

CURRICULUM VITAE**Contact**

Molecular and Computational Biology
 Department of Biological Sciences
 University of Southern California
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Appointments

2023 – current **Affiliate Faculty, Gerontology**
 USC Leonard Davis School of Gerontology

8/2021 – current **Assistant Professor of Biological Sciences (tenure-track)**
 Molecular and Computational Biology Section
 Department of Biological Sciences
 Dornsife College of Letters, Arts and Sciences
 University of Southern California

2020 – 2022 **Visiting Associate**
 Department of Biology and Bioengineering
 California Institute of Technology

2020-2021 **Assistant Professor (non-tenure track)**
 Department of Biomedical Sciences
 Kaiser Permanente School of Medicine

Education/Training

2016 – 2020 **Postdoctoral Fellow**
 Emory University
 Research Advisors: Anita H. Corbett, Ph.D., Ken Moberg, Ph.D.

2011-2016 **Ph.D. in Biology**
 Clark Atlanta University
 Research Advisor: Jaideep Chaudhary, PhD
 Thesis: ID4 acts as a Tumor Suppressor via p53: Mechanistic Insight

2006-2009 **B.S. in Biology**
 Eastern Kentucky University
 Research Advisor: Marcia Pierce, Ph.D.

Honors and Awards

2024 NIH Reviewer, Temporary Member, Neurological Sciences Training 3 Study Section

2024 BRAINS Affiliate (Broadening the Representation of Academic Investigators in Neuroscience), NIH NINDS

2024-2027 American Society of Human Genetics, Human Genetic Scholars Initiative Advisory Board Member

2023-2025 Alfred P. Sloan Research Fellow in Neuroscience

2023 NIH Reviewer, Molecular Neurogenetics (MNG) Study Section (Permanent Member 2025)

2023 NIH NIA Butler-Williams Scholar

2023 NINDS MINDS (Mentoring Institute for Neuroscience Diversity Scholars) Fellow

2020 100 Inspiring Black Scientists in America, Cell Press CrossTalk

2019 Excellence in Human Genetics Award, Human Genetic Scholar Initiative, American Society of Human Genetics

2019 Keystone Symposia Fellow Award

2018	Rising Star in Biomedical, Massachusetts Institute of Technology (MIT), Boston, MA
2018	FASEB: Post-transcriptional regulation and RNA Decay Meeting Travel Award
2017-2020	Ruth L. Kirschstein NRSA (F32) Postdoctoral Fellowship
2017-2020	Burroughs Wellcome, Postdoctoral Career Development Award
2016-2017	NIH Institutional Research and Career Development Award (IRACDA)

Advising

PhD Students

• Emily Arnold	2023-	“RNA Exosome Function During Human Motor Neuron Development”
• Nina Barr	2022-	“Cerebellar Organoid Model of Pontocerebellar Hypoplasia Type 1b”
• Marisol Castellanos	2024-	“RNA Exosome Maintenance of <i>Drosophila</i> Neuromuscular Junction”
• Lauryn Higginson	2022-	“ <i>Drosophila</i> Model of RNA exosome-linked Disease”

Research Associate

• Xingjun Wang	2023-	“Mitochondrial Defects in <i>Drosophila</i> Modeling PCH1b”
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Undergraduate Students

• Jash Gada	2022-	“Transcriptomic Signatures of Neurodegeneration in <i>Drosophila</i> ”
• Rylee Kang	2022-	“Transcriptomic Signatures of Neurodegeneration in <i>Drosophila</i> ”
• Rishi Nair	Summer 2022	“ <i>Drosophila</i> Model of Pontocerebellar Hypoplasia Type 1b”
• Maggie Torstrick	2022-	“Transcriptomic Signatures of Neurodegeneration in <i>Drosophila</i> ”

Grant Support

• Active

- Project Number: R01NS131620-01
Name of PD/PI: Derrick Morton
Source of Support: NIH/NINDS
Primary Place of Performance: University of Southern California
Title: Investigating RNA Dysregulation in Neurological Disease through Study of Pontocerebellar Hypoplasia Type 1b
Project/Proposal Start and End Date: 04/15/2023-3/31/2028
- Project Number: 5DP1MH132709-02
Name of PD/PI: Kafui Dzirasa
Subaward Co-I: Derrick Morton
Source of Support: NIH/NIMH
Primary Place of Performance: Duke University (primary), University of Southern California (subaward)
Title: Precision editing of neural circuits using engineered electrical synapses
Subaward Project/Proposal Start and End Date: 08/01/2024-07/31/2026
- Administrative Supplement
Project Number: 3R01NS131620-01S1
Name of PD/PI: Derrick Morton
Trainee: Nina Barr
Source of Support: NIH/NINDS
Title: Investigating RNA Dysregulation in Neurological Disease through Study of Pontocerebellar Hypoplasia Type 1b
Project/Proposal Start and End Date: 01/01/2024-12/31/2026
- Project Number: FG-2023-20698
Name of PD/PI: Derrick Morton
Source of Support: Alfred P. Sloan Fellowship in Neuroscience
Primary Place of Performance: University of Southern California
Title: Toward Understanding the Molecular Basis of RNA Exosome-linked Neurological Disorders
Project/Proposal Start and End Date: 09/15/2023-8/31/2025

