

NICOLE HANSEN

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Phone: 315-956-9835

EDUCATION:

Doctor of Philosophy (PhD) – Human Medical Genetics and Genomics

The University of Colorado – Anschutz Medical Campus, Aurora, CO
August 2025 – Present

Bachelor of Science - Biological Science (Minors: Pharmacology and Spanish)

The University of Vermont
August 2019 - May 2023

LABORATORY RESEARCH EXPERIENCE:

Professional Research Assistant

September 2023 – August 2025

Dr. Caroline Dias' Lab: University of Colorado, Anschutz Medical Campus, Children's Hospital Colorado Department of Developmental Pediatrics, Section of Genetics & Metabolism

Skills obtained:

- Human post-mortem brain tissue processing: cryosectioning and slide preparation
- Fluorescent *in situ* hybridization (RNAscope) and immunofluorescence
- Nuclei isolation, DNA extraction, and CUT&RUN
- RNA extraction, RT-PCR, and qPCR
- Protein preparation and western blotting
- Fluorescence-activated nuclei sorting on Sony MA900
- Confocal laser scanning microscopy

Undergraduate Research Assistant

September 2020 – May 2023

The University of Vermont, Department of Biology

Research Advisor: Alicia Ebert, Ph.D.

Investigating the roles of Grb2 adaptor proteins in Danio rerio nervous system.

Skills obtained:

- Zebrafish husbandry: fish room maintenance, mating, CRISPR-Cas9, genotyping
- *In situ* hybridization
- Molecular Biology: PCR, gels, cloning
- Software: ImageJ, Adobe Photoshop, Photopea, Graphpad Prism, CLC Sequence Viewer 8.0, ApE, Clustal Omega
- Microscopy: Brightfield, Fluorescence
- Microinjections of CRISPR and genomic validation
- Histology: Resin sectioning, H & E staining

PUBLICATIONS:

1. Hansen N, Dischler A, Dias C. Beyond the Synapse: FMR1 and FMRP Molecular Mechanisms in the Nucleus. *Int J Mol Sci.* 2024;26(1):214. Published 2024 Dec 30. doi:10.3390/ijms26010214
2. Stergas HR, Dillon-Martin M, Dumas CM, Hansen NA, Carasi-Schwartz FJ, D'Amico AR, Finnegan KM, Juch U, Kane KR, Kaplan IE, Masengarb ML, Melero ME, Meyer LE, Sacher CR, Scriven EA, Ebert AM, Ballif BA. CRK and NCK adaptors may functionally overlap in zebrafish neurodevelopment, as indicated by common binding partners and overlapping expression patterns. *FEBS Lett.* 2024 Feb;598(3):302-320. doi: 10.1002/1873-3468.14781. Epub 2023 Dec 14. PMID: 38058169.

MANUSCRIPTS IN PREPARATION:

1. Helaina R Stergas, **Nicole A Hansen**, Ellie Katz, Nicholas H Bender, Bryan A Ballif, and Alicia M Ebert. Nck adaptor proteins are critical for the development of the central nervous system in zebrafish. Planned submission to *Developmental Dynamics*.
2. Ryan Duffany, Peyton Dunphy, Patrick Flaherty, **Nicole A Hansen**, Isabelle Kressy, Sydney McFarland, Anna Pace, Rose Petitti, Olivia Stanley, Mirabella Vulikh, Jacqueline Guillemin, Alicia M Ebert. A Gene expression and CRISPR-based CURE course for advanced undergraduate students. Planned submission to *Zebrafish*.

MENTEES AND TRAINEES:

- 2024 Julissa Menjivar-Rosa, Neuroscience CORE Internship, Dias Lab, University of Colorado
2024 Kayla Medina, HMGGP student rotation, Dias Lab, University of Colorado
2023 Susana Lopez-Ignacio, HMGGP student rotation, Dias Lab, University of Colorado
2023 Ashwini Shinde, NSP student rotation, Dias Lab, University of Colorado

POSTER PRESENTATIONS:

Nicole A Tessier, Helaina R Stergas, Bryan A Ballif, and Alicia M Ebert. Loss of Grb2 adaptor proteins impairs nervous system development in zebrafish. April 29th, 2023. Society for Developmental Biology Northeast Regional Meeting, *Marine Biology Laboratory, Woods Hole, MA*.

Nicole A Tessier, Helaina R Stergas, Bryan A Ballif, and Alicia M Ebert. Loss of Grb2 adaptor proteins impairs nervous system development in zebrafish. April 19th, 2023. The University of Vermont Student Research Conference, *The University of Vermont, Burlington, VT*.

Nicole A Tessier, Helaina R Stergas, Bryan A Ballif, and Alicia M Ebert. Loss of Grb2 adaptor proteins impairs nervous system development in zebrafish. February 4th, 2023. Thirteenth Annual Neuroscience, Behavior, and Health Forum, *The University of Vermont, Burlington, VT*.

SEMINARS AND PLATFORM TALKS:

Nicole A Tessier. April 28th, 2023. The roles of grb2 adaptor proteins in zebrafish development. FastTrack Talk, Society of Developmental Biology Northeast Regional Meeting, *Marine Biology Laboratory, Woods Hole, MA*.

Nicole A Tessier. October 10th, 2021. Introduction to Undergraduate Research. MEDVIDA Club Guest Lecture, *The University of Vermont, Burlington, VT*.

Nicole A Tessier. November 17th, 2020. Introduction to Undergraduate Research. MEDVIDA Club Guest Lecture, *The University of Vermont, Burlington, VT*.

ACADEMIC HONORS AND AWARDS:

- Awarded College Honors, *The University of Vermont, Burlington, VT* (May 2023)
- Recipient of the Biology Chair's Small Award to Support Presenting Students at Conferences (\$300), *The University of Vermont, Burlington, VT* (March 2023)
- The University of Vermont College of Arts and Sciences Honors Thesis (April 2023)
- Recipient of the Fellowships, Opportunities, & Undergraduate Research Travel Grant Award (\$350), *The University of Vermont, Burlington, VT* (February 2023)
 - A travel award recognizing student excellence in research.
- Recipient of the APLE Award (\$500), *The College of Arts and Sciences at The University of Vermont, Burlington, VT* (November 2022)
 - Awarded to student researchers with intellectual merit and for projects with broader impact.
- Recipient of The Dr. Barbara Kay '67 Undergraduate Research Fund Award (\$500), *The University of Vermont, Burlington, VT* (November 2021)
 - Awarded to students to pursue their interests and advance their future careers.
- Dean's List, *The University of Vermont, Burlington, VT* (2019-2023)

COMMUNITY SERVICE AND OUTREACH:

MEDVIDA: The University of Vermont's chapter of the national MEDLIFE organization. *The University of Vermont, Burlington, VT* (January 2020 – May 2023). Led and participated in community service and social activism both internationally and within the local Vermont community.

MEMBERSHIPS AND AFFILIATIONS:

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| 2021 – 2023 | Tri Beta Biological Honor Society |
| 2020 – 2023 | MEDVIDA |