John Merritt

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Education

Temple University — Philadelphia, PA
BS Biochemistry (cum laude, Dean Scholar, 3.65 GPA) — *September 2014 – May 2018*

UC Berkeley Extension — San Francisco, CA
Full Stack Flex Bootcamp — *March 2020 – September 2020*

Laboratory Skills

Biochemistry:Agarose and SDS-PAGE gel electrophoresis, protein purification, chromatography, spectrophotometry, western blot, ELISA, mammalian cell culture and transfection

Molecular Biology:Bacteria culture and transformation, RT-PCR, Northern and Southern Blot, RNA purification, co-immunoprecipitation and histochemistry, plasmid design for colorimetric, fluorescence, luminescence reporter assays in-vitro and in-vivo, Gibson Assembly

Organic Chemistry:Fisher Esterfication, Diels-Alder, Aromatic Substitution, IR, H-NMR, C-NMR, TLC,

Photometry:Bright field, fluorescence, phase-contrast, confocal, SEM, chemiluminescence, sample prep and cryosectioning, automated slide imaging, flow cytometry, Dynamic Light Scattering, UV-Vis Spectrophotometry

Programming:Python, scipy, matplotlib, Bedtools, ZPL, Latex

Software:Origin, ImageJ, Microsoft Office, MestraNova, Galaxy, Github, Quartzy

Animal Handling:Mice and Rat short anesthesia, oral gavage, IP injections, IV injections, blood collection, euthanasia

Research Experience

DNAlite Therapeutics, Inc — San Francisco, CA
Research Associate — *October 2018- Present*

- **Goal**: Iterated and formulated lipid nanoparticles (LNP) to encapsulate and deliver nucleic acids to the gastrointestinal (GI) tract
- Developed in-vitro and in-vivo assays to measure the stability, uptake, and expression of LNP encapsulated nucleic acids in the GI tract.
- In-vitro assays developed include CRE-LOX activation of fluorescence reporters or transfection of plasmid reporters such as gLuc, fLuc, SEAP, etc. Reporters are measured using microplate reader, microscopy, flow cytometry, RT-PCR, ELISA, Western Blot, etc. Maintained cell cultures by passing, cell counting and cryo-preserving using sterile technique.
- Developed in-vivo LNP transfection assays using CRE-LOX activation of fluorescence reporters or transfection of reporters such as gLuc, fLuc, SEAP with similar readouts as in-vitro. Dosed and sacrificed mice to isolate and collect tissue.
- Developed a well organized lab with label printing through electronic lab notebook (ELN) and kept track of inventory, purchasing when supplies run low

Robert Stanley Lab — Philadelphia, PA
Temple University — *May 2017 – January 2018*

- **Goal**: Create mutant DNA photolyase lacking the photoantenna domain and research its function
- DNA photolyase gene was cloned into a pET vector and E.coli Rosetta competent cells was transformed with plasmid construct

Weidong Yang Lab — Philadelphia, PA
Temple University — *May 2016 – May 2017*

- **Goal**: Nuclearporin50 gene, coding a scaffold protein in the nuclear pore complex, was cloned into an expression vector with two fluorescence tags (GFP and JF) and imaged using super-resolution microscopy
- Passaged Hela cells were transformed with nup50 plasmid construct and nup50 was visualized using fluorescence microscopy
- JF fluorescence binding events were mapped to point spread functions and reduced to centroids to achieve sub-diffraction limit resolution

Giordano Lab — Siena, Italy
University of Siena — *May 2015 – December 2015*

- **Responsibilities**: Follow western blot lab procedures and ELISA labs to characterize protein binding in cancer cells. Passage Hela mammalian cells to maintain and store lab cultures Keep accurate records of independent researcher's findings and observations.

University Research Projects

Advanced Microscopy Techniques Project Philadelphia, PA
Temple University *April 2018*

- **Cheek Cell project**: visualized stained cheek cells using confocal microscopy and created 3D projections using ImageJ

Techniques of Molecular Biology Final Project Philadelphia, PA
Temple University *April 2017*

- **CRN cloning**: Cloned human CRN gene into a vector and transformed competent cells with recombinant plasmid

Presentations and Publications

Presentation: Isolation of FAD domain in DNA Photolyase to Discover Fusion Protein July 2016
Summer 2016 Temple Research Symposium

Patent: Bile Salt Stable Delivery Vehicles June 2019
DNAlite Therapeutics, Inc.