Jason Glen Wood

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Education

2006-2011 **Postdoctoral Research Associate, Brown University, Providence, RI**
Ellison Medical Foundation/AFAR Postdoctoral Fellow (2010-2011)
Advisor: Stephen Helfand, Dept. of Molecular Biology, Cell Biology, and Biochemistry

Studied genetics of aging in *Drosophila melanogaster*. Projects included characterization of the mitochondrial sirtuin Sirt4, which regulates lipid homeostasis and energy storage, and a genomic scale ChIP-chip/ChIP-seq based study looking at epigenetic changes in the structure and silencing of heterochromatin with age.

2005 **Ph.D., Harvard Medical School, Boston, MA**
Advisor: David Sinclair, Dept. of Pathology
Thesis title: Regulation of yeast and metazoan lifespan by sirtuins and the NAD^+ salvage pathway

Examined the role of sirtuins (Sir2 family proteins) in calorie restriction and lifespan extension. Proposed new model of Sir2 activation under calorie restriction by relief of inhibition by nicotinamide. Studied effect on *C. elegans* lifespan of sirtuin-activating polyphenolic small molecules.

1999 **A.B., Harvard University, Cambridge, MA**
Concentration: Biochemical Sciences, *magna cum laude*
Research advisor: David Livingston, Dana-Farber Cancer Institute

Characterized the role of E2F-6, a novel member of the E2F family, in transcriptional repression using luciferase assays. Mapped transcriptional start site and discovered new splice variant of E2F-6.

Professional Appointments

2011-present **Investigator, Brown University, Providence, RI**
Dept. of Molecular Biology, Cell Biology, and Biochemistry

Current research interests include mitochondrial sirtuin pathways, and the role of epigenetic chromatin modifications, genomic stability, small RNA regulatory pathways, and transposable elements in organismal aging. In addition to standard genetics and molecular biology, techniques used include ChIP-seq, RNA-seq, small RNA-seq, and genomic sequencing, and requisite bioinformatics analysis to understand results.

Honors and Awards

2012 Nathan Shock Center Pilot Grant from Albert Einstein College of Medicine. One year award to fund preliminary research in aging.

2010 Ellison Medical Foundation/AFAR Postdoctoral Fellowship. One year fellowship to fund aging research.

2000 Graduate Research Fellowship, National Science Foundation. Provides three years of financial support for graduate study in basic sciences.

1998 Harvard College Dean's Award for support of senior honors thesis (undergraduate)

1993	National Merit Scholar; National Academy for Science, Space, and Technology Scholarship; U.S. Dept. of Education National Science Scholars Program Scholarship (undergraduate)

Teaching experience

2007-2016	Trained and mentored undergraduates: Eric Mukherjee*, Michael Li*, Christine Livoti, Meyrolin Garcia, Priyan Wickremesinghe*, Lucas Burhenn*, Davis Hartnett* (*Indicated students performed honors thesis projects)
2001, 2006-7	Teaching Fellow, Harvard University. Biological Sciences 54. Led discussion sections and lab experiments for a large undergraduate cell biology course.
2007	Teaching Fellow, Harvard Summer School. Led lectures and discussion sections in cancer biology course.
2000	Teaching Fellow, Harvard Medical School. Biochemistry 201. Led research paper based discussion sections for core graduate course.
1994-1999	Tutor in general and organic chemistry for Harvard Extension School students

Publications (reverse chronological)

B.C. Jones, **J.G. Wood**, C. Chang, A.D. Tam, M.J. Franklin, E.R. Siegel, and S.L. Helfand. (2016) A somatic piRNA pathway in the *Drosophila* fat body ensures metabolic homeostasis and normal lifespan. *Nature Communications*, 7:13856. PMCID: PMC5187580.

J.G. Wood, B.C. Jones, N. Jiang, C. Chang, S. Hosier, P. Wickremesinghe, M. Garcia, D.A. Hartnett, L. Burhenn, N. Neretti, and S.L. Helfand. (2016). Chromatin-modifying genetic interventions suppress age-associated transposable element activation and extend life span in *Drosophila*. *Proc Natl Acad Sci USA*, 113(40):11277-82. PMID: 27621458.

J.A. Kreiling*, B.C. Jones*, **J.G. Wood**, M. De Cecco, S.W. Criscione, N. Neretti, S.L. Helfand, and J.M. Sedivy. (2017). Contribution of Retrotransposable Elements to Aging. In "Human Retrotransposons in Health and Disease," ed. Gael Cristofari, Springer Publishing, New York, NY, p. 297-321. (Book chapter).

