Jonathan Isaiah Gent
Curriculum Vitae

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Education

PhD Genetics (with Andrew Fire), Stanford University, 2009

BS Biology, Chemistry minor, *summa cum laude*, Humboldt State University, 2004

AA Natural Science/Mathematics, College of the Redwoods, 2002

Academic Employment

Senior research associate (with R. Kelly Dawe), University of Georgia, 2016 – present

Postdoc (with R. Kelly Dawe), University of Georgia, 2009 - 2016

Summer research assistant (with Virginia Walbot), Stanford University, 2003 and 2004

Publications (*equal contributors)

1. Dawe RK, Lowry EG, **Gent JI**, Stitzer MC, Higgins DM, Kanizay LB, Ross-Ibarra J, Alabady M, Wang N, Harkess AE, Hodges AL, Hiatt EN. A novel kinesin promotes neocentromere activity and meiotic drive in maize (submitted)
2. Oka R, Zicola J, Weber B, Anderson SN, Hodgman C, **Gent JI**, Wesselink J-J, Springer NM, Hoefsloot HCJ, Turck F, Stam M. Genome-wide mapping of transcriptional enhancer candidates using DNA and chromatin features in maize. *Genome Biology*. 2017 Jul 21;18(1):137
3. **Gent JI**, Wang N, and Dawe RK. Stable centromere positioning in diverse sequence contexts of complex and satellite centromeres of maize and wild relatives. *Genome Biology*. 2017 Jun 21;18(1) 121
4. Jiao Y, Peluso P, Shi J, Liang T, Stitzer MC, Wang B, Campbell MC, Stein JC, Wei X, Chin CS, Guill K, Regulski M, Kumari S, Olson A, **Gent J**, Schneider KL, Wolfgruber TK, May MR, Springer NM, Antoniou E, McCombie WR, Presting GG, McMullen M, Ross-Ibarra J, Dawe RK, Hastie A, Rank DR, Ware D. The complex sequence landscape of maize revealed by single molecule technologies . *Nature.* 2017 Jun 22;546(7659):524-527
5. Zhao H, Zhu X, Wang K, **Gent JI**, Zhang W, Dawe RK, Jiang J. Gene expression and chromatin modifications associated with maize centromeres. *G3*. 2015 Nov 12;6(1):183-92
6. Qing L, **Gent JI**, Zynda G, Song J, Makarevitch I, Hirsch CD, Hirsch CH, Dawe RK, Madzima TF, McGinnis K, Lisch D, Schmitz RJ, Vaughn MW, Springer NM. RNA-directed DNA methylation enforces boundaries between heterochromatin and euchromatin in the maize genome. *PNAS.* 2015 Nov 24;112(47):14728-33
7. **Gent JI***, Wang K*, Jiang J, and Dawe RK. Stable patterns of CENH3 occupancy through maize lineages containing genetically identical centromeres. *Genetics*. 2015 Aug;200(4):1105-16
8. **Gent JI**, Madzima TF, Bader R, Kent MR, Zhang X, Stam M, McGinnis KM, and Dawe RK. Accessible DNA and relative depletion of H3K9me2 at maize loci undergoing RNA-directed DNA methylation. *Plant Cell.* 2014 Dec;26(12):4903-17

9. **Gent JI**, Ellis NA, Guo L, Harkess A, Yao Y, Zhang X, and Dawe RK. CHH Islands: de novo DNA methylation in near-gene chromatin regulation in maize. *Genome Research.* 2013 Apr;23(4):628-37

10. Eichten SR, Ellis NA, Makarevitch I, Yeh C-T, **Gent JI**, Guo L, McGinnis KM, Zhang X, Schnable PS, Vaughn MW, Dawe RK, and Springer NM. Spreading of heterochromatin is limited to specific families of maize retrotransposons. *PLOS Genetics*. 2012 Dec;8(12):e1003127

11. **Gent JI** and Dawe RK. RNA as a structural and regulatory component of the centromere. *Annual Review of Genetics*. 2012 Dec 15;46:443-53

12. **Gent JI**, Dong Y, Jiang J, and Dawe RK. Strong epigenetic similarity between maize centromeric and pericentromeric regions at the level of small RNAs, DNA methylation and H3 chromatin modifications. *Nucleic Acids Research*. 2012. Feb;40(4):1550-6

13. Blanchard D, Parameswaran P, Lopez-Molina J, **Gent J**, Saynuk JF, Fire A. On the nature of in vivo requirements for rde-4 in RNAi and developmental pathways in C. elegans. *RNA Biology*. 2011 May-Jun;8(3):458-67

