

Curriculum Vitae
Evan J. Morrison

Howard Hughes Medical Institute Gilliam Fellow

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Education

- 2018 – 2025 Ph.D. in Molecular Biology & Biochemistry
University of Colorado Anschutz Medical Campus, Aurora, CO
Thesis Project: Discovery and characterization of a MetAP-dependent N-degron pathway
Advisor: Dr. Olivia S. Rissland.
- 2011 – 2016 B.S. in Chemistry & B.A. in Philosophy
Metropolitan State University of Denver, Denver, CO
Research Project: Determination of Higher Order Structures in the Cap-Independent Translation Enhancer of the Blackcurrant Reversion 2 Virus.
Advisor: Dr. Megan Filbin-Wong.

Academic experience

- 09/2017 – 08/2018 Clinical Research Coordinator
University of Colorado Cancer Center
Job Duties: Investigate research protocols to determine subject eligibility for participation in clinical research trials. Obtain informed consent and conduct research visits with patients (take vitals, perform EKGs, examine critical lab values, and document and grade adverse events (CTCAE v.4.0)) to ensure patient safety. Process and ship biospecimens for laboratory analysis.
- 09/2016 – 09/2017 Laboratory Researcher
National Jewish Health
Center for Genes, Environment and Health
Research Project: Hepatic expression of chemokine ligand 20 is modulated by miR-590.
Advisor: Dr. Johanna K. DiStefano
- 06/2016 – 08/2016 RNA Bioscience Initiative Intern (REU)
University of Colorado School of Medicine
Department of Biochemistry & Molecular Genetics
Research Project: High throughput determination of higher order structures in the 3'UTR of a viral long noncoding RNA.
Advisor: Dr. Jeffrey Kieft.
- 06/2015 – 06/2016 Student Research Assistant
Metropolitan State University of Denver
Department of Chemistry
Research Project: Determination of higher order structures in the cap-independent translation enhancer of the blackcurrant reversion virus.
Advisor: Dr. Megan Filbin-Wong

Research skills

Laboratory techniques Knowledge of biochemistry, molecular biology, and genetics experiments utilizing: gel electrophoresis, capillary electrophoresis, DNA purification, primer and G-block design, molecular cloning, transfection, transduction, RNA purification, *in vitro* transcription, *in vitro* translation, RT-qPCR, siRNA, miRNA, SHAPE and chemical probing, Western blot, ribosome fractionation and purification, immunoprecipitation, luciferase assays, LC-MS/MS, CRISPR KO, CRISPRi, CRISPRa, and mammalian cell culture.

Grant support

09/2022 – HHMI Gilliam Fellowship-GT14919 (PI: Morrison)
Howard Hughes Medical Institute
A tripeptide motif induces rapid protein decay in human cells

06/2021 – 08/2022 NSF GRFP-2020300571 (PI: Morrison)
National Science Foundation
Primary protein sequence regulates gene expression.

05/2020 – 04/2021 NIH T32-GM136444 (PI: Morrison)
National Institute of Health/National Institute of General Medical Sciences
Amino acid concentration influences ORF dependent mRNA stability

Publications

1. Leti F., **Morrison E.**, DiStefano JK. *Long noncoding RNAs in the pathogenesis of diabetic kidney disease: implications for novel therapeutic strategies*. Personalized Medicine. 2017,14(3): 271-8. DOI:10.2217/pme2016-0107.
2. **Morrison E.J.**, Champagne DP., Dzieciatkowska M., Nemkov T., Zimring JC., Hansen KC., Guan F., Huffman DM., Santambrogio L., and D'Alessandro A. *Parabiosis incompletely reverses aging-induced metabolic changes and oxidant stress in mouse red blood cells*. Nutrients. 2019, 11(6). DOI:10.3390/nu11061337.
3. Bertolone L., Kalani Roy M., Hay A., **Morrison E.J.**, Stefanoni D., Fu X., Kanas T., Gladwin M., Kleinman S., Dumont LJ., Stone M., Nemkov T., Busch M., Zimring JC., D'Alessandro A. *Impact of taurine on red blood cell metabolism and implications to blood storage*. Transfusion. 2020. DOI: 10.1111/trf.15810.
4. Bertolone L., Shin HKH., Stefanoni D., Baek JH., Gao Y., **Morrison E.J.**, Nemkov T., Thomas T., Francis RO., Hod EA., Zimring JC., Yoshida T., Karafin M., Schwartz J., Hudson KE., Spitalnik SL., Buehler PW., D'Alessandro A. *ZOOMICS: comparative metabolomics of red blood cells from old world monkeys and humans*. Frontiers in Physiology. 2020. DOI: 10.3389/fphys.2020.593841.
5. D'Alessandro A., Hay A., Dzieciatkowska M., Brown BC., **Morrison E.J.**, Hansen KC., Zimring JC. *Protein-L-isoaspartate O-methyltransferase is required for in vivo control of oxidative damage in red blood cells*. Haematologica. 2020. DOI: 10.3324/haemtaol.2020266676.