M. Pu, Z. Ni, M. Wang, X. Wang, **J.G. Wood**, S.L. Helfand, H. Yu, and S.S. Lee. (2015). Trimethylation of Lys36 on H3 restricts gene expression change during aging and impacts life span. *Genes & Development* 29(7):718-731. PMCID: PMC4387714.

J.G. Wood and S.L. Helfand. (2013). Chromatin structure and transposable elements in organismal aging. *Front. Genet.* 4:274. PMCID: PMC3849598. Review.

N. Jiang, G.-Y.Du, E. Tobias, **J.G. Wood**, R. Whitaker, N. Neretti and S.L. Helfand. (2013). Dietary and genetic effects on age-related loss of gene silencing reveal epigenetic plasticity of chromatin repression during aging. *Aging* (Albany, NY), 5(11):813-824. PMCID: PMC3868724.

R. Whitaker, S. Faulkner, R. Miyokawa, L. Burhenn, M. Henriksen, **J.G. Wood**, and S.L. Helfand. (2013). Increased expression of Drosophila Sir 2 extends life span in a dose-dependent manner. *Aging* (Albany, NY), 5(9):682-691. PMCID: PMC3808700.

J.G. Wood, R.E. Whitaker, and S.L. Helfand. (2013). Genetic and biochemical tools for investigating sirtuin function in *Drosophila melanogaster.* In Methods in Molecular Biology: Sirtuins, Humana Press New York, NY, Editor Hirschey, M., 57-67. (Book chapter).

J.G. Wood, S. Hillenmeyer, C. Lawrence, C. Chang, S. Hosier, W. Lightfoot, E. Mukherjee, N. Jiang, C. Schorl, A.S. Brodsky, N. Neretti, and S.L. Helfand (2010) Chromatin remodeling in the aging genome of *Drosophila*. *Aging Cell* 9(6):971-8. PMCID: PMC2980570.

J.H. Bauer, S.N. Morris, C. Chang, T. Flatt, **J.G. Wood**, and S.L. Helfand (2009) dSir2 and Dmp53 interact to mediate aspects of CR-dependent life span extension in D. melanogaster. *Aging* 1(1):38-48.

S.L. Helfand, J.H. Bauer, and **J.G. Wood** (2007) Calorie Restriction in Lower Organisms. In "Molecular Biology of Aging," Cold Spring Harbor Monograph Series 51, ed. Leonard Guarente et al. Cold Spring Harbor Press, NY. (Book chapter).

J.G. Wood*, B. Rogina*, S. Lavu, K. Howitz, S.L. Helfand, M. Tatar, and D. Sinclair. (2004) Sirtuin activators mimic caloric restriction and delay ageing in metazoans. *Nature*, 430(7000):686-9. PMID: 15254550.

D.W. Lamming, **J.G. Wood**, and D.A. Sinclair. (2004) Small molecules that regulate lifespan: evidence for xenohormesis. *Molecular Microbiology*, 53(4):1003-9. Review.

K.T. Howitz, K.J. Bitterman, H.Y. Cohen, D.W. Lamming, S. Lavu, **J.G. Wood**, R.E. Zipkin, P. Chung, A. Kisielewski, L.L. Zhang, B. Scherer, and D.A. Sinclair. (2003) Small molecule activators of sirtuins extend Saccharomyces cerevisiae lifespan. *Nature*, 425(6954):191-6. PMID: 12939617.

R.M. Anderson*, K.J. Bitterman*, **J.G. Wood***, O. Medvedik, and D.A. Sinclair. (2003) Nicotinamide and *PNC1* govern lifespan extension by calorie restriction in Saccharomyces cerevisiae. *Nature*, 423(6936):181-5. PMID: 12736687.

R.M. Anderson, K.J. Bitterman, **J.G. Wood**, O. Medvedik, H. Cohen, S.S. Lin, J.K. Manchester, J.I. Gordon, and D.A. Sinclair. (2002) Manipulation of a nuclear NAD^+ salvage pathway delays aging without altering steady-state NAD^+ levels. *Journal of Biological Chemistry*, 277(21):18881-90. PMID: 11884393.

J.G. Wood and D.A. Sinclair. (2002) TPE or not TPE? It's no longer a question. *Trends in Pharmacological Sciences*, 23(1):1-4. Review.

T. Dahme, **J. Wood**, D.M. Livingston, and S. Gaubatz. (2002) Two different E2F6 proteins generated by alternative splicing and internal translation initiation. *European Journal of Biochemistry*, 269(20):5030-6.

