

CURRICULUM VITAE

McKenna Feltes, PhD

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Address and Telephone

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Education

2014-20 PhD, Biochemistry, Biophysics & Structural Biology, Washington University, St Louis, MO
2010-14 BA, *summa cum laude*, Biology & Chemistry, Drury University, Springfield, MO

Research Support

(Grant agency & number, role, title, total direct award if principal investigator)

2021- NIH F32 GM144223, **Principal Investigator**, Identifying novel regulators of the biogenesis and intracellular trafficking of ApoB lipoproteins, \$197,682
2018-20 NIH F31 HL142167, **Principal Investigator**, Post-lysosomal Cholesterol Trafficking: Elucidating protein networks using diazirine alkyne probes, \$29,834/yr
2017-18 NIH T32 HL134635, Graduate research scholar, Integrative and Systems Biology of Cardiovascular Disease Training Grant

Academic Positions/Employment

2023 - present Post-doctoral fellow, Johns Hopkins University, Department of Biology, Baltimore, MD; Supervisor: Steve Farber, PhD. Project: Identifying novel regulators of the biogenesis and intracellular trafficking of ApoB lipoproteins
2020 - 23 Post-doctoral fellow, Carnegie Institute for Science - Department of Embryology, Baltimore, MD; Supervisor: Steve Farber, PhD. Project: Identifying novel regulators of the biogenesis and intracellular trafficking of ApoB lipoproteins
2014-20 Graduate Research Scholar, Washington University School of Medicine, St Louis, MO; Supervisors: Daniel Ory, MD and Jean Schaffer, MD; Thesis: Post-lysosomal cholesterol trafficking: new tools and insights
2013-14 Chemical Inventory Assistant, Drury University, Springfield Missouri; Supervisor: Donald Morris, PhD
2013 Intern, Dupont Industrial Biosciences Applied Innovations Center, Cedar Rapids, Iowa; Supervisor: Donald Cannon, PhD; Project: Identification of small metabolite markers of yeast stress by high performance liquid chromatography for optimization of fuel ethanol fermentation.

2012-14 Undergraduate Research Assistant, Drury University, Springfield, Missouri; Supervisor: Albert Korir, PhD; Project: Affinity Capillary Electrophoresis for the Estimation of Binding Constants and Comparison of Binding Interactions

Teaching and Mentoring Experience

Teaching of students in courses (year, course title, code, type of student, location, level of effort)

2018-19 Molecular Biology at the Cutting Edge, BIOL 4933, graduate, Washington University School of Medicine, 1 lecture/semester
 2018 NIH Fellowship Writing Workshop, graduate, Washington University School of Medicine, Co-mentor for 3-week long course
 2015 The Chemistry and Physics of Biomolecules, BIOL5357, graduate, Washington University School of Medicine, teaching assistant for 1 semester
 2012-13 Analytical Chemistry Lab, CHEM 208L, undergraduate, Drury University, teaching assistant for 2 semesters

Mentored students (name, type of student, project title, accomplishments, location, duration if not full time)

2023- Adrian Rivera, undergraduate, mapping of several mutants identified in a forward genetic screen for regulators of ApoB metabolism, Johns Hopkins, ongoing
 2023-24 Lucie Ebner, undergraduate, validation of a mapping tool, stock propagation and maintenance, Johns Hopkins, ongoing
 2022 Tye Chicha, graduate rotation student, Characterization and mapping of Mutant30 and 6: novel regulators of ApoB biogenesis, Carnegie Embryology, 10 weeks
 2022 Victoria Murphy, graduate rotation student, Characterization and mapping of Mutant12 and 13: novel regulators of ApoB biogenesis, Carnegie Embryology, 10 weeks
 2021 Josh Derrick, graduate rotation student, Genetic and pharmacological manipulation of *prkd2* and its role in lipoprotein metabolism, Carnegie Embryology, 10 weeks
 2021-23 Nainika Pansari, undergraduate/masters, Characterization and mapping of Mutant05: a novel regulator of ApoB biogenesis, Carnegie Embryology, 2 years (1 year undergraduate, 1 year masters)
 2021-22 Yi Shen, undergraduate, Characterization and mapping of Mutant06: a novel regulator of ApoB biogenesis, Carnegie Embryology, 1 year.
 2020-23 Sofia Angel, undergraduate, Characterization and mapping of Mutant07: a novel regulator of ApoB biogenesis, Carnegie Embryology, 3 years
 2017-19 Samantha Moores, post-baccalaurate, Quantitative analysis of retrograde and mitochondrial cholesterol trafficking, Washington University School of Medicine
 2017 Abigail Cahn-Gambino, undergraduate, Generation of CRISPR-Cas9 cholesterol trafficking mutants, Washington University School of Medicine, summer
 2016 Rachel Cohen, high school, HMG-CoA-GFP reporter cells as tools for the study of cholesterol trafficking and homeostasis, Washington University School of Medicine, summer

