

Jonathan Isaiah Gent

Curriculum Vitae

Department of Plant Biology
University of Georgia
120 E. Green St, Rm B412
Athens, GA 30602

Phone: (707) 273-1894
Fax: (706) 542-1805
Email: gent@uga.edu

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 (*joint first authors or joint corresponding authors)

- Gent JI**, Nannas NJ, Liu Y, Su H, Zhao H, Gao Z, Dawe RK, Jiang J, Han F, Birchler JA. Genomics of Maize Centromeres. *The Maize Genome*. In press.
- Fu F-F, Dawe RK*, **Gent JI***. Loss of RNA-directed DNA methylation in maize chromomethylase and DDM1-type nucleosome remodeler mutants. *Plant Cell*. 2018 Jul;30(7):1617-1627
- Dawe RK, Lowry EG, **Gent JI**, Stitzer MC, Swentowsky KW, Higgins DM, Ross-Ibarra J, Wallace JG, Kanizay LB, Alabady M, Qui W, Tseng K-F, Wang N, Gao Z, Birchler JA, Harkess AE, Hodges AL, Hiatt EN. A novel kinesin promotes neocentromere activity and meiotic drive in maize. *Cell*. 2018 May 3;173:839-850
- Oka R, Zicola J, Weber B, Anderson SN, Hodgman C, **Gent JI**, Wesselink J-J, Springer NM, Hoefslot 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
- 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
- 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
- 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
- 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

9. **Gent JJ***, 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
10. **Gent JJ**, 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
11. **Gent JJ**, 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
12. Eichten SR, Ellis NA, Makarevitch I, Yeh C-T, **Gent JJ**, 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
13. **Gent JJ** and Dawe RK. RNA as a structural and regulatory component of the centromere. *Annual Review of Genetics*. 2012 Dec 15;46:443-53
14. **Gent JJ**, 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
15. 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
16. **Gent JJ**, 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
17. Lamm AT, Stadler MR, Zhang H, **Gent JJ**, Fire AZ. Multimodal RNA-seq using single-strand, double-strand, and CirLigase-based capture yields a refined and extended description of the *C. elegans* transcriptome. *Genome Research*. 2011 Feb;21(2):265-75
18. **Gent JJ***, 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
19. **Gent JJ**, 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

Plant & Animal Genome Conference, Jan 2019

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, Awards, and Grants

NSF Plant Genome Research Program #1547760, 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 (P BIO 8100) and Nucleic Acids (GENE 8920), University of Georgia, multiple occasions
Completed a semester-long seminar course on teaching biology (P BIO 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

Academic Referees

R. Kelly Dawe, postdoctoral advisor
Departments of Plant Biology and Genetics, University of Georgia
(706) 542-1658
kdawe@uga.edu

Andrew Fire, PhD advisor
Departments of Pathology and Genetics, Stanford University School of Medicine
(650) 723-2885
afire@stanford.edu

Virginia Walbot, employer and PhD dissertation committee member
Department of Biology, Stanford University

(650) 723-2007
walbot@stanford.edu

Jiming Jiang, research collaborator
Department of Plant Biology, Michigan State University
(608) 262-1878
jiangjm@msu.edu

Venkatesan Sundaresan, research collaborator
Department of Plant Biology, University of California, Davis
(530) 754-9677
sundar@ucdavis.edu

Maike Stam, research collaborator
Swammerdam Institute for Life Sciences, University of Amsterdam
+31 0205257655
m.e.stam@uva.nl