• Completed

1. Project Number: P30AG068345
Name of PD/PI: Derrick Morton
Source of Support: USC-Buck Nathan Shock Center
Primary Place of Performance: University of Southern California
Title: Transcriptomic Signatures of Age-Related Neurodegeneration in *Drosophila*
Project/Proposal Start and End Date: 06/2022-05/31/2023
2. Project Number: 1021252
Name of PD/PI: Derrick Morton
Source of Support: Burroughs Wellcome
Primary Place of Performance: California Institute of Technology, Kaiser Permanente School of Medicine
Title: Promoting Engagement in science for underrepresented Ethnic and Racial minorities (P.E.E.R)
Project/Proposal Start and End Date: 09/01/2017-08/31/2020
3. Project Number: 5F32GM125350-03
Name of PD/PI: Derrick Morton
Source of Support: NIH/NIGMS
Primary Place of Performance: Emory University
Title: Exploiting *Drosophila* to examine RNA exosome-linked disease
Project/Proposal Start and End Date: 09/01/2017-08/31/2020
4. Project Number: 1017374
Name of PD/PI: Derrick Morton
Source of Support: Burroughs Wellcome
Primary Place of Performance: Emory University
Title: Exploiting *Drosophila* to examine RNA exosome-linked disease
Project/Proposal Start and End Date: 09/01/2017-08/31/2020

Peer-Reviewed Publications

Note: Members of the Morton lab are indicated by (), and corresponding authors are indicated by (#)*

a. Preprint on bioRxiv

1. Higginson LH*, Wang X*, He K, Torstrick M*, Kim M, Benayoun B, MacLean A, Chanfreau GF, **Morton, DJ**[#]. The RNA exosome maintains cellular RNA homeostasis by controlling transcript abundance in the brain. bioRxiv 2024.10.30.620488; doi: <https://doi.org/10.1101/2024.10.30.620488> (October 2024)

b. Peer-reviewed publications in journals

2. Jalloh B, Lancaster CL, Rounds JC, Brown BE, Leung SW, Banerjee A, **Morton DJ**, Bienkowski RS, Fasken MB, Kremisky IJ, Tegowski M, Meyer K, Corbett A, Moberg K. The *Drosophila* Nab2 RNA binding protein inhibits m⁶A methylation and male-specific splicing of *Sex lethal* transcript in female neuronal tissue. *Elife*. 2023 Jul 17;12:e64904. doi: 10.7554/eLife.64904. PMID: 37458420; PMCID: PMC10351920
3. Phillips MA, Arnold KR, Vue Z, Beasley HK, Garza-Lopez E, Marshall AG, **Morton DJ**, McReynolds MR, Barter TT, Hinton A Jr. Combining Metabolomics and Experimental Evolution Reveals Key Mechanisms Underlying Longevity Differences in Laboratory Evolved *Drosophila melanogaster* Populations. *Int J Mol Sci*. 2022 Jan 19;23(3):1067. doi: 10.3390/ijms23031067. PMID: 35162994; PMCID: PMC8835531
4. **Morton DJ**[#], Jalloh B, Kim L, Kremisky I, Nair RJ, Nguyen KB, Rounds JC, Sterrett MC, Brown B, Le T, Karkare MC, McGaughey KD, Sheng S, Leung SW, Fasken MB, Moberg KH, Corbett AH[#]. A *Drosophila* model of Pontocerebellar Hypoplasia reveals a critical role for the RNA exosome in neurons. *PLoS Genet*. 2020 Jul 9;16(7):e1008901. doi: 10.1371/journal.pgen.1008901. PMID: 32645003; PMCID: PMC7373318
5. **Morton DJ**, Patel D, Joshi J, Hunt A, Knowell AE, Chaudhary J. ID4 regulates transcriptional activity of wild type and mutant p53 via K373 acetylation. *Oncotarget*. 2017;8(2):2536-49. Epub 2016/12/03. doi: 10.18632/oncotarget.13701. PubMed PMID: 27911860; PubMed Central PMCID: PMC5356822
6. Joshi JB, Patel D, **Morton DJ**, Sharma P, Zou J, Hewa Bostanthirige D, et al. Inactivation of ID4 promotes a CRPC phenotype with constitutive AR activation through FKBP52. *Mol Oncol*. 2017;11(4):337-57. Epub 2017/03/03. doi: 10.1002/1878-0261.12028. PubMed PMID: 28252832; PubMed Central PMCID: PMC5378613