Other mentoring

2022 Nahn Le, undergraduate, student employee, Carnegie Embryology
 2022 Vivian Truong, undergraduate, student employee, Carnegie Embryology
 2021-22 Vighnesh Ginde, undergraduate, student employee, Carnegie Embryology
 2016-17 Cor Jesu High School Independent Research Program, St Louis, Missouri
 2014-18 Continuing Mentoring division of the Young Scientist Program, Washington University School of Medicine

Workshop Participation

2020 Practical Steps for Increasing Openness and Reproducibility, Washington University School of Medicine
 2019 Mentoring Undergraduate Research, Washington University School of Medicine

2018	Classroom Assessment Techniques, Washington University School of Medicine
2018	Implementing and Designing PBL/CBL Course Materials, Washington University School of Medicine
2018	Evidence Based Teaching for Researchers Workshop, Washington University School of Medicine
2018	Faculty Workshop: Integrating the Arts into a STEM Curriculum, Washington University School of Medicine
2018	Writing a Teaching Statement Workshop, Washington University School of Medicine
2015	Grading and Responding to Students' Concerns About Grades, Washington University School of Medicine
2015	Teaching a Discussion Class, Washington University School of Medicine

Leadership Positions

2022	Carnegie Embryology Mini-Symposium Committee
2016-18	Director, Continuing Mentoring Division of the Young Scientist Program, Washington University School of Medicine

Honors and Awards

2024	Genetics Society of America DeLill Nasser Award for Professional Development
2021	F32 National Research Service Award, National Institutes of Health
2018	F31 National Research Service Award, National Institutes of Health
2016	Poster Winner, Cardiovascular Research Symposium, Washington University School of Medicine
2014-16	Sigma Pre-Doctoral Fellowship in Biological Chemistry, Washington University
2014	<i>Summa cum laude</i> , Bachelor of Arts, Drury University
2014	Lora Bond Award, Department of Biology, Drury University
2014	Presentation Award, Science Undergraduate Research Symposium, Drury University
2013, 14	Outstanding Research Award (Chemistry), Drury University
2013	Departmental Service Award (Chemistry), Drury University
2012-13	Scholar, Windstream Holdings
2010-13	Academic All-Conference Team (Great Lakes Valley Conference), Women's Soccer
2011	Warren L. White Scholarship Recipient, Drury University
2010	Scholar, PAETEC Holding Corporation

Professional Organizations

2022-	International Zebrafish Society (IZFS)
2020-	Zebrafish Information Network (ZFIN)
2018-19	American Heart Association
2013	American Chemical Society

Publications (*, authors contributed equally to these works)

1. Krishnan K, Qian, M, **Feltes M**, Chen Z, Gale SE, Wang L, Sugasawa Y, Reichert D, Schaffer JE, Ory DS, Evers A, Covey DF. Validation of Trifluoromethylphenyl Diazirine Cholesterol Analogues As Cholesterol Mimetics and Photolabeling Reagents. *ACS Chemical Biology* 2021, 16 (8), 1493-1507.
2. **Feltes M**, Gale SE, Moores S, Ory DS, Schaffer JE. Monitoring the itinerary of lysosomal cholesterol in Niemann-Pick Type C1-deficient cells after cyclodextrin treatment. *J Lipid Res* 2020.
3. **Feltes M**, Moores S, Gale SE, Kathiresan K, Mydock-McGrane L, Covey DF, Ory DS, Schaffer JE. Synthesis and characterization of diazirine alkyne probes for the study of intracellular cholesterol trafficking. *J Lipid Res* 2019, 60: 707-716.