6. Thomas T., Cendali F., Fu X., Gamboni F., **Morrison EJ.**, Beirne J., Nemkov T., Antonelou MH., Kriebardis A., Welsby I., Hay A., Dziewulska KH., Busch MP., Kleinman S., Buehler PW., Spitalnik SL., Zimring JC., D'Alessandro A. *Fatty acid desaturase activity in mature red blood cells and implications for blood storage quality*. Transfusion 2021. DOI: 10.1111/trf.16402.
7. Barrington CL., Galindo G., Koch AL., Horton E., **Morrison EJ.**, Tisa S., Stasevich TJ., Rissland OS. *Synonymous codon usage regulates translation initiation*. Cell Reports 2023. DOI: 10.1016/j.celrep.2023.113413
8. **Morrison EJ.***, Rao DM*, Horton ER*, Barrington CL*, Briney CA*, Henriksen JC*, Martinez-Seidel F*, Sterling EM*, Provencio ED., Harris M., Allen E., Hesselberth J., Rissland OS. *Systematic identification and characterization of eukaryotic and viral 2A peptide-bond-skipping sequences*. Cell Reports 2025. DOI: 10.1016/j.celrep.2025.115822
*These authors contributed equally.
9. **Morrison EJ.**, Shvartz D., Horton ER., Bekturova A., Koren I., Rissland OS. *UBR4 regulates a MetAP-dependent N-degron pathway*. Under review. DOI: <https://doi.org/10.1101/2024.10.03.616566>
10. **Morrison EJ.**, and Rissland OS. *The generation and consequences of N-terminal proteoform diversity*. Cell Reports 2025. DOI: 10.1016/j.celrep.2025.116275

Abstracts and poster presentations

1. Shields EJ., **Morrison EJ.**, Filbin-Wong ME. *Determination of Viral Cap-Independent Translation Enhancer RNA structure using Computer Modeling and Chemical Modification*. Presented at the Metropolitan State University of Denver Undergraduate Research Conference 2016. 22 April, Denver, Colorado.
2. **Morrison EJ.**, Shields EJ., Filbin-Wong ME. *Determination of Higher Order Structures in the Cap-Independent Translation Enhancer of the Black Currant Reversion Virus 2*. Presented at the Metropolitan State University of Denver Undergraduate Research Conference 2016. 22 April, Denver, Colorado.
3. **Morrison E.**, Leti F., Gerhard GS., Still C., and DiStefano JK. *Hepatic Expression of Chemokine Ligand 20 (CCL20) in Nonalcoholic Steatohepatitis is Modulated by miR-590-5p*. Presented at the Center for Genes, Environment and Health 2017. 27 February, Denver, Colorado.
4. **Morrison EJ.**, Rissland OS. *The N-terminus regulates gene expression in humans*. Presented at the Annual Gilliam Fellows Meeting 2021. 22 September, virtual conference.
5. Abudushalamu A., **Morrison EJ.**, Rissland OS. *METAP2 expression is regulated by translation elongation*. Presented at the SACNAS NDiSTEM Conference. 2022. 27. October, San Juan, Puerto Rico.
6. **Morrison EJ.**, Horton E., Rissland OS. *Characterization of a novel N-terminal degron in human cells*. Presented at the Howard Hughes Medical Institute December Meeting. 2022. 14 December, Chevy Chase, Maryland.
7. **Morrison EJ.**, Horton E., Rissland OS. *UBR4 mediates the quality control of pen-ultimate Arg/N-recognins in mammals*. Presented at the Howard Hughes Medical Institute Annual Gilliam Fellow Meeting. 2023. 31 March, Chevy Chase, Maryland.

