

# DREW MICHAEL DELORENZO

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Experienced biopharmaceutical R&D leader that excels in managing and developing cross-functional teams. Demonstrated track record of driving efficiency and cost-effectiveness through continuous improvement efforts and the successful generation of numerous fermentation derived products. Specializes in analytical testing, molecular biology, assay development, strain engineering, and lab automation. Enthusiastic self-starter that proactively seeks out new opportunities for learning and growth.

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## EDUCATION

### Washington University, St. Louis, MO

GPA: 3.90

*PhD*: Energy, Environmental and Chemical Engineering

*MS*: Energy, Environmental and Chemical Engineering

### University of South Carolina – Honors College, Columbia, SC

GPA: 4.00 (*summa cum laude*)

*Honors BS*: Biochemistry & Molecular Biology      *Secondary BS*: Marine Science      *Minor*: Business Administration

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## RESEARCH & WORK EXPERIENCE

### KBI Biopharma– Raleigh, NC

*Scientist II (April 2023 – Present)*

- Managed and developed a team of CDMO research associates and scientists responsible for analytical testing of upstream and downstream bioprocess development samples
- Experienced in executing and developing methods to assess purity (SEC & RP-HPLC, Capillary Electrophoresis), charge heterogeneity (IEX-HPLC, icIEF), impurities (HCP & ProA ELISAs, DNA), titer (affinity HPLC), and glycan profiles (UPLC-FLR)
- Lead analytical support for biological programs (MAbs and Fusion proteins) in both early phase (first in human) and late phase (Phase II to PPQ readiness)
- Authored and reviewed protocols, test methods, reports, data summaries and controlled documents in accordance with ICH guidelines and cGMP regulations
- Interfaced with pharmaceutical clients, upstream and downstream product development, and GMP manufacturing to ensure program deliverables and timelines were met
- Expedited timelines by improving data workflows (developed automated assay templates and data analysis reports) and standardized documentation (developed and trained company leads on automated data summary reports created using Visual Basic macros)

### Locus Biosciences – Raleigh, NC

*Scientist II (March 2021 – Jan 2023); Scientist I (November 2019 – February 2021)*

- Team lead of High-Throughput Development team (11 member multi-disciplinary group) encompassing in vitro molecular and phenotypic assay development, automation engineering on Hamilton Robotics, genomic sequencing (Illumina and PacBio), and bioinformatics functions
- Directly managed 9 employees up to the Scientist II level. Completed a 9-week leadership and management course facilitated by the NextGen Center
- Lead engineer on two viral therapies for the treatment of infectious disease. Applied CRISPR-based tools to create weaponized bacteriophages targeting *E. coli* & *K. pneumoniae*. Phase 2 clinical trial in progress
- Team player that built relationships and provided scientific support that bridged all functional units within the company (R&D, TransMed, MS&T, PMO).
- Performed a request-for-proposal (RFP) to outsource DNA synthesis, which decreased costs 9x and increased productivity 10x (>\$1 million saved). Managed vendor relations for 2 years.
- Led design and execution of a \$1.2 million CapEx project to automate the phage engineering pipeline
- Experience writing patents, project initiation forms, and project charters. Inventor on two pending patents
- Operations lead to re-organize four laboratories and two warehouse spaces using Lean Six Sigma principles to optimize functional space. Increased lab personnel capacity by 50% (11 individuals)
- Developed ELISA and Western Blot assays to quantify protein expression in murine and in vitro models
- Validated multiplexed probe-based qPCR assays for translational murine models
- Generated weekly dashboards and utilized Microsoft EPM and Project to track status, issues, and risks

## Tae Seok Moon Laboratory – Washington University – St. Louis, MO

*Lab Manager* (May 2016 – September 2019); *Graduate Student* (December 2014 – September 2019)

- Applied molecular biology, microbiology, and waste plant material to produce renewable fuels & chemicals
- Developed and applied genetic tools and parts for non-model/understudied microbial species
- Experience with cell culture, synthetic biology, metabolic engineering, genome editing (CRISPR), gene repression (CRISPRi & asRNA), RT-qPCR, small molecule genetic sensors, plasmid construction, gene expression (T7 RNAP & genetic logic gates), cell-based assays, RNA/DNA-Seq, and flow cytometry