14. **Gent JI**, Schneider KL, Topp CN, Rodriguez C, Presting GG, Dawe RK. Distinct influences of tandem repeats and retrotransposons on CENH3 nucleosome positioning. *Epigenetics & Chromatin*. 2011 Feb 25;4:3

15. Lamm AT, Stadler MR, Zhang H, **Gent JI**, Fire AZ. Multimodal RNA-seq using single-strand, double-strand, and CircLigase-based capture yields a refined and extended description of the C. elegans transcriptome. *Genome Research*. 2011 Feb;21(2):265-75

16. **Gent JI***, Lamm A*, Pavelec DM, Maniar JM, Parameswaran P, Tao L, Kennedy S, and Fire AZ. Distinct stages of siRNA synthesis in an endogenous RNAi pathway in C. elegans soma. *Molecular Cell*. 2010 Mar 12;37(5):679-89

17. **Gent JI**, Schvarzstein M, Villeneuve AM, Gu SG, Jantsch V, Fire AZ, and Baudrimont A. A C. elegans RNA-directed RNA polymerase in sperm development and endogenous RNAi. *Genetics.* 2009 Dec;183(4):1297-314

Seminars and Short Talks

University of California, Davis, Plant Biology Department, Aug 2016

Epigenetics (Gordon Research Conference), Aug 2015

DNA methylation (Keystone Symposia), Mar 2015

57th Annual Maize Genetics Conference, Mar 2015

University of California, Davis, Plant Biology Postdoc Seminar Series, Aug 2014

Centromere Biology (Gordon Research Conference), Jul 2014

Emory University Chromatin Club, Jul 2013

Regulatory & Non-Coding RNAs (Cold Spring Harbor Laboratory Meeting), Aug 2012

54th Annual Maize Genetics Conference, Mar 2012

Epigenetics, Development and Human Disease (Keystone Symposia), Jan 2009

University of California, Santa Cruz, RNA Club, Apr 2008

Next Generation Sequencing Symposium (New Mexico Bioinformatics Symposia), Mar 2008

Humboldt State University Cellular/Molecular Biology Club, Apr 2006

Fellowships and Awards

NSF Plant Genome Research Program #1547760, as co-PI, 2016-2019 ($290,424)

University of Georgia Plant Center Travel Award, 2015 ($500)

Keystone Symposia Scholarship, 2015 ($1200)

University of Georgia Postdoctoral Research Award, 2012 ($2000)

Keystone Symposia Scholarship, 2012 ($1200)

Ruth L. Kirschstein NRSA (NIH postdoctoral training grant), 2010-2013 ($152,874)

Keystone Symposia Scholarship, 2009 ($1000)

College of the Redwoods President's Award Scholarship, 2002 ($2000)

Maude Teal Codini Trust Scholarship, 2002 ($500)

College of the Redwoods President's Award Scholarship, 2001 ($2000)

Teaching and Advising

Undergraduate and graduate student research mentor/supervisor, 2011-present

Guest lecturer for Plant Genetics (PBIO 8100) and Nucleic Acids (GENE 8920), University of Georgia, multiple occasions

Completed a semester-long seminar course on teaching biology (PBIO 8010), University of Georgia, 2013

Junior high school after-school tutor, Bayshore Christian Ministries, 2007-2009

Chemistry workshop leader, Louis Stokes Alliance for Minority Participation, College of the Redwoods, 2001

Calculus workshop leader, Louis Stokes Alliance for Minority Participation, College of the Redwoods, 2000 and 2001

Other Activities

Ad-hoc journal reviewer for *Genetics, PLOS Genetics*, *Molecular Plant*, *Plant Cell*, *PNAS.*

Ad-hoc grant reviewer for NSF Plant Genome Research Program and The US-Israel Agricultural Research & Development Fund (BARD).

Associated partner, EU-ITN-EpiTRAITS Consortium (FP7 – European Union framework programme for research, technological development and demonstration activities)

Volunteer TA for iPlant (CyVerse) Collaborative workshop at the University of Georgia, May 7-8, 2015

Academic Referees

R. Kelly Dawe, postdoctoral advisor
Departments of Plant Biology and Genetics, University of Georgia
(706) 542-1658
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Andrew Fire, PhD advisor
Departments of Pathology and Genetics, Stanford University School of Medicine

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Virginia Walbot, employer and PhD dissertation committee member
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Maike Stam, research collaborator
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