

Emilia Roberts

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Summary

Biomedical engineer with a strong foundation in academic research complemented by hands-on experience in the biotech industry. Skilled in data analysis, statistical modeling, and scientific visualization to drive insight and support therapeutic development. Interested in bridging research and industry applications through interdisciplinary collaboration and technical expertise.

Experience

Staff Scientist, Proclinical Staffing // Incyte

May 2025 - Present

Wilmington, DE

- Supports internal and external antibody discovery campaigns by maintaining cell cultures and antibody compound registries for use across departments.
- Performing routine monoclonal antibody characterization/QC tasks including HPLC, CE-SDS, and dynamic light scattering.
- Utilize high-throughput liquid handling systems to generate normalized plates of antibody stocks for use in early screening efforts.

Research Specialist C, University of Pennsylvania School of Medicine

Sep 2022 - Jul 2023

Philadelphia, PA

- Worked in the High Throughput Screening Core at the University of Pennsylvania running cell viability and cytotoxicity assays for virus and cancer drug research.
- Conducted data analysis and presentations while managing an accelerated weekly viral assay testing pipeline.
- Performed high throughput screening in cell-based assays using state-of-the-art equipment including automated imaging, 96W/384W automated staining, automated liquid handling, and cell viability/detection labeling.

Research Specialist B, University of Pennsylvania School of Medicine

Dec 2016 - Aug 2022

Philadelphia, PA

- Developed, validated, and led training on novel pressure myography and hydrogel-based cell culture assay techniques, including cell viability and cytotoxicity in a BSL2 environment.
- Interacted directly with collaborators of Institute for Translational Medicine and Therapeutics(ITMAT) Bio-mechanics Core services, to organize orders for both existing services as well as newly developed services.
- Helped enable the publication of several journal articles at the University of Pennsylvania and Columbia University.
- Lead researcher for new service adaptation including: atomic force microscopy-based mechanical testing, cell-embedded 3D biodegradable hydrogels, cellular traction force microscopy, and pressure myography mechanical testing.

Skills

Laboratory: BSL2, aseptic technique, cell/tissue culture, tissue dissection, immunohistochemistry/immunofluorescence microscopy, assay development, atomic force microscopy, traction force microscopy, pressure myography, 2D/3D hydrogel development and testing, laboratory organization/ordering, journal writing/review

Data: MS Office, Github, VBA for Excel, Python, Machine Learning, Big Data, Tableau, Javascript, SQLPostgres/Mongodb database management, Matlab, Minitab, Bruker Nanoscope Analysis, DMT Myoview, TeX, GraphPad Prism

Collaboration: Inter-Group academic research collaboration, detail-oriented reporting, data synthesis, interpretation and presentation, development and deployment of data-rich tools / methodologies, data analysis, motivation to learn new skills, willingness to take on new challenges, scientific curiosity

Education

Data Analytics and Visualization Boot Camp , University of Pennsylvania	2023 - 2024
• Earned certification from September 2023 Penn Data Science Boot Camp	
MS Biomedical Engineering , Drexel University	2014 - 2016
• Concentration: Biomedical Technology Development	
BS Biomedical Engineering , University of Delaware	2010 - 2014
• Minors: Bio-electrical Engineering and Chemistry	

Certifications

Penn Data Science Boot Camp (Apr 2024)

- University of Pennsylvania - bootcamp.sas.upenn.edu/data/curriculum/
- Foundational skills for data science, including: Fundamental statistics, Intermediate Excel, Python Programming, Databases, Front end web visualization, Business intelligence software, big data, and data ethics.

Github Foundations (Nov 2024)

- Github - credly.com/badges/ac4a4c01-c67f-48c7-acb4-699bc2005ce6
- Foundational knowledge of GitHub, including version control, repository management, collaboration workflows, and basic Git operations.

SQL Associate (Jan 2025)

- Data Camp - datacamp.com/certificate/SQA0012746001281
- Foundational of SQL basics. Ability to manipulate, validate, and clean data, carry out exploratory analysis, and explain database design concepts.

Coding

Data Analytics and Visualization Boot Camp , University of Pennsylvania	Sep 2023 - Mar 2024
• Earned certification from September 2023 Penn Data Science Boot Camp, a 24-week intensive coding program focused on Python, Machine Learning, Big Data, generative AI, Tableau, VBA, Javascript, SQLPostgres/Mongodb database management and MS Excel.	
• Led collaborative projects (3-5 people) in healthcare, natural disasters, and fraud prediction to demonstrate data analysis and visualization skills.	
• For more information and portfolio please visit https://eroberts91.github.io/personal-site/	

Publications

University of Pennsylvania School of Medicine

- **Roberts, Emilia**, et al. "Cell contractility and focal adhesion kinase control circumferential arterial stiffness." Vascular Biology, vol. 4, no. 1, 1 Nov. 2022, pp. 28–39, <https://doi.org/10.1530/vb-22-0013>.
- Llewellyn, J., **Roberts, Emilia**., Liu, C., Naji, A., Assoian, R. K., Wells, R. G.. "Efemp1 modulates elastic fiber formation and mechanics of the extrahepatic bile duct." bioRxiv, 7 Dec. 2021, <https://doi.org/10.1101/2021.12.05.471313>.
- Camillo, C., Abramov, A., Allen, P., Castillero, E., **Roberts, Emilia**, Xue, Y., Frasca, A., Moreno, V., Kurade, M., Robinson, K., Spiegel, D., LaPar, D., Grau, J. B., Assoian, R., Bavaria, J. E., Takayama, H., Ferrari, G. "Rage antagonist peptide mitigates age-mediated endothelial hyperpermeability and accumulation of glycoxidation products in human ascending aortas and in a murine model of aortic aneurysm." bioRxiv, 24 Oct. 2021, <https://doi.org/10.1101/2021.10.22.465199>.
- Von Kleeck, R., **Roberts, Emilia**, Castagnino, P., Bruun, K., Brankovic, S. A., Hawthorne, E. A., Xu, T., Tobias, J. W., Assoian, R. K. "Arterial stiffness and cardiac dysfunction in Hutchinson–gilford progeria syndrome corrected by inhibition of Lysyl oxidase." Life Science Alliance, vol. 4, no. 5, 9 Mar. 2021, <https://doi.org/10.26508/lsa.202000997>.
- Von Kleeck, R., Castagnino, P., **Roberts, Emilia**, Talwar, S., Ferrari, G., Assoian, R. K. "Decreased vascular smooth muscle contractility in Hutchinson–gilford progeria syndrome linked to defective smooth muscle myosin heavy chain expression." Scientific Reports, vol. 11, no. 1, 19 May 2021, <https://doi.org/10.1038/s41598-021-90119-4>.