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Salt Lake City, UT

Tyler Henderson

BIOTECHNOLOGIST · BIOSECURITY · CELL & GENE THERAPY

PROFESSIONAL SUMMARY

Biotechnologist working at the intersection of cell and gene therapy and biosecurity. 4+ years at the bench in BSL2+ containment engineering lentiviral vectors and CAR-T processes, with direct ownership of IBC protocols, biosafety SOPs, and hazardous-material workflows. A Professional Master's in Biotechnology and BlueDot Impact biosecurity training add the regulatory, operations, and risk-governance layer to that bench foundation. Motivated by the problem of keeping powerful biotechnology safe as it scales.

EDUCATION

Professional Master of Science & Technology, Biotechnology — Conferred May 2026
University of Utah · Salt Lake City, UT

Capstone Professional Project — applied bioprocess research under faculty mentorship (manuscript in preparation).
Coursework Regulatory Affairs, Operations & Project Management, Applied Statistics, Bioanalytical Chemistry, Clinical & Molecular Cancer Biology.

Bachelor of Science, Biotechnology — 2022
Utah Valley University · Orem, UT

Biosecurity Fundamentals — Certificate — Aug 2026
BlueDot Impact · Verify: bluedot.org/certification

RELEVANT PROFESSIONAL EXPERIENCE

Research Associate & Lab Manager — May 2022 – Present
Huntsman Cancer Institute — Michael Pulsipher Lab · Salt Lake City, UT

- Designed and produced lentiviral vectors for CAR-T engineering, optimizing titer and transduction efficiency for consistent manufacturing outcomes. Executed at scale for dozens of constructs through pre-clinical mouse model testing.
- Authored and validated SOPs for all CAR-T production and analysis workflows in compliance with BSL2+ EHS requirements; managed IBC & IACUC protocols and daily laboratory operations, and built a custom open-source lab-operations platform (live demo at demo.pulsipherlab.org).
- Established flow cytometry panels and gating strategies to characterize transduced T-cell products and enable QC assessments.

Laboratory Technician — Aug 2016 – 2022
IBC Advanced Technologies · American Fork, UT

- Conducted R&D, QC testing, and record-keeping for MRT chromatography products in a commercial research lab.
- Primary manager of analysis, training, maintenance, and repair for ICP-OES, ICP-MS, and AA instruments.
- Safely handled hazardous materials at bench and large-batch process scale; assisted with pilot-plant setup.

Student Research Assistant — Mar 2018 – 2022
Utah Valley University · Orem, UT

- Investigated cAMP's role in *Mycobacterium tuberculosis* virulence via the related *M. smegmatis* strain; designed PCR primers and cloned genes into *E. coli* and *M. smegmatis*.
- Used ELISA and DNA-analysis techniques to gather publishable data; presented at ASM branch meetings (2018, 2019, 2021).

SKILLS & COMPETENCIES

CELL & GENE THERAPY	Lentiviral vector design & production, transfection, transduction, CAR-T workflows, human cell culture, electroporation, pre-clinical in-vivo mouse model experimental design and execution.
MOLECULAR BIOLOGY	Cloning, PCR primer design, gel isolation, nucleic-acid analysis, genome annotation (BLAST, NCBI, SnapGene).
ANALYTICAL	Flow cytometry (panels, gating, sorting); ICP-OES, ICP-MS, AA spectroscopy — analysis, maintenance, repair.
LAB OPERATIONS	BSL2+ lab management, SOP authorship, IBC & IACUC protocols, hazardous-material handling, regulatory affairs; self-hosted Linux server for laboratory operations.
PSM TOOLKIT	Project planning, applied statistics (R), bioprocess scale-up, cross-functional communication, technical leadership, skilled presenter and teacher.

HONORS & PUBLICATIONS

Eagle Scout · 3rd Place — Engineering, CUSF 2016 · ASM Branch Meeting presenter (2018, 2019, 2021)

Utzman, P. H., **Henderson, T.**, Elshafae, S., Deimundo Roura, C., & Pulsipher, M. (2025). "A Generalizable Design and Cloning Strategy for CAR Lentiviral Plasmids." *protocols.io*. doi.org/10.17504/protocols.io.yxmvm984bl3p/v1