8. **Morrison EJ.**, Horton E., Rissland OS. Dynamic regulation of tertiary N-degron motifs in humans. Presented at RNA Society 2023. 03 June, Singapore, Singapore.
9. **Morrison EJ.**, Horton E., Rissland OS. Tertiary lysines and arginines destabilize proteins in human cells. Presented at the Howard Hughes Medical Institute Annual Gilliam Fellow Meeting. 2023. 28 September, Chevy Chase, Maryland.
10. **Morrison EJ.**, Horton E., Rissland OS. Methionine cleavage by METAP2 produces primary N-degrons. Presented at the Howard Hughes Medical Institute December Meeting. 2023. 13 December, Chevy Chase, Maryland.
11. **Morrison EJ.**, Horton E., Rissland OS. UBR4 regulates a MetAP2-dependent Arg/N-degron pathway. Presented at the Howard Hughes Medical Institute December Meeting. 2024. 18 September, Chevy Chase, Maryland

Oral presentations

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| 05/2014 | Openness and closedness: metaphors in discourse
Undergraduate English Conference, Division of Linguistics
SpringHill Suites, Denver, CO |
| 05/2016 | Higher order structures in the cap-independent translation enhancer of the blackcurrant virus 2
Metropolitan State University of Denver, Department of Chemistry Speaker Series |
| 04/2021 | Primary protein sequence regulates gene expression
Metropolitan State University of Denver, Department of Chemistry Speaker Series
Invited speaker |
| 10/2023 | Tying up loose ends: Characterization of a novel N-degron pathway in humans
*Awarded Outstanding Research Presentation in Cell/Molecular Biology and Developmental Biology
SACNAS NDiSTEM 2023
Oregon Convention Center, Portland Oregon |
| 05/2024 | UBR4 regulates a MetAP2-dependent Arg/N-degron pathway
2024 SEP Rising Stars in Biomedical Sciences
Sanford Burnham Prebys, La Jolla, California
Invited Speaker |

Lectures in service of education and outreach

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| 02/2019 | From rAGs to riTChes: on becoming an RNA biochemist
DSST: Conservatory Green High School; Invited speaker. |
| 03/2020 | Where does it all go? Metabolism and the chemistry of life
Aurora Science and Technology Middle School; Invited speaker. |
| 08/2021 | Writing a message: How the beginning of the ORF dictates gene expression
Science Gong Show; Invited Speaker |

05/2022 Those we render invisible: racialized gendered reductionism from an empirical point of view
 WiSTEM Annual Symposium 2022
 University of Colorado-Denver, Anschutz Medical Campus

Honors, special recognitions, and awards

1999	Denver Mile High Scholar Samuels Elementary School
2000	Samuel's Elementary School Super Citizen Samuels Elementary School
2013	Provost's Honor Roll Metropolitan State University of Denver
2013	Metro Scholar Need Award Metropolitan State University of Denver \$1250.00
2014	Metro Scholar Need Award Metropolitan State University of Denver \$800.00
2016	LAS Student Research Grant Metropolitan State University of Denver \$500.00
2016	2016 Outstanding Student of the Year Nominee Metropolitan State University of Denver, College of Letters, Arts and Sciences
2018	RNA Bioscience Initiative Academic Enrichment Award University of Colorado-Denver, Anschutz Medical Campus \$5000.00
2020	Molecular Biology Predoctoral NRSA T32 Institutional Training Fellowship University of Colorado-Denver, Anschutz Medical Campus \$24,816.00
2021 – 2022	National Science Foundation Graduate Research Fellowship University of Colorado-Denver, Anschutz Medical Campus \$46,000.00 per year
2022 –	Howard Hughes Medical Institute Gilliam Fellowship University of Colorado-Denver, Anschutz Medical Campus \$55,000.00 per year
2023	SACNAS NDiSTEM Travel Scholarship University of Colorado-Denver, Anschutz Medical Campus
2023	Outstanding Research Presentation in Cell/Molecular Biology and Developmental Biology NDiSTEM SACNAS 2023, Portland, Oregon

- 2024 Sanford Burnham Prebys 2024 Rising Stars in Biomedical Sciences
Stanford Burnham Prebys, La Jolla, California
- 2025 AAAS/*Science* Program for Excellence in Science
Nominated by Dr. Jennifer Richer, Dean of CU Anschutz Graduate School
University of Colorado-Denver, Anschutz Medical Campus

Professional affiliations

- 2019 – Present Society for the Advancement of Chicanos/Hispanics and Native Americans in Science
(SACNAS)
National Student Member
- 2019 – Present American Society for Biochemistry and Molecular Biology (ASBMB)
University of Colorado-Denver, Anschutz Medical Campus
Student Member
- 2018 – Present RNA Society
University of Colorado-Denver, Anschutz Medical Campus
Student Member
- 2014 – Present Golden Key International Honor Society
Metropolitan State University of Denver
Student Member

