

Kate M. Van Pelt, Ph.D.

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Summary

Recent molecular biology Ph.D. with extensive experience in the characterization of *in vivo*, *in vitro*, and invertebrate models of neurodegeneration seeking Ph.D. entry-level R&D position. Self-motivated and passionate about driving pre-clinical neurodegenerative disease research towards the clinic.

Technical Skills

- ***in vivo* models:** Mouse husbandry + colony maintenance, longitudinal behavioral and motor function testing, IM/IP/SC injections, transcardiac perfusion, tissue harvesting, stereotaxic surgery
- ***in vitro* models:** Maintenance and experimentation in hESC-derived and immortalized human cell lines
- **Histology:** Tissue preparation, sectioning (microtome, crostat), immunohistochemistry
- **Imaging/microscopy:** Confocal microscopy, development of automated image analysis pipelines
- **Molecular biology:** RT/qPCR, transfection + electroporation (plasmids, siRNA, CRISPRi), immunocytochemistry
- **Biochemistry:** Western blot, ELISA, enzymatic assays, sub-cellular fractionation, immunoprecipitation
- **Computational:** Bulk RNA-sequencing analysis (R), automated image analysis (Python, Fiji, Ilastik)

Experience

University of Michigan, Senior Research Specialist

Ann Arbor, MI
July 2025 - Now

- Performing proteomics and RNA-sequencing analysis of tissue samples from mouse models of spinocerebellar ataxia type 3 (SCA3)
- Conducting experiments and analyzing data from molecular studies (western blot, IHC, qPCR) on SCA3 mouse tissue and SCA3 patient hESC-derived cells

University of Michigan, Graduate Research Assistant

Ann Arbor, MI
2018 - 2025

- Designed and executed a study to successfully translate findings from an invertebrate model of polyglutamine toxicity to a mouse model of SCA3 and neural progenitor cells derived from SCA3 patient hESCs, resulting in 1 first-author publication (in-progress)
- Characterized a novel pathway by which post-translational regulation of HSP70 chaperones suppresses polyglutamine toxicity in the nematode, *C. elegans*, resulting in 2 publications (1 first-author)
- Performed immunohistochemical studies on skeletal muscle in a mouse model of Kennedy's disease, resulting in 1 publication
- Awarded an NIH F31 Individual Predoctoral Fellowship, providing 3 years of funding
- Experience presenting work (oral & poster) at numerous local and national-level conferences
- Significant mentorship of 4 undergraduate researchers, 5 PhD rotation students, and direct supervision of 1 undergraduate honors thesis student
- Graduate Student Instructor in the Department of Biochemistry (2020)

Education

Ph.D. University of Michigan - Ann Arbor, Cellular and Molecular Biology

2018 - 2025

- **Thesis:** AMPylation-mediated proteostasis regulation in polyglutamine diseases

B.A. Oberlin College, Neuroscience

2014 - 2018

- Minors in Chemistry and Philosophy

Publications

***Ficd* deletion ameliorates motor phenotypes in a mouse model of spinocerebellar ataxia type 3**

In preparation

Van Pelt, K.M., Costa, M.C.C., and Truttmann, M.C.

Loss of FIC-1-mediated AMPylation activates the UPR^{ER} and upregulates cytosolic HSP70 chaperones to suppress polyglutamine toxicity

June 2025

Van Pelt, K.M. & Truttmann, M.C.

PLoS Genetics: 10.1371/journal.pgen.1011723 [↗](#)

Functionally diversified BiP orthologs control body growth, reproduction, stress resistance, aging, and ER-Phagy in *Caenorhabditis elegans*

In revision

Urban, N.D., Lacy, S.M., Van Pelt, K.M., Abdon, B., Mattiola, Z., Klaiss, A., Tabler, S., Truttmann, M.C.
bioRxiv: 10.1101/2025.01.14.633073 [↗](#)

MEF2 impairment underlies skeletal muscle atrophy in polyglutamine disease

July 2020

Nath, S.R., Lieberman, M.L., Yu, Z., Marchioretti, C., Jones, S.T., Danby, E.C.E., Van Pelt, K.M., Soaru, G., Robins, D.M., Bates, G.P., Pennuto, M., Lieberman, A.P.

Acta Neuropathologica: 10.1007/s00401-020-02156-4 [↗](#)

***Caenorhabditis elegans* as a model system for studying aging-associated neurodegenerative diseases**

June 2020

Van Pelt, K.M. & Truttmann, M.C.

Translational Medicine of Aging: 10.1016/j.tma.2020.05.001 [↗](#)

Fellowships and Awards

Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship (F31)

2022-2025

National Institute of Neurological Disorders and Stroke (NINDS)