S. Gaubatz, **J.G. Wood**, and D.M. Livingston. (1998) Unusual proliferation arrest and transcriptional control properties of a newly discovered E2F family member, E2F-6. *Proc Natl Acad Sci USA*, 95(16):9190-5.

Grants

Completed:

Nathan Shock Center Pilot and Feasibility Grant $25,000 direct 2/1/2012 – 1/31/2013
Albert Einstein College of Medicine of Yeshiva University and NIA
"Chromatin reorganization with age and diet in adult Drosophila melanogaster."
Pilot grant to study the influence of aging on heterochromatin using ChIP-seq and RNA-seq.
Role: PI

Ellison Medical Research Foundation/AFAR $57,194 direct 7/1/2010 – 6/30/2011
"The role of Sirt4 in regulating lifespan and metabolism in *Drosophila melanogaster*"
Postdoctoral Research Fellowship. Funding to support a study of the effects of deletion and overexpression of the mitochondrial sirtuin Sirt4 on lifespan and fat metabolism in flies.
Role: PI

Abstracts

Talks:

J.G. Wood, B.C. Jones, N. Jiang, and S.L. Helfand. (2015) Dietary restriction reduces transposable element expression in aging *Drosophila* heads. 56th Annual *Drosophila* Research Conference, Chicago, IL.

J.G. Wood, B. Schwer, L. Burhenn, P. Wickremesinghe, M. Garcia, E. Verdin, and S.L. Helfand. (2014) Sirt4 regulates lifespan and fat metabolism in *Drosophila melanogaster*. Cold Spring Harbor Meeting: Molecular Genetics of Aging.

J.G. Wood, B. Schwer, P. Wickremesinghe, M. Garcia, E. Verdin, S.L. Helfand. (2012) The role of Sirt4 in regulating lifespan and metabolism in *Drosophila melanogaster*. Cold Spring Harbor Meeting: Molecular Genetics of Aging.

J.G. Wood, S. Hillenmeyer, C. Lawrence, C. Chang, S. Hosier, W. Lightfoot, E. Mukherjee, N. Jiang, C. Schorl, A.S. Brodsky, N. Neretti, and S.L. Helfand. (2010) Chromatin remodeling in the aging genome of *Drosophila*. Cold Spring Harbor Meeting: Molecular Genetics of Aging.

J.G. Wood, S. Lavu, D.A. Sinclair. (2004) Sirtuin activators mimic calorie restriction and delay aging in metazoans. Cold Spring Harbor Meeting: Molecular Genetics of Aging. (Presented by D.A.S.)

Posters:

J.G. Wood, B.C. Jones, N. Jiang, C. Chang, N. Neretti, S.L. Helfand. (2016) Chromatin modifying genetic interventions suppress age-associated transposable element activation and extend lifespan in *Drosophila*. Cold Spring Harbor Meeting: Mechanisms of Aging.

J.G. Wood, P.V. Kharchenko, S. Hillenmeyer, C. Chang, M. Garcia, P. Wickremesinghe, N. Jiang, P.J. Park, N. Neretti, and S.L. Helfand. (2012) Chromatin remodeling during aging and dietary restriction in *Drosophila melanogaster*. 53rd Annual *Drosophila* Research Conference, Chicago, IL.

J.G. Wood, P.V. Kharchenko, S. Hillenmeyer, C. Chang, P.J. Park, N. Neretti, S.L. Helfand. (2011) Chromatin remodeling during aging and dietary restriction in *Drosophila melanogaster*. Penn State Chromatin meeting, State College, PA.

J.G. Wood, B. Schwer, E. Verdin, and S.L. Helfand. (2008) Characterization of dSirt4, a mitochondrial sirtuin in *Drosophila*. Cold Spring Harbor Meeting: Molecular Genetics of Aging.

Invited talks

2016, Providence Area Aging Research Forum. “Sirt4 regulates longevity and metabolism”

2015, National Taiwan University, Taipei, Taiwan. “Linking metabolism and aging: Sirtuin function in *Drosophila melanogaster*”

2015, Brigham Young University, Provo, UT. “Linking metabolism and aging: Sirtuin function in *Drosophila melanogaster*”

2013, RI Illumina Sequencing Seminar. “RNA-seq and ChIP-seq approaches to examining age-related changes in *Drosophila*”

2012, Providence Area Aging Research Forum. “Chromatin remodeling during aging and dietary restriction in *Drosophila melanogaster*”

2012, SUNY New Paltz, New Paltz, NY. “From yeast to mice: Using genetics systems to understand the biology of aging”

2012, Boston Aging Meeting, Harvard Medical School, Boston, MA. “Chromatin remodeling in the aging genome of *Drosophila*”

References

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