Committee and service responsibilities

- 2024 – Black Graduate Student Association
University of Colorado-Denver, Anschutz Medical Campus
Student Member
- 2022 – Present RNA Bioscience Initiative Summer Internship Program Admission Committee
University of Colorado-Denver, Anschutz Medical Campus
Reviewer
- 2021 – 2022 Women in Science, Technology, Engineering and Mathematics (WiSTEM)
University of Colorado-Denver, Anschutz Medical Campus
Ally Coordinator
- 2021 – 2023 Molecular Biology Graduate Advisory Committee
University of Colorado-Denver, Anschutz Medical Campus
Student Representative
- 2020 – 2023 Diversity, Equity and Anti-Racism (DEA-R) Recruitment Committee
Biochemistry and Molecular Genetics
University of Colorado-Denver, Anschutz Medical Campus
Co-chair

2020 – 2022	Seminar Committee Biochemistry and Molecular Genetics University of Colorado-Denver, Anschutz Medical Campus Student Member
2020 – 2022	National Science Foundation Graduate Research Fellowship Review Committee University of Colorado-Denver, Anschutz Medical Campus Reviewer
2019 – 2020	Molecular Biology T32 Round Table Planning Committee University of Colorado-Denver, Anschutz Medical Campus Student Member
2019 – Present	Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Local Student Member
2014 – 2016	Louis Stokes Colorado Alliance for Minority Participation Metropolitan State University of Denver Student Member

Teaching record

Undergraduate

<u>CHE 4350</u> 01/2015 – 05/2015	Biochemistry laboratory Teaching Assistant Metropolitan State University of Denver
<u>CHE 3000</u> 08/2015 – 12/2015	Analytical chemistry Supplemental Instructor Metropolitan State University of Denver
<u>CHE 4310</u> 01/2016 – 05/2016	Biochemistry I Supplemental Instructor Metropolitan State University of Denver

Graduate

<u>MOLB 7950</u> 08/2022 – 12/2022	Bioinformatics and statistics Teaching Assistant University of Colorado-Denver, Anschutz Medical Campus
<u>IDPT 7806</u> 08/2022 – 12/2022	Foundations in Biomedical Sciences Teaching Assistant University of Colorado-Denver, Anschutz Medical Campus

Mentoring and training***Undergraduate***

- 12/2015 – 09/2022 Laura Baquero (student: Biology major)
Metropolitan State University of Denver
Currently Doctoral Candidate in the Molecular and Cellular Biology Program at University of Washington
- 06/2022 – 08/2022 Adina Abudushalamu (student: Biochemistry & Computer Science major)
University of Colorado Denver, Anschutz Medical Campus
Currently Graduate Student at the University of California, Davis
- 06/2023 – 08/2023 Emily Allen (student: Biology major)
University of Colorado Denver, Anschutz Medical Campus
Currently Graduate Student at University of Michigan
- 09/2023 – 05/2024 Edgar Provencio (student: Biology Major)
University of Colorado-Denver, Anschutz Medical Campus
Currently student in the Biology Program at Metropolitan State University of Denver
- 06/2024 – Present Tan Hyunh (student: Biology Major)
University of Colorado-Denver, Anschutz Medical Campus
Currently student in the Biology Program at Metropolitan State University of Denver

Professional Research Assistants and graduate students

- 02/2022 – 06/2022 Emma Horton (Professional Research Assistant)
University of Colorado Denver, Anschutz Medical Campus
Currently Research Assistant at the Allen Institute, Seattle Washington

Community service

- 12/2012– 03/2014 Mentor and Volunteer Coordinator
Aurora Youth Options, Aurora, Colorado
- 02/2019 – 12/2021 Sexual Assault Victims Advocate
The Blue Bench, Denver, Colorado
- 2019 – 2020 RNA Bioscience Initiative Summer Internship Program Group Leader
University of Colorado-Denver, Anschutz Medical Campus
- 2019 Neuroanatomy Teaching Assistant, SACNAS Summer Academy
University of Colorado-Denver, Anschutz Medical Campus
- 09/2020 – 03/2023 Bryant Webster STEM Scholar Mentor
University of Colorado-Denver, Anschutz Medical Campus
- 06/2023 – 09/2023 CC2STEM Mentor
University of Colorado-Denver, Anschutz Medical Campus

References

- (303) 724-3219 Dr. Olivia Rissland
olivia.rissland@gmail.com
www.risslandlab.com
- (303) 724-3309 Dr. Sujatha Jagannathan
sujatha.jagannathan@cuanschultz.edu
www.jagannathan-lab.org/
- (303) 724-3567 Dr. Neelanjan Mukherjee
neelanjan.mukherjee@cuanschultz.edu
www.mukherjeelab.org/