

## Dashiell J. Massey

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### Education

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|---------------------------|---|---------------|
| <b>Cornell University</b> | Ithaca, NY  | 2022          |
| Ph.D. Candidate           | Field of Genetics, Genomics, and Development                                | (anticipated) |
| Dissertation Title:       | <i>Variation in human DNA replication timing at single-cell resolution.</i> |               |
| Committee:                | Amnon Koren (Chair), Robert Weiss, Charles Danko                            |               |
| <b>Swarthmore College</b> | Swarthmore, PA  | 2014          |
| B.A.                      | Biology, with a minor in Philosophy   |               |

### Research Experience

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|-----------------------------------|--|-------------|
| <b>Cornell University</b>         | Ithaca, NY   | 2017 –      |
| Ph.D. Candidate                   | <i>Variation in human DNA replication timing at the single-cell level.</i>   |             |
| PI: Amnon Koren, PhD              | Development of methods for bioinformatic processing and analysis of whole-genome DNA sequence data from single cells.          |             |
| <b>Georgetown University</b>      | Washington DC  | 2015 – 2016 |
| Research Assistant                | <i>Effects of aging on DmRad51 expression and homologous recombination repair in the D. melanogaster male germline.</i>        |             |
| PI: Jan LaRocque, PhD             | Optimization of protocols for RNA isolation, cDNA generation and qPCR from whole-fly preps. Publication in <i>Aging Cell</i> . |             |
| <b>Boston Children's Hospital</b> | Boston, MA   | 2013 – 2015 |
| Clinical Research Intern          | <i>Cardiac intensive care predictors of failed sternal re-approximation and post-operative mortality.</i>                      |             |
| PI: Catherine Allan, MD           | Proposal, design, and implementation of a retrospective electronic medical record review.                                      |             |
| <b>Harvard Medical School</b>     | Boston, MA   | 2011        |
| Summer Research Student           | <i>Effects of aging on peripheral nerve regeneration in the mouse.</i>   |             |
| PI: Clifford Woolf, MB, BCh, PhD  | Biochemical and behavioral analysis of nerve damage and healing in young vs. aged mice. Funded by HHMI fellowship.             |             |

### Distinctions and Awards

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|---|-----------------------|-------------|
| Outstanding Graduate Teaching Assistant, College of Ag. & Life Sciences | Cornell University    | 2021        |
| Leo M. Leva Memorial Prize for Biology                                  | Swarthmore College    | 2014        |
| William B. Sailer '82 Scholarship                                       | Swarthmore College    | 2011 – 2014 |
| Howard Hughes Medical Institute (HHMI) grant for off-campus research    | Swarthmore College    | 2011        |
| Luminary Award for Service and Citizenship                              | City of Cambridge, MA | 2009        |

## Publications (\* indicates equal contribution)

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### Primary Research Articles

1. **Massey DJ**, Koren A. (2021). High-throughput analysis of DNA replication in single human cells reveals the complex nature of replication timing control. *Submitted*.
2. Yaacov A\*, Vardi O\*, Blumenfeld B, Greenberg A, **Massey DJ**, Koren A, Adar S, Simon I, Rosenberg S. (2021). Cancer mutational processes vary in their association with replication timing and chromatin accessibility. *In press*.
3. Palmerola KL\*, Amrane S\*, De Los Angeles A\*, Xu S, Zuccaro MV, **Massey DJ**, de Pinho J, Subbiah A, Prosser B, Lobo R, Koren A, Baslan T, Egli D. (2021). DNA breaks due to replication stress limit the developmental potential of human preimplantation embryos. *In review*.
4. Koren A, **Massey DJ**, Bracci AN. (2021). TIGER: inferring DNA replication timing from whole-genome sequence data. *Bioinformatics* *btab166*. DOI: 10.1093/bioinformatics/btab166
5. **Massey DJ\***, Kim D\*, Brooks KE, Smolka MB, Koren A. (2019). Next-generation sequencing enables spatiotemporal resolution of human centromere replication timing. *Genes* *10*, 269. DOI: 10.3390/genes10040269
6. Delabaere L\*, Ertl HA\*, **Massey DJ**, Hofley CM, Sohail F, Bienenstock EJ, Sebastian H, Chiolo3 I & LaRocque JR. (2017). Aging impairs double-strand break repair by homologous recombination in *Drosophila* germ cells. *Aging Cell* *16*, 320-328. DOI: 10.1111/ace.12556