7. Komaragiri SK, Bostanthirige DH, **Morton DJ**, Patel D, Joshi J, Upadhyay S, et al. ID4 promotes AR expression and blocks tumorigenicity of PC3 prostate cancer cells. *Biochem Biophys Res Commun*. 2016;478(1):60-6. Epub 2016/07/28. doi: 10.1016/j.bbrc.2016.07.092. PubMed PMID: 27462022; PubMed Central PMCID: PMC4991035
8. Korang-Yeboah M, Patel D, **Morton DJ**, Sharma P, Gorantla Y, Joshi J, et al. Intra-tumoral delivery of functional ID4 protein via PCL/maltodextrin nano-particle inhibits prostate cancer growth. *Oncotarget*. 2016;7(42):68072-85. Epub 2016/08/04. doi: 10.18632/oncotarget.10953. PubMed PMID: 27487149; PubMed Central PMCID: PMC4991035
9. Rohani L[&], **Morton DJ**[&], Wang XQ, Chaudhary J. Relative Stability of Wild-Type and Mutant p53 Core Domain: A Molecular Dynamic Study. *J Comput Biol*. 2016;23(2):80-9. Epub 2015/12/18. doi: 10.1089/cmb.2015.0163. PubMed PMID: 26675082. [&]**Co-first authors**
10. Smith BN, Burton LJ, Henderson V, Randle DD, **Morton DJ**, Smith BA, et al. Snail promotes epithelial mesenchymal transition in breast cancer cells in part via activation of nuclear ERK2. *PLoS One*. 2014;9(8):e104987. Epub 2014/08/15. doi: 10.1371/journal.pone.0104987. PubMed PMID: 25122124; PubMed Central PMCID: PMC4133359
11. Knowell AE, Patel D, **Morton DJ**, Sharma P, Glymph S, Chaudhary J. Id4 dependent acetylation restores mutant-p53 transcriptional activity. *Mol Cancer*. 2013;12:161. Epub 2013/12/18. doi: 10.1186/1476-4598-12-161. PubMed PMID: 24330748; PubMed Central PMCID: PMC4133359
12. Vo BT, **Morton DJ**, Komaragiri S, Millena AC, Leath C, Khan SA. TGF-beta effects on prostate cancer cell migration and invasion are mediated by PGE2 through activation of PI3K/AKT/mTOR pathway. *Endocrinology*. 2013;154(5):1768-79. Epub 2013/03/22. doi: 10.1210/en.2012-2074. PubMed PMID: 23515290; PubMed Central PMCID: PMC4133359

c. Review Articles

13. de Amorim, J., Fasken MB, Slavotinek, A., Corbett, AH, **Morton, DJ**[#]. *Modeling Pathogenic Variants in the RNA Exosome*. *RNA & Disease* 2020 June 6; Vol 7 (2020). Review. doi: 10.14800/rd.1166
14. **Morton DJ**, Kuiper EG, Jones SK, Leung SW, Corbett AH, Fasken MB. The RNA exosome and RNA exosome-linked disease. *RNA*. 2018;24(2):127-42. Epub 2017/11/03. doi: 10.1261/rna.064626.117. PubMed PMID: 29093021; PubMed Central PMCID: PMC5769741
15. **Morton DJ**, Kuiper EG, Jones SK, Leung SW, Corbett AH, Fasken MB. The RNA exosome and RNA exosome-linked disease. *RNA*. 2018;24(2):127-42. Epub 2017/11/03. doi: 10.1261/rna.064626.117. PubMed PMID: 29093021; PubMed Central PMCID: PMC5769741
16. Patel D, **Morton DJ**, Carey J, Havrda MC, Chaudhary J. Inhibitor of differentiation 4 (ID4): From development to cancer. *Biochim Biophys Acta*. 2015;1855(1):92-103. Epub 2014/12/17. doi: 10.1016/j.bbcan.2014.12.002. PubMed PMID: 25512197; PubMed Central PMCID: PMC4312723

d. Book Chapter

17. Fasken MB, **Morton DJ**, Kuiper EG, Jones SK, Leung SW, Corbett AH. The RNA Exosome and Human Disease. *Methods Mol Biol*. 2020;2062:3-33. doi: 10.1007/978-1-4939-9822-7_1. Erratum in: *Methods Mol Biol*. 2020;2062:C1-C4. PMID: 31768969.

