Gage Rowden, M.S.

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github.com/gage1145

Education

Texas Tech University, B.S. in Biology — Sept 2011–May 2016
Texas Tech University, M.S. in Biotechnology — Sept 2016–May 2018

Experience

Lead Technical R&D Scientist, Priogen Corporation — St. Paul, MN — Jan 2024–present

- Designed the analysis pipelines for dozens of sample types.
- Contributed to the development of multiple projects which resulted in intellectual property.
- Implemented standard operating procedures
- Instituted version control for every project.
- Designed and outfitted the laboratory from the ground up.

Researcher IV, MNPRO, University of Minnesota — St. Paul, MN — Aug 2022–present

- Contributed to 17 manuscripts including two first author publications.
- Developed an open-source R package for the analysis of RT-QuIC data.
- Supervised lab space expansion.
- Developed a thorough and detailed accession system for large laboratory inventory.
- Consulted for collaborators on RT-QuIC and its related tests.
- Assisted in field collection of prion infected tissues and environmental samples

Researcher III, MNPRO, University of Minnesota — St. Paul, MN — Aug 2019–Nov 2021

- Oversaw and consulted on the development of the BSL-2 laboratory at MNPRO.
- Developed RT-QuIC techniques for the diagnosis of prion diseases.
- Worked on several published projects.
- Consulted for research labs to develop their own RT-QuIC foundations.
- Received training by the NIH to grow our own RT-QuIC capabilities.
- Established several prion clones including a proprietary clone for use in prion diagnostics.

Lab Technician III, Dept. of Cell Bio & Biochem, TTUHSC — Lubbock, TX — Aug 2018–Aug 2019

- Performed essential lab work in understanding nonsense-mediated RNA decay in male gametes.
- Worked on the development of an improved method of sperm head isolation for rape kits.
- Managed all duties including lab maintenance, purchasing, and project direction.
- Operated closely with other researchers in the department to supplement lab investigations.

Graduate Research Assistant, Dept. of Chemistry, TTU — Lubbock, TX — Jun 2017–May 2018

- Assisted on a project attempting to resolve cocaine biosynthesis in coca plants.
- Collaborated with multiple professors and graduate researchers to complete projects.
- Developed analytical skills and techniques in the fields of molecular biology and biochemistry.
- Attended conferences and gave presentations on research.

Graduate Teaching Assistant, Dept. of Biological Sciences, TTU — Lubbock, TX — Aug 2017–Dec 2017

- Maintained eukaryotic and prokaryotic microbial cultures for labs.
- Organized 33 students and gave weekly lectures.
- Imparted the importance and ubiquity of microbes in a scientific/medical setting.
- Developed microbial isolation/identification methods.

Graduate Teaching Assistant, Dept. of Chemistry, TTU — Lubbock, TX Jan 2017–May 2018

- Taught 3-hour sections of general chemistry labs per week.
- Organized approximately 140 students and educated on fundamental chemistry techniques.
- Reinforced ability to teach and explain abstract concepts.

Publications

quicR: An R Library for Streamlined Data Handling of Real-Time Quaking Induced Conversion Assays 2025
Gage R Rowden , Peter A Larsen. **in review**

Prion Partitioning and Persistence in Environmental Waters 2025
E. Anu Li, Diana L Karwan, Stuart Siegfried Lichtenberg, ***Gage R Rowden*** , Marc D Schwabenlander, Peter A Larsen, Tiffany M Wolf. **10.1021/acs.est.4c11497**

Chronic wasting disease prions on deer feeders and wildlife visitation to deer feeding areas 2025
Miranda HJ Huang, Steve Demarais, Marc D Schwabenlander, Bronson K Strickland, Kurt C VerCauteren, William T McKinley, ***Gage R Rowden*** , Corina C Valencia Tibbitts, Sarah C Gresch, Stuart S Lichtenberg, Tiffany M Wolf, Peter A Larsen. **10.1002/jwmg.70000**

Inter-laboratory comparison of real-time quaking-induced conversion (RT-QuIC) for the detection of chronic wasting disease prions in white-tailed deer retropharyngeal lymph nodes 2025
Joseph R Darish, Alyssa W Kaganer, Brenda J Hanley, Krysten L Schuler, Marc D Schwabenlander, Tiffany M Wolf, Md Sohel Ahmed, ***Gage R Rowden*** , Peter A Larsen, Estela Kobashigawa, Deepanker Tewari, Stuart Lichtenberg, Joel A Pedersen, Shuping Zhang, Srinand Sreevatsan. **10.1177/10406387241285165**