4. Pugach EK*, **Feltes M***, Kaufman RJ, Ory DS, Bang AG. High-content screen for modifiers of Niemann-Pick type C disease in patient cells. *Hum Mol Genet* 2018, 27: 2101–2112. PMID: PMC5985738
5. Castellano BM*, Thelen AM*, Moldavski O, **Feltes M**, van der Welle REN, Mydock-McGrane L, Jiang X, Van Eijkeren RJ, Davis OB, Louie SM, Perera RM, Covey DF, Nomura DK, Ory DS, Zoncu R. Lysosomal cholesterol activates mTORC1 via an SLC38A9–Niemann-Pick C1 signaling complex. *Science* 2017, 355: 1306–1311. PMID: PMC5823611
6. Schrader A, **Feltes M**, Duong M, Korir A. Affinity Capillary Electrophoresis for the Estimation of Binding Constants and Comparison of Binding Interactions of Heparin-Derived Disaccharides to Histidine. *J Res Anal* 2016, 2: 1–8.

In preparation

7. **Feltes M**, Zimin A, Angel A, Pansari N, Wilson M, Hensley M, Anderson J, Shen M, Klemek M, Kozan H, Ginde V, Truong V, Le N, Shen Y, Salzberg S, Farber SA. WheresWally: a bioinformatic pipeline for rapid mutation mapping using whole genome sequencing. *In preparation for Nature Communications*
8. **Feltes M**, Farber SA. *slc3a2a* is a modulator of lipoprotein biosynthesis. *In preparation for Cell Metabolism*

Presentations

Platform talks at national meetings

1. Feltes M, Angel S, Zimin A, Salzberg S, Farber SA. WheresWally: a bioinformatic pipeline for rapid mutation mapping using whole genome sequencing. **The Allied Genetics Conference**, Washington D.C., March 6-10. *Could not present due to illness
2. Feltes M, Hensley M, Pansari N, Angel S, Zimin A, Wilson M, Salzberg S, Farber SA. Shedding light on the dark yolk phenotype: Identifying novel regulators of lipoprotein metabolism using forward genetics and a rapid positional cloning pipeline. **FASEB Intestinal Lipid Metabolism Conference**, Steamboat Springs, CO, June 25- June 30, 2023.
3. Feltes M, Gale S, Behring J, Mydock-McGrane L, Krishnan K, Held J, Covey D, Ory DS. Diazirine alkyne probes as tools for the study of intracellular cholesterol trafficking. **Michael, Marcia, and Christa Parseghian Scientific Conference for Niemann-Pick Type C Research**, Tucson, AZ. June 2 – June 5, 2018.
4. Feltes M, Gale S, Behring J, Mydock-McGrane L, Krishnan K, Held J, Covey D, Ory DS. Post-lysosomal Cholesterol Trafficking: Elucidating protein networks using diazirine alkyne probes. The Molecular and Cellular Biology of Lipids **Gordon Research Conference**, Waterville Valley, NH. July 30 – August 4, 2017.

Poster presentations at national meetings

1. Feltes, M., Hensley, M., Angel, S., Zimin, A., Wilson, M., Salzberg, S., Farber, S. Shedding light on the dark yolk phenotype: identifying novel regulators of lipoprotein metabolism. **Don Fredrickson Lipid Research Conference**. Durham, NC. September 7-10 2022.
2. Feltes, M., Hensley, M., Angel, S., Shen, Y., Pansari, N., Wilson, M., Zimin, A., Salzberg, S., Farber, S. A forward genetic screen for the unbiased identification of genes involved in ApoB-lipoprotein production. **International Zebrafish Conference**, Montreal, Canada. June 22-26, 2022.
3. Feltes, M., Moores S., Gale S.E., Pergande, M., Kathiresan K., Mydock-McGrane L., Held J., Cologna S., Covey DF, Ory DS, Schaffer JE. Diazirine-alkyne probes for the study of intracellular cholesterol trafficking. The Molecular and Cellular Biology of Lipids **Gordon Research Conference**, Waterville Valley, NH. July 28 – August 2, 2019.

4. Feltes, M., Moores S., Gale S.E., Kathiresan K., Mydock-McGrane L., Held J., Cologna S., Covey DF, Ory DS, Schaffer JE. Diazirine alkyne probes for the study of intracellular cholesterol trafficking. **Deuel Conference on Lipids**, Dana Point, CA. March 5 – March 8, 2019
5. Feltes, M. and Korir, A. Affinity Capillary Electrophoresis for the Study of Glycosaminoglycan-Protein Interactions. **ACS National Meeting**, New Orleans, LA. April 8, 2013.