Review Articles/Commentaries on Mentoring and DEI Advocacy

18. Mays A, Byars-Winston A, Hinton A Jr, Marshall AG, Kirabo A, August A, Marlin BJ, Riggs B, Tolbert B, Wanjalla C, Womack C, Evans CS, Barnes C, Starbird C, Williams C, Reynolds C, Taabazuing C, Cameron CE, Murray DD, Applewhite D, **Morton DJ**, Lee D, Williams DW, Lynch D, Brady D, Lynch E, Rutaganira FUN, Silva GM, Shuler H, Saboor IA, Davis J, Dzirasa K, Hammonds-Odie L, Reyes L, Sweetwyne MT, McReynolds MR, Johnson MDL, Smith NA, Pittman N, Ajjola OA, Smith Q, Robinson RAS, Lewis SC, Murray SA, Black S, Neal SE, Andrisse S, Townsend S, Damo SM, Griffith TN, Lambert WM, Clemons WM Jr. Juneteenth in STEMM and the barriers to equitable science. *Cell*. 2023 Jun 8;186(12):2510-2517. doi: 10.1016/j.cell.2023.05.016. Epub 2023 Jun 8. PMID: 37295396.
19. Marshall AG, Brady LJ, Palavicino-Maggio CB, Neikirk K, Vue Z, Beasley HK, Garza-Lopez E, Murray SA, Martinez D, Shuler HD, Spencer EC, Morton DJ, Hinton AJ. The importance of mentors and how to handle

more than one mentor. Pathog Dis. 2022 Jun 22;80(1):ftac011. doi: 10.1093/femspd/ftac011. PMID: 35446416.

20. Marshall AG, Palavicino-Maggio CB, Neikirk K, Vue Z, Beasley HK, Garza-Lopez E, Murray SA, Martinez D, Crabtree A, Conley ZC, Vang L, Davis JS, Powell-Roach KL, Campbell S, Dal AB, Shao B, Alexander S, Vang N, Vue N, Vue M, Shuler HD, Spencer EC, **Morton DJ**, Hinton A. Using Champion-Oriented Mindset to Overcome the Challenges of Graduate School: Impact of Workshop for Graduate School Skills on Underrepresented Minority Retention. Pathog Dis. 2022 Jun 24:ftac024. doi: 10.1093/femspd/ftac024. Epub ahead of print. PMID: 35749569.
21. Marshall AG, Vue Z, Palavicino-Maggio CB, Neikirk K, Beasley HK, Garza-Lopez E, Murray SA, Martinez D, Crabtree A, Conley ZC, Vang L, Davis JS, Powell-Roach KL, Campbell S, Brady LJ, Dal AB, Shao B, Alexander S, Vang N, Vue N, Vue M, Shuler HD, Spencer EC, **Morton DJ**, Hinton A. An effective workshop on "How to be an Effective Mentor for Underrepresented STEM Trainees". Pathog Dis. 2022 Jul 6;80(1):ftac022. doi: 10.1093/femspd/ftac022. PMID: 35709418; PMCID: PMC9258687.
22. Lancaster CL, Higginson L*, Chen B, Encarnacion-Rivera L, **Morton DJ**, Corbett AH. How to Select a Graduate School Program for a PhD in Biomedical Science. Curr Protoc. 2022 Jun;2(6):e450. doi: 10.1002/cpz1.450. PMID: 35735740; PMCID: PMC9245324.
23. Marshall AG, Vue Z, Palavicino-Maggio CB, Neikirk K, Beasley HK, Garza-Lopez E, Murray SA, Martinez D, Crabtree A, Conley ZC, Vang L, Davis JS, Powell-Roach KL, Campbell S, Brady LJ, Dal AB, Shao B, Alexander S, Vang N, Vue N, Vue M, Shuler HD, Spencer EC, **Morton DJ**, Hinton A. The role of mentoring in promoting diversity equity and inclusion in STEM Education and Research. Pathog Dis. 2022 Jul 21;80(1):ftac019. doi: 10.1093/femspd/ftac019. PMID: 35713493; PMCID: PMC9302695.