Prion forensics: a multidisciplinary approach to investigate CWD at an illegal deer carcass disposal site 2024
Marc D Schwabenlander, Jason C Bartz, Michelle Carstensen, Alberto Fameli, Linda Glaser, Roxanne J Larsen, Manci Li, Rachel L Shoemaker, ***Gage R Rowden*** , Suzanne Stone, W David Walter, Tiffany M Wolf, Peter A Larsen. **10.1080/19336896.2024.2343298**

Detection and decontamination of chronic wasting disease prions during venison processing 2024
Marissa Milstein, Sarah C Gresch, Marc D Schwabenlander, Manci Li, Jason C Bartz, Damani N Bryant, Peter R Christenson, Laramie L Lindsey, Nicole Lurndahl, Sang-Hyun Oh, ***Gage R Rowden*** , Rachel L Shoemaker, Tiffany M Wolf, Peter A Larsen, Stuart S Lichtenberg. **10.1101/2024.07.23.604851**

Rapid on-site amplification and visual detection of misfolded proteins via microfluidic quaking-induced conversion (Micro-QuIC) 2024
Dong Jun Lee, Peter R Christenson, ***Gage R Rowden*** , Nathan C Lindquist, Peter A Larsen, Sang-Hyun Oh. **10.1038/s44328-024-00006-x**

Visual detection of misfolded alpha-synuclein and prions via capillary-based quaking-induced conversion assay (Cap-QuIC) 2024
Peter R Christenson, Hyeonjeong Jeong, Hyerim Ahn, Manci Li, ***Gage R Rowden*** , Rachel L Shoemaker, Peter A Larsen, Hye Yoon Park, Sang-Hyun Oh. **10.1038/s44328-024-00003-0**

Standardization of data analysis for RT-QuIC-based detection of chronic wasting disease 2023
Gage R Rowden , Catalina Picasso-Risso, Manci Li, Marc D Schwabenlander, Tiffany M Wolf, Peter A Larsen. **10.3390/pathogens12020309**

Microfluidic Quaking-Induced Conversion (Micro-QuIC) for Rapid On-Site Amplification and Detection of Misfolded Proteins 2023
Dong Jun Lee, Peter R Christenson, ***Gage R Rowden*** , Nathan C Lindquist, Peter A Larsen, Sang-Hyun Oh. **10.1101/2023.07.17.549283**

Nanoparticle-enhanced RT-QuIC (nano-QuIC) diagnostic assay for misfolded proteins 2023
Peter R Christenson, Manci Li, ***Gage R Rowden*** , Peter A Larsen, Sang-Hyun Oh. **10.1021/acs.nanolett.3c01001**

Assessment of Real-Time Quaking-Induced Conversion (RT-QuIC) Assay, Immunohistochemistry and ELISA for Detection of Chronic Wasting Disease under Field Conditions in White-Tailed Deer: A Bayesian Approach 2022

Catalina Picasso-Risso, Marc D Schwabenlander, ***Gage R Rowden*** , Michelle Carstensen, Jason C Bartz, Peter A Larsen, Tiffany M Wolf. **10.3390/pathogens11050489**

A field-deployable diagnostic assay for the visual detection of misfolded prions 2022
Peter R Christenson, Manci Li, ***Gage R Rowden*** , Marc D Schwabenlander, Tiffany M Wolf, Sang-Hyun Oh, Peter A Larsen. **10.1038/s41598-022-16323-y**

Sensitive detection of chronic wasting disease prions recovered from environmentally relevant surfaces 2022
Qi Yuan, ***Gage R Rowden*** , Tiffany M Wolf, Marc D Schwabenlander, Peter A Larsen, Shannon L Bartelt-Hunt, Jason C Bartz. **10.1016/j.envint.2022.107347**

Elucidation of tropane alkaloid biosynthesis in Erythroxylum coca using a microbial pathway discovery platform 2022
Benjamin G Chavez, Prashanth Srinivasan, Kayla Glockzin, Neill Kim, Olga Montero Estrada, Jan Jirschitzka, ***Gage R Rowden*** , Jonathan Shao, Lyndel Meinhardt, Christina D Smolke, John C D'auria. **10.1073/pnas.221537211**

