear walk-on methodology to determine sites of RNA polymerase II initiation and pausing and quantify nascent RNAs in cells*. Methods. [10.1016/j.ymeth.2019.02.003](https://doi.org/10.1016/j.ymeth.2019.02.003)
- Aug 2017 **Nilson KA***, Lawson CK*, Mullen NJ, Ball CB, Spector BM, Meier JL, and Price DH. *Oxidative stress rapidly stabilizes promoter-proximal paused RNA polymerase II across the human genome*. Nucleic Acids Res. [10.1093/nar/gkx724](https://doi.org/10.1093/nar/gkx724)
- Jan 2017 Bosque A, **Nilson KA**, Macedo AB, Spivak AM, Archin NM, Van Wagoner RM, Martins LJ, Novis CL, Szaniawski MA, Ireland CM, Margolis DM, Price DH, and Planelles V. *Benzotriazoles reactivate latent HIV-1 through inactivation of STAT5 SUMOylation*. Cell Rep. [10.1016/j.celrep.2017.01.022](https://doi.org/10.1016/j.celrep.2017.01.022)
- Aug 2015 **Nilson KA**, Guo J, Turek ME, Brogie JE, Mullen Davis MA, Luse DS, and Price DH. *THZ1 reveals roles for Cdk7 in co-transcriptional capping and pausing*. Mol Cell. [10.1016/j.molcel.2015.06.032](https://doi.org/10.1016/j.molcel.2015.06.032) Designed cover. Previewed by Coin F and Egly JM.
- Oct 2014 Guo J, Li T, Schipper J, **Nilson KA**, Fordjour FK, Cooper JJ, Gordân R, and Price DH. *Sequence specificity incompletely defines the genome-wide occupancy of Myc*. Genome Biol. [10.1186/s13059-014-0482-3](https://doi.org/10.1186/s13059-014-0482-3)
- Apr 2014 Liu P, Xiang Y, Fujinaga K, Bartholomeeusen K, **Nilson KA**, Price DH, and Peterlin BM. *Release of P-TEFb from 7SK snRNP activates HEXIM1 transcription*. J Biol Chem. [10.1074/jbc.M113.539015](https://doi.org/10.1074/jbc.M113.539015)
- Oct 2011 **Nilson KA** and Price DH. *The role of RNA polymerase II elongation control in HIV-1 gene expression, replication, and latency*. Genet Res Int. [10.4061/2011/726901](https://doi.org/10.4061/2011/726901)

Teaching and Training Experience

- 2010–2018 **Lab of David H Price**, University of Iowa, Iowa City, IA
Trained several undergraduates, technicians, and a visiting postdoc
- 2013 **Teaching Assistant**, University of Iowa, Iowa City, IA
Taught graduate students in Practical Bioinformatics
Taught undergraduate students in Experimental Biochemistry Lab
- 2006–2010 **Help Desk Technician**, University of Texas at Dallas, Richardson, TX
Provided IT support and training in person or by phone, email, or screen-sharing
- 2008 **Teaching Assistant**, University of Texas at Dallas, Richardson, TX
Taught undergraduate students in Introductory Biology Lab
- 2007 **Private Tutor**, Knowsys Educational Services, Dallas, TX
Developed curriculum and taught courses on SAT testing skills
Taught summer algebra course at Westbury High School, Houston, TX

Seminars

- Dec 2017 Center for Eukaryotic Gene Regulation, Penn State, University Park, PA
- Apr 2016 Thesis Defense, Molecular and Cellular Biology Program, University of Iowa
- Nov 2014 Molecular and Cellular Biology Program Seminar, University of Iowa
- Feb 2014 Molecular and Cellular Biology Program Seminar, University of Iowa
- Apr 2013 Molecular and Cellular Biology Program Seminar, University of Iowa

Talks and Workshops

- Jun 2017 Department of Research and Development, Illumina, San Francisco, CA
- Oct 2016 Post-Initiation Activities of RNA Polymerases, Mountain Lake Lodge, VA
- Apr 2016 Department of Biochemistry Workshop, University of Iowa, Iowa City, IA
- Mar 2015 Jakobsen Memorial Conference, University of Iowa, Iowa City, IA
- Nov 2014 Post-Initiation Activities of RNA Polymerases, Mountain Lake Lodge, VA
- Nov 2013 Molecular and Cellular Biology Program Retreat, University of Iowa, Iowa City, IA

Posters

- Oct 2017 Department of Internal Medicine Research Day, University of Iowa, Iowa City, IA
- Aug 2017 Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY
- Apr 2017 Health Sciences Research Week, University of Iowa, Iowa City, IA
- Oct 2016 Post-Initiation Activities of RNA Polymerases, Mountain Lake Lodge, VA
- Sep 2015 Molecular and Cellular Biology Program Retreat, University of Iowa, Iowa City, IA
- Aug 2015 Mechanisms of Eukaryotic Transcription, Cold Spring Harbor, NY
- Apr 2015 Health Sciences Research Week, University of Iowa, Iowa City, IA
- Oct 2014 Molecular and Cellular Biology Program Retreat, University of Iowa, Iowa City, IA
- Oct 2012 Post-Initiation Activities of RNA Polymerases, Mountain Lake Lodge, VA
- Oct 2012 Molecular and Cellular Biology Program Retreat, University of Iowa, Iowa City, IA
- Sep 2011 Molecular and Cellular Biology Program Retreat, University of Iowa, Iowa City, IA
- Sep 2011 Transcriptional Elongation in Health and Disease, FASEB Meeting, Lucca, Italy

Extracurricular Activities

Active participant and frequent event organizer in local SCCA competitions

Built the 2017 and 2018 SCCA RallyCross National Championship car in Prepared RWD class

Designed the Molecular and Cellular Biology shirt and helped organize the 2013 annual retreat

Former concert pianist; performed twice in the Weill Recital Hall at Carnegie Hall