Research Presentations

Invited Talks

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| 2024 | FASEB: Post-transcriptional Regulation of Gene Expression and RNA Decay, Mechanisms of RNA-mediated Neurological Disorders, Lisbon, Portugal (8/2024) – Invited Speaker and Session Chair |
| 2024 | 2 nd Annual Brazilian Mitochondrial Deregulation Conference, RNA Dysregulation in Complex Brain Disorders, Petropolis, Brazil (8/2024) – Keynote Speaker |
| 2024 | NIH, National Institutes of Aging, The Birth and Death of a Neuron: Investigating the Role of the RNA exosome in Neurogenesis and Neurological Disease (2/20/2024) |
| 2024 | University of California, Los Angeles, Decoding the RNA exosome: Unraveling its Role in Neuronal Diversity and Neurodevelopmental Disorders (2/9/2024) |
| 2023 | Emory University, An Unconventional Journey to RNA Biology and Molecular Neuroscience |
| 2023 | University of Iowa, Functional consequences of RNA exosome mutations in complex neurodevelopmental disorders |
| 2023 | NIH/NIA, Butler Williams Scholars, R-loops and Age-Related Neurodegeneration: Convergent and Divergent Pathomechanisms |
| 2023 | Vanderbilt University, Investigating RNA Dysregulation in Complex Brain Disorders |
| 2023 | University of Michigan, Navigating Intersecting Identities: An Unconventional Journey to RNA Science and Neurobiology |
| 2023 | Rocky Mountain RNA Symposium, Investigating RNA Dysregulation in Complex Brain Disorders |
| 2022 | Black In Computational Biology, Dysregulation of RNA processing factors in Neurological Disease |
| 2021 | Emory University, Mechanism of RNA exosome Dysfunction in Neurological Disease |
| 2020 | University of Oregon, A <i>Drosophila</i> Model of Pontocerebellar Hypoplasia Type 1b Reveals a Critical Role for the RNA Exosome in Neurons |
| 2020 | Georgia Institute of Technology, Modeling RNA Exosome-linked Disease in <i>Drosophila</i> |
| 2019 | Bowdoin College, Exploiting <i>Drosophila</i> to examine RNA Exosome-linked Disease. Department of Biology and Biochemistry, Brunswick, ME |

Meeting Attendance (since 2022)

2024	FASEB: RNA Decay, Lisbon, Portugal
2024	2 nd Annual 2 nd Annual Brazilian Mitochondrial Deregulation Conference, Petropolis, Brazil
2023	ABRCMS (Annual Biomedical Research Conference for Minoritized Students), Phoenix, AZ
2023	Society for Neuroscience (SfN), Washington, DC
2023	International Society for Stem Cell Research (ISSCR), Boston, MA
2022	American Society for Cell Biology, Washington, DC
2022	American Society of Human Genetics, Los Angeles, CA
2022	RNA Society, Boulder, CO

Professional Activities

2024-2027	Regeneron Science Talent Search Competition Judge, Molecular Biology and Biochemistry
2024-2027	American Society of Human Genetics, Human Genetic Scholars Initiative, Advisory Board
2024	NIH Reviewer, Temporary Member, Neurological Sciences Training 3 Study Section
2023-present	Society for Neuroscience Member
2023	NIH Reviewer, Temporary Member, Molecular Neurogenetics (MNG) Study Section (invited to be a permanent member – delayed to 2025)
2022-2025	Editorial Board, Differentiation
2020-present	American Human Genetic Society Member
2020-present	American Society for Cell Biology (ASCB)
2016-present	RNA Society Member

Courses Taught

1. Molecular Genetics and Biochemistry (BISC 502A) – Gene Expression and RNA Regulation Module
USC Molecular and Computational Biology PhD Program Core Course
2. Advanced Reading in Molecular Biology (BISC 544) – Advanced training for molecular biology graduate students in reading primary journal articles. Emphasis on critical analyses of primary scientific literature.
3. Scientific Writing & Hypothesis Design (BISC 599) - Grant writing course designed for graduate students in the Molecular Biology PhD program. This course focuses on writing an NIH F31 grant proposal, but the skills developed in the course translate to any other granting mechanism.
4. RNA Biology and Biotechnology (BISC 402) - The purpose of this course is to introduce students to the fundamental concepts of RNA biology and to state-of-the-art biotechnologies that use RNA for medical and industrial applications. The course draws on the recent developments of utilizing RNA as medicine, providing a platform to discuss aspects of RNA processing, disease mechanisms, steps taken to move from the bench to the bedside, and consider the socioeconomic implications of developing and delivering such a treatment.

Service on Committees

2024	Dornsife Letters, Arts and Science Dean Search Committee
2021-2024	Molecular Biology PhD Admissions Committee
2022	Molecular and Computational Biology Faculty Merit Committee