Comparison of chronic wasting disease detection methods and procedures: implications for free-ranging white-tailed deer (Odocoileus virginianus) surveillance and management 2022
Marc D Schwabenlander, ***Gage R Rowden*** , Manci Li, Kelsie LaSharr, Erik C Hildebrand, Suzanne Stone, Davis M Seelig, Chris S Jennelle, Louis Cornicelli, Tiffany M Wolf, Michelle Carstensen, Peter A Larsen. **10.7589/JWD-D-21-00033**

RT-QuIC detection of CWD prion seeding activity in white-tailed deer muscle tissues 2021
Manci Li, Marc D Schwabenlander, ***Gage R Rowden*** , Jeremy M Schefers, Christopher S Jennelle, Michelle Carstensen, Davis Seelig, Peter A Larsen. **10.1038/s41598-021-96127-8**

Morphometric and genetic variation in 8 breeds of Ethiopian camels (Camelus dromedarius) 2018
Yoseph W Legesse, Christopher D Dunn, Matthew R Mauldin, Nicte Ordonez-Garza, ***Gage R Rowden*** , Yoseph Mekasha Gebre, Mohammed Y Kurtu, Seid Mohammed Ali, Wondmagegne D Whibesilassie, Michael Ballou, Melaku Tefera, Gad Perry, Robert D Bradley. **10.1093/jas/sky351**

Patents

Methods and materials for detecting misfolded polypeptides **Filed:** April 15, 2022
Peter C Christenson, ***Gage R Rowden*** , Sang-Hyun Oh, Peter A Larsen, Manci Li **Issued:** in review
U.S. Patent 18,286,682

Software

quicR: An R Library for Streamlined Data Handling of Real-Time Quaking Induced Conversion Assays github.com/gage1145/quicR

- Developed an R package for the extraction, manipulation, and analysis of RT-QuIC data.
- Tools Used: R

Presentations

Introduction to quicR 2025
Gage R Rowden . MNPRO Lab Forum, Saint Paul, MN

Introduction to Git & Github 2024
Gage R Rowden . MNPRO Lab Forum, Saint Paul, MN

Increased Sensitivity of RT-QuIC Using Micro-filtration 2023
Gage R Rowden , Manci Li, Marc D Schwabenlander, Peter A Larsen. Chronic Wasting Disease Conference, Denver, CO

Standardization of Data Analysis for RT-QuIC-based Detection of Chronic Wasting Disease 2022
Gage R Rowden , Catalina Picasso-Risso, Manci Li, Marc D Schwabenlander, Tiffany Wolf, Peter A Larsen. Prion, Göttingen, Germany

Standardization of Data Analysis for RT-QuIC-based Detection of Chronic Wasting Disease 2022
Gage R Rowden , Catalina Picasso-Risso, Manci Li, Marc D Schwabenlander, Tiffany Wolf, Peter A Larsen. Wildlife Disease Association Conference, Madison, WI

RT-QuIC as a Diagnostic Tool 2020
Gage R Rowden . Saint Paul, MN

Finding the Oxidases Involved in the First Ring Closure of Tropane & Granatane Biosynthesis 2018
Gage R Rowden , John C D'Auria. Thesis Defense, Lubbock, TX

Finding the Oxidases Involved in the First Ring Closure of Tropane & Granatane Biosynthesis 2017
Gage R Rowden , John C D'Auria. Biotechnology Research Sympsium, Lubbock, TX

Red/Green Colorblindness 2016
Gage R Rowden . Biotechnology Research Symposium, Lubbock, TX

Functional Amyloids: A Link Between Yeast Reproduction and Mammalian Fertilization 2015
Gage R Rowden , Gail A Cornwall. Texas Tech Association of Biologists Symposium, Lubbock, TX

Skills

- RT-QuIC
- R & Tidyverse
- Python
- Protein expression/purification
- Protein characterization
- BSL-2 & -3 experience
- Prion research
- Cell culturing
- Mass spectrometry
- DNA cloning
- DNA sequencing
- PCR techniques
- Microscopy technique

Consultation

Creighton University

Technologies

Coding Languages: Python, R, LaTeX

Technologies: Git, Github