### Reviews and Commentaries

7. Hulke ML\*, **Massey DJ\*** & Koren A. (2019). Genomic methods for measuring DNA replication dynamics (Review). *Chromosome Research*. DOI: 10.1007/s10577-019-09624-y.
8. **Massey DJ** & Koren A (2017). Mismatch repair prefers exons (News and Views). *Nature Genetics* *49*, 1673-1674. DOI: 10.1038/ng.3993.

## Presentations

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### Intramural Seminar Talks

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|------|--|
| 2020 | "Single-cell analysis of DNA replication across human cell types."<br>Single Cell Work-in-Progress Seminar; Ithaca, NY.                                |
| 2020 | "Toward improved <i>in vitro</i> fertilization outcomes with single-cell DNA replication analysis."<br>Stem Cell Work-in-Progress Seminar; Ithaca, NY. |
| 2019 | "High-throughput profiling of DNA replication timing in single human cells."<br>Replication, Recombination, and Repair Seminar; Ithaca, NY.            |

### Posters

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|------|--|
| 2021 | "High-throughput analysis of DNA replication in single human cells reveals confined variability in the location and timing of replication initiation."<br>Eukaryotic DNA Replication and Genome Maintenance; Cold Spring Harbor, NY (virtual). |
| 2019 | "Timing of human centromere replication varies across cell lines."<br>Eukaryotic DNA Replication and Genome Maintenance; Cold Spring Harbor, NY.   |
| 2019 | "High-throughput profiling of DNA replication timing in single human cells."<br>Intercampus Genome Instability, Repair, and Editing Symposium; Ithaca, NY.   |
| 2014 | "Failed delayed sternal closure following neonatal cardiac surgery predicted by high mean airway pressure and associated with increased post-operative mortality."<br>American Heart Association Scientific Sessions; Chicago, IL.             |

## Teaching Related

- 2020 “A historical view of curricular changes to the Cornell University Biological Sciences major.”  
Symposium on Connecting Research and Teaching; Ithaca, NY.

