Stanford



Brendan Ball

Postdoctoral Scholar, Pathology

Bio

HONORS AND AWARDS

- NIA Butler-Williams Scholar, NIH National Institute on Aging (2026)
- Propel Postdoctoral Scholar, Stanford University (2026)
- Trailblazers in Engineering Fellowship, Purdue University (2024)
- Alliance for Graduate Education and the Professoriate Scholarship, Purdue University (2023)
- NSF Graduate Research Fellowship, National Science Foundation (2022)
- Leslie Bottorff Fellowship, Purdue University (2021, 2024)
- Graduate Bridge Scholarship, Purdue University (2021)
- NIH T32 Bioengineering Interdisciplinary Training in Diabetes Research Grant, Purdue University (2021)
- Reese Terry Fellowship, Purdue University (2021)

PROFESSIONAL EDUCATION

- PhD, Purdue University , Biomedical Engineering (2025)
- BS, University of Washington , Chemical Engineering (2021)

STANFORD ADVISORS

- Andrew Gentles, Postdoctoral Faculty Sponsor

LINKS

- My Bibliography: https://www.ncbi.nlm.nih.gov/myncbi/brendan.ball.3/bibliography/public/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Systems Biology, Computational Modeling, Data Science

Publications

PUBLICATIONS

- **Modeling single nucleus microglia across species identifies immune pathways and therapeutic candidates in Alzheimer's disease.** *NPJ systems biology and applications*
  Bergendorf, A., Park, J. H., Ball, B. K., Brubaker, D. K.
  2026

- **Ten simple rules for turning your qualifying exam into an NIH-style fellowship proposal: A guide for graduate students.** *PLoS computational biology*
  Peña-Lima, C., Bader, C. S., Ball, B. K., Dildine, T. C., Dissanayake, M. V., van 't Erve, I., Ibrayeva, A., Nippert, A., Quinn, M. K., Spinner, C., Thompson, S., Tomasso, A., Botham, et al
  2026; 22 (6): e1014420
- **Rumenomics: evaluation of rumen metabolites from healthy sheep identifies differentially produced metabolites across sex, age, and weight.** *Animal microbiome*
  Munoz Briones, J., Ball, B. K., Jena, S., Lescun, T. B., Chan, D. D., Brubaker, D. K.
  2026
- **Proteomic analysis reveals shared biological pathways linking acrolein to biomolecular changes in the acute phase of rat spinal cord injury.** *bioRxiv : the preprint server for biology*
  Stingel, R. L., Ball, B. K., Sun, S., Brubaker, D. K., Shi, R.
  2026
- **Integrated cross-species translation and biophysical multi-scale modeling links molecular signatures and locomotory phenotypes in spaceflight-induced sarcopenia.** *NPJ microgravity*
  Ball, B. K., Khan, H. F., Park, J. H., Jayant, K., Chan, D. D., Brubaker, D. K.
  2026
- **Cross-Species Modeling Identifies Gene Signatures in Type 2 Diabetes Mouse Models Predictive of Inflammatory and Estrogen Signaling Pathways Associated with Alzheimer's Disease Outcomes in Humans.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*
  Ball, B. K., Proctor, E. A., Brubaker, D. K.
  2025; 30: 426-440
- **Computational Translation of Mouse Models of Osteoarthritis Predicts Human Disease.** *Osteoarthritis and cartilage*
  Frost, M. R., Ball, B. K., Pendyala, M., Douglas, S. R., Brubaker, D. K., Chan, D. D.
  2025
- **Metabolites associated with type 2 diabetes and Alzheimer's disease trigger differential intracellular signaling responses in mouse primary neurons.** *Brain research*
  Ball, B. K., Kuhn, M. K., Fleeman Bechtel, R. M., Proctor, E. A., Brubaker, D. K.
  2025: 149819
- **Translational disease modeling of peripheral blood identifies type 2 diabetes biomarkers predictive of Alzheimer's disease.** *NPJ systems biology and applications*
  Ball, B. K., Park, J. H., Bergendorf, A. M., Proctor, E. A., Brubaker, D. K.
  2025; 11 (1): 58
- **Mouse-to-human modeling of microglia single-nuclei transcriptomics identifies immune signaling pathways and potential therapeutic candidates associated with Alzheimer's disease.** *bioRxiv : the preprint server for biology*
  Bergendorf, A., Park, J. H., Ball, B. K., Brubaker, D. K.
  2025
- **Differential responses of primary neuron-secreted MCP-1 and IL-9 to type 2 diabetes and Alzheimer's disease-associated metabolites.** *Scientific reports*
  Ball, B. K., Kuhn, M. K., Fleeman Bechtel, R. M., Proctor, E. A., Brubaker, D. K.
  2024; 14 (1): 12743
- **Multiple Particle Tracking Detects Changes in Brain Extracellular Matrix and Predicts Neurodevelopmental Age.** *ACS nano*
  McKenna, M., Shackelford, D., Pontes, C., Ball, B., Nance, E.
  2021; 15 (5): 8559-8573