Jennifer Piciw
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CAREER OBJECTIVE

As an MD, PhD candidate with a focus on the cellular and molecular mechanisms underlying intellectual and developmental disabilities, I am committed to conducting clinically and community grounded basic research at the intersection of developmental biology and neuroscience critical to advancing the care of children with neurodevelopmental disabilities. My long-term career goal is to become an independently funded physician-scientist in the field of pediatric neurodevelopment so that I may continue to advance the field while training future researchers and clinicians.

EDUCATION

2028 – **University of Wisconsin – Madison** **Madison, WI**
Doctor of Philosophy, *in progress,* Cellular and Molecular Biology
Medical Doctorate*, in progress*

2020 – **University of Richmond** **Richmond, VA**
Bachelors of Science, Biochemistry and Molecular Biology, Mathematics
Summa Cum Laude, Departmental Honors in Biochemistry and Molecular Biology

RESEARCH EXPERIENCE *(Reverse chronological order)*

1. Understanding the cellular and molecular neurodevelopment in Down Syndrome (DS)

Down Syndrome, or trisomy 21, is the most common genetic cause of intellectual disability, yet little is known about the molecular basis of specific deficits in cortical development. This limits the ability to define effective treatments to improve cognition. The major focus of my PhD work is to understand how Trisomy 21 (T21) causes a premature loss of neural progenitor cells, resulting in reduced capacity to produce neurons. I will use isogenic human pluripotent stem cells generated from individuals with Down Syndrome to directly study human-specific aspects of neural development. I am specifically focused on investigating and better understanding how deficits in WNT, SHH, and mitochondrial dynamics cause faulty regulation of neural progenitor cell proliferation and differentiation into neurons.

a) Martinez JL, **Piciw JG**, Crockett M, Sorci IA, Makwana N, Sirois CL, Giffin-Rao Y, Bhattacharyya A. Transcriptional consequences of trisomy 21 on neural induction. Front Cell Neurosci. 2024 Jan 30;18:1341141. doi: 10.3389/fncel.2024.1341141. PMID: 38357436; PMCID: PMC10865501.
b) **Piciw JG,** Crockett M, Martinez JL, Bhattacharyya A. “Human stem cell models reveal transcriptional and phenotypic consequences of trisomy 21 in neurogenesis” *Midwest Society for Developmental Biology.* Madison, WI (2024).
c) **Piciw JG,** Crockett M, Martinez JL, Bhattacharyya A. “Human stem cell models reveal transcriptional and phenotypic consequences of trisomy 21 in neurogenesis” *Wisconsin Stem Cell and Regenerative Medicine Symposium.* Madison, WI (2024).
d) **Piciw JG,** Crockett M, Martinez JL, Bhattacharyya A. “Human stem cell models reveal transcriptional and phenotypic consequences of trisomy 21 in neurogenesis” *Society for Neuroscience.* Chicago, IL (2024).
e) **Piciw JG,** Crockett M, Martinez JL, Bhattacharyya A. “Human stem cell models reveal transcriptional and phenotypic consequences of trisomy 21 in neurogenesis” *Iowa Neuroscience Institute Stem Cell and Neurodegeneration Workshop.* Iowa City, IA (2025).

2. Improving clinical identification and treatment of environment and genetic causes of neurodevelopmental delay.

As an MD/PhD student, I have contributed to the clinical care of individuals with neurodevelopmental delay and disabilities across my year of core clinical rotations. During my rotation in the Pediatric Intensive Care Unit (PICU), I spearheaded the treatment of a toddler with remarkably high blood level and contributed to the preparation of a case-report on their clinical course. I anticipate my longitudinal clinical experiences throughout

graduate school and my fourth-year translational research experience will yield additional insights into gaps in the clinical diagnosis and care of children with developmental delay.

a) Berry M, Glanz H, **Piciw J**, Knox A. An unusual cause of status epilepticus in a 2-year-old boy. *Pediatrics in Review* - Accepted April 2024
b) **Piciw JG**. "Acute Presentation of Lead Encephalopathy" *Department of Pediatrics, Clinical Care Week.* Madison, WI (2024).
c) **Piciw JG,** Webb B, "A family with Multisystem Mitochondrial Disease caused by MT-TL1 mtDNA Variant: A Case Report." *In preparation.*

