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Matthew Muller

Computational biologist specializing in multi-omic analysis and ML-driven biomarker discovery for cardiovascular disease.

Education

2023–2026 **PhD, Biomedical Engineering**, *NYU Tandon School of Engineering*, New York City, NY

2022–2023 **MS, Biomedical Informatics**, *NYU Grossman School of Medicine*, New York City, NY

2014–2018 **BA, Chemistry**, *Reed College*, Portland, OR

Professional Experience

2023–2026 **Graduate Research Assistant**, *New York University Langone*, New York, NY

- Develop multi-omic computational pipelines (RNA-seq, proteome, metabolome, methylome, WGS, WES) to identify translational biomarkers and stratify cardiovascular risk across large clinical cohorts.
- 7 first-author publications in high impact journals; contributed to 20+ peer-reviewed papers.

2021–2022 **Research Associate**, *Oregon Health and Sciences University*, Portland, OR

- Promoted for scientific accomplishments; led pre-clinical studies on catheter-based ultrasound therapy for peripheral artery disease and pulmonary embolism.
- First-authored a book chapter on Ultrasound Imaging in Inflammation Research.

2018–2021 **Research Assistant 2**, *Oregon Health and Sciences University*, Portland, OR

- Characterized vascular mechanisms of endovascular ultrasound for flow augmentation; investigated molecular drivers of aortic stenosis.

Skills

Bioinformatics Multiomics integration to enhance biological discovery; RNA-seq, scRNA-seq, proteomics, methylomics, metabolomics, genomics.

Data Science Machine learning and deep learning applied to biological and clinical data; Scikit-learn, TensorFlow, PyTorch, Docker, Git, Claude Code, Github Copilot.

Languages Advanced: Python, R, CLI, LaTeX; Intermediate: SQL, Matlab.

Wet Lab Ultrasound, histology, cryotome; GC-MS/MS, NMR, microscopy, PCR.

Additional Experience

2018–2022 **Advisory Board Member**, *International Partners*, Silver Springs, MD

- Facilitated strategic planning and wrote grant proposals to fund community-driven programs.

Awards

2022 ASE Foundation Early Career Investigator. *ASE Scientific Sessions, Seattle, WA*

2022 Alan S. Pearlman Research Award. *ASE Scientific Sessions, Seattle, WA*

Patents

2025 A Circulating Protein Signature of Platelet Reactivity Predicts Cardiovascular Risk. *U.S. Prov. App. No. 63/912,729.* With J.S. Berger, T.J. Barrett. Assignee: NYU.

2025 A Platelet Transcriptomic Signature of Thromboinflammation Predicts Cardiovascular Risk. *U.S. Prov. App. No. 63/944,739.* With J.S. Berger, T.J. Barrett. Assignee: NYU.

Selected Publications

[1] **Muller, Matthew**, M. G. Cornwell, S. Rajkumar, Z. Chen, *et al.*, "Whole blood epigenomic and transcriptomic characterization identifies vulnerable molecular subtypes of chronic coronary disease," *Nature Communications*, 2026. Accepted.

[2] **Muller, Matthew A.**, E. Luttrell-Williams, H. Bash, M. G. Cornwell, *et al.*, "Platelet Gene Expression in Systemic Lupus Erythematosus and Cardiovascular Health," *JACC: Basic to Translational Science*, vol. 10, p. 101395, Dec. 2025.

[3] **Muller, Matthew**, R. Liu, F. Shah, J. Hu, *et al.*, "Clonal Hematopoiesis of Indeterminate Potential in Chronic Coronary Disease: A Report From the ISCHEMIA Trials Biorepository," *Circulation: Genomic and Precision Medicine*, p. e004921, 2025.

[4] J. S. Berger, M. G. Cornwell, Y. Xia, **Muller, Matthew A.**, *et al.*, "A Platelet Reactivity ExpreSsion Score derived from patients with peripheral artery disease predicts cardiovascular risk," *Nature Communications*, vol. 15, p. 6902, Aug. 2024.