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## SKILLS

- Experimental design • Scientific writing & editing • Cell culture • Synthetic biology • ELISAs
- CRISPR • RT-qPCR • HPLC/UPLC • Capillary Electrophoresis • Molecular & cellular biology
- Lean Six Sigma • Teaching • Oral communication • Metabolic engineering • Phage therapy
- Conflict resolution • Proficiency in Microsoft Office (VBA coding), Benchling, ELN, PRISM, Empower

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## SELECTED AWARDS

- 2020 WashU, EECE Graduate Student Thesis Award (highest impact score of total thesis publications)
- 2019 WashU, EECE Graduate Student Research Award (highest impact score of publications that year)
- 2015 National Science Foundation Graduate Research Fellowship (NSF GRFP)
- 2013 Barry Goldwater Scholar • 2012 NOAA Ernest F. Hollings Scholarship

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## SELECTED PATENTS AND PUBLICATIONS (2 patents and 12 publications)

- Inventor on pending patents PCT/US22/27694 (Bacteriophage comprising Type I CRISPR-Cas systems) and PCT/US2021/058095 (Phage compositions for Escherichia comprising CRISPR-Cas Systems)
- **DeLorenzo, D.M.**, et al. An improved CRISPR interference tool to engineer *Rhodococcus opacus*. *ACS Synthetic Biology* (2021). 10, 786-798
- Chatterjee, A.\*, **DeLorenzo, D.M.\***, et al. Bioconversion of renewable feedstocks by *Rhodococcus opacus*. *Current Opinion in Biotechnology* (2020). 64, 10-16. \* = **co-first authorship**
- **DeLorenzo, D.M.** and Moon, T.S. Construction of genetic logic gates based on the T7 RNA polymerase expression system in *Rhodococcus opacus* PD630. *ACS Synthetic Biology* (2019). 8, 1921-1930.
- Henson, W.R.\*, Campbell, T.\*, **DeLorenzo, D.M.\***, et al. Multi-omic elucidation of aromatic catabolism in adaptively evolved *Rhodococcus opacus*. *Metabolic Engineering* (2018). 49, 69-83. \* = **co-first authorship**
- **DeLorenzo, D.M.** and Moon, T.S. Selection of stable reference genes for RT-qPCR in *Rhodococcus opacus* PD630. *Scientific Reports* (2018). 8, 6019.
- **DeLorenzo, D.M.**, et al. Molecular toolkit for gene expression control and genome modification in *Rhodococcus opacus* PD630. *ACS Synthetic Biology* (2018). 7, 727-738.
- **DeLorenzo, D.M.**, Henson, W.R., Moon, T.S. Development of Chemical and Metabolite Sensors for *Rhodococcus opacus* PD630. *ACS Synthetic Biology* (2017). 6, 1973-1978.
- Wan, N. \*, **DeLorenzo, D.M.\***, et al. Cyanobacterial carbon metabolism: fluxome plasticity and oxygen dependence. *Biotechnology and Bioengineering* (2017). 114(7):1593-1602. \* = **co-first authorship**

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## LEADERSHIP/SERVICE

### Westwood Court Homeowners Association – St. Louis, MO

*Board President* (December 2015 – September 2019); *Board member* (October 2014 – September 2019)

- Managed HOA finances and service providers and organized biannual meetings for 15-unit condo building.
- Led planning and fundraising for multiple renovation projects to building totaling ~\$350,000.

### SEAS (Students Engaged in Aquatic Sciences) – University of South Carolina – Columbia, SC

*Education Outreach Coordinator* (May 2011-May 2012); *General Member* (August 2010-May 2014)

- Managed educational outreach program to local schools to teach about environmental sustainability and the ocean ecosystem. Established new relationships at ~ 20 Title 1 schools

### MarSci Journal – University of South Carolina – Columbia, SC

*Editor-in-Chief* (June 2011 - May 2014); *Associate Editor* (September 2010 - May 2011)

- Managed a team of students to produce a biannual publication that included student-conducted research manuscripts, faculty interviews, accounts of internship experiences, and articles on relevant topics.