3. Identifying novel regulation of essential RNA helicase and translation initiation factor, Ded1.

The Hilliker lab is focused on understanding the function and regulation of Ded1, which is highly conserved between yeast and humans. *DED1* ortholog *DDX3X* plays an important role in controlling RNA translation in several human diseases, including cancer and HIV infection. While an exciting potential target for cancer and HIV treatment, DDX3X has multiple widespread cellular functions requiring more nuanced regulation of some, but not all, of its functions for effective treatment. My project focused on leveraging a mutant form of *DED1* (*ded1-dam1*) in *S. cerevisiae* to identify novel protein regulators of DED1. During my time in the lab, I identified, verified and sequenced the genomes of 38 *ded1-dam1 S. cerevisiae* strains that had phenotypic evidence of mutations in genes encoding regulators of Ded1. I helped develop a bioinformatic pipeline for identification of these putative regulators of Ded1 and laid the groundwork for complementation analysis to isolate causative regulators. Due to the COVID-19 pandemic I was unable to complete this work as planned.

a) **Piciw J,** Winters A, Tartarotti T, Hilliker A. "*Identification of Ded1 Suppressors using Genomic Sequencing."* A&S Spring Symposium (2018, 2019)
b) **Piciw J,** Winters A, Tartarotti T, Hilliker A. "*Identification of Ded1 Suppressors using Genomic Sequencing."* ASBMB, Orlando FL (2019)
c) **Piciw J**, Winters A, Tartarotti T, Hilliker A. "*Identification of Ded1 Suppressors using Genomic Sequencing."* St. Jude National Undergraduate Research Symposium, Memphis TN (2019)
d) **Piciw J**, Winters A, Tartarotti T, Hilliker A. "*Identification of Ded1 Suppressors using Genomic Sequencing."* TAGC Allied Genetics Conference, Washington DC (April 2020) **Note:** Abstract accepted but not presented due to COVID-19 pandemic.

OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIP

2018-2019	***President of Alpha Sigma Kappa – Women in STEM,*** University of Richmond
2021-2022	***Event Chair,*** American Academy of Development Medicine and Dentistry (AADMD), UWSMPH
2021-2022	***Leader,*** Neurology and Neuroscience Interest Group, UWSMPH
2021-	***Member,*** Wisconsin Medical Society
2023-	***Treasurer***, UW Medical Scientist Training Program Student Executive Committee
2023-	***Volunteer,*** GiGi's Playhouse – Down Syndrome Achievement Center, Madison WI
2024-	***Member,*** American Medical Association
2024-	***Member,*** American Association of Pediatrics, Section on Developmental & Behavioral Peds
2024-	***Member,*** American Association of Pediatrics, Council on Children with Disabilities
2024-	***Member,*** Society for Neuroscience
2024-	***Member***, Society for Developmental Biology

ACADEMIC HONORS

2016-2020	**University of Richmond *Science Scholar***
2016-2020	***Dean's List,*** University of Richmond
2018	***Carpenter Gift Award,*** Recognition for top 10 female scientists, University of Richmond
2019	***Robert F. Smart Research Fellowship,*** for outstanding research proposal
2019	***Beta Beta Beta*** – Biological Honors Society
2019	***Mortar Board*** – National Senior Honor Society
2019	***St. Jude National Symposium for Undergraduate Research Travel Award***
2020	***Pi Mu Epsilon*** – National Mathematics Honor Society
2020	***Westhampton College Distinguished Leadership Award***, University of Richmond
2020	***Phi Beta Kappa***
2020	***Biochemistry and Molecular Biology Department Honors***, Honors Program and Thesis
2025	***Travel Award,*** Iowa Neuroscience Institute Stem Cell and Neurodegeneration Workshop

2025 ***Poster Award,*** Iowa Neuroscience Institute Stem Cell and Neurodegeneration Workshop
2025 **Scholar,** Data Science for Developing Scholars in Down Syndrome Research at UC Boulder