## Teaching Experience

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|----------------------------------|--|----------------------------|
| <b>Cornell University</b>        |  | Ithaca, NY                 |
| Teaching Assistant               | <u>Undergraduate Lab in Genetics and Genomics (BIOMG 2801)</u>   |                            |
| <i>Michael Goldberg, PhD</i>     | CRISPR-Cas9 mutagenesis in <i>D. melanogaster</i>  | Fall 2020                  |
| <i>Kristina Blake-Hodek, PhD</i> |  | Summer 2020                |
|                                  |  | Spring 2019                |
| <i>Kristina Blake-Hodek, PhD</i> | Gene mapping in <i>D. melanogaster</i> ; basic molecular techniques in <i>E. coli</i> and <i>S. cerevisiae</i> | Spring 2018                |
| <b>Georgetown University</b>     |  | Washington DC              |
| Laboratory Coordinator           | All undergraduate laboratory courses for the Human Science major   |                            |
| <i>Theodore Nelson, PhD</i>      | <u>Human Biology I (HSCI 101)</u>  | Fall 2015                  |
|                                  | Human anatomy and physiology   | Fall 2014                  |
| <i>Theodore Nelson, PhD</i>      | <u>Human Biology II (HSCI 102)</u>   | Spring 2016                |
|                                  | Comparative vertebrate anatomy   | Spring 2015                |
| <i>Pablo Irusta, PhD</i>         | <u>Microbiology (HSCI 201)</u>   | Fall 2015                  |
|                                  | Basic microbiology technique; identification of unknown organisms  | Fall 2014                  |
| <i>Ronit Yarden, PhD</i>         | <u>Genetics of Health and Disease (HSCI 355)</u>   | Fall 2015                  |
| <i>Theodore Nelson, PhD</i>      | Site-directed mutagenesis; metaphase spreads; RNAi in <i>C. elegans</i>  | Fall 2014                  |
| <i>Alexander Theos, PhD</i>      | <u>Molecular and Cellular Biology in Health and Disease (HSCI 280)</u>   | Spring 2016                |
|                                  | Fundamentals of molecular biology and biochemistry   | Spring 2015                |
| <b>Swarthmore College</b>        |  | Swarthmore, PA             |
| Teaching Assistant               | Introductory undergraduate biology laboratory series   |                            |
| <i>Rachel Merz, PhD</i>          | <u>Organismal and Population Biology Lab (BIOL 002)</u>  | Spring 2014                |
| <i>Stacey Dougherty, MS</i>      | Introduction to ecology and physiology   |                            |
| <i>Elizabeth Vallen, PhD</i>     | <u>Cellular and Molecular Biology Lab (BIOL 001)</u>   | Fall 2013                  |
| <i>Stacey Dougherty, MS</i>      | Introduction to cellular and molecular biology   |                            |
| <b>Swarthmore College</b>        |  | Swarthmore, PA             |
| Writing Associate (WA)           | Recruited as a peer writing tutor, with training in writing pedagogy   |                            |
| <i>Jill Gladstein, PhD</i>       | <u>WA for the Swarthmore College Writing Center</u>  | Spring 2012,<br>2013, 2014 |
|                                  | <u>WA for the Organismal and Population Biology Lab (BIOL 002)</u>   | Spring 2012,<br>2013, 2014 |
|                                  | Head WA for the course (Spring 2013, 2014)   |                            |
|                                  | <u>WA for the Cellular and Molecular Biology Lab (BIOL 001)</u>  | Fall 2011,<br>2012, 2013   |
|                                  | Head WA for the course (Fall 2012, 2013)   |                            |

## Mentoring Experience

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|--|--------------------|-------------|
| Research mentor for Sneha Sharma, undergraduate research assistant | Cornell University | 2018 – 2021 |
| Graduate Students Mentoring Undergraduates program                 | Cornell University | 2018 – 2019 |

Peer mentor for five Writing Associate trainees

Swarthmore College

2012 – 2014

### **Outreach, Engagement, and Service**

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| Life Sciences Diversity Recruitment Weekend (Board member)           | Cornell University      | 2021 –      |
| Diversity Council, Dept. of Molecular Biology and Genetics           | Cornell University      | 2018 –      |
| Scholarship of Teaching and Learning                                 | Cornell University      | 2019 – 2020 |
| Future Professors Institute  | Cornell University      | 2019        |
| Center for Vertebrate Genomics Journal Club (Co-organizer)           | Cornell University      | 2018 – 2019 |
| Genetics, Genomics, and Development Admissions Committee             | Cornell University      | 2018 – 2019 |
| Graduate Student School Outreach Program (GRASSHOPR)                 | Enfield Elementary Sch. | 2018, 2019  |
| BMCB-GGD Biennial Symposium (Co-organizer)                           | Cornell University      | 2018        |
| Student Representative to the Graduate Field Faculty                 | Cornell University      | 2017 – 2018 |
| Housing Committee (Co-chair, 2013 – 2014)                            | Swarthmore College      | 2010 – 2014 |
| Resident Assistant Hiring Committee (Co-chair, 2013 – 2014)          | Swarthmore College      | 2010 – 2014 |
| Writing Center Outreach to the College Access Center of Delaware Co. | Chester, PA             | 2013        |