



## **Agile BioFoundry CRADA Project – UGA / Neidle Lab**

**Title:**

Agile Genetics for Biomanufacturing

**Project Partners:**

Los Alamos National Laboratory, National Renewable Energy Laboratory, University of Georgia at Athens

**Relevant ABF Capability(ies):**

Test: [Biocatalyst Optimization](#)

Test: [High Throughput Screening Platform](#)

Integration and Scale-up: [Techno-Economic Analysis](#)

**Description:**

The development of microbial strains to produce a desired target molecule is limited by the rate of generating and identifying genetic changes that improve production. Typically, strain design involves genetic variation (natural or induced) followed by selection for growth. The advantage of this approach rests on the feasibility of isolating only the microbes that display an important phenotype. Unfortunately, increased growth is, at best, an indirect measure of the increased production of a target molecule. At worst, rapid growth may negatively correlate with synthesis of the target. Thus, new methods are needed to detect strains with high-level target production by using techniques that match the speed and convenience of selection by growth. In this project, a direct method to detect and isolate cells that produce high levels of a target molecule will accelerate the creation and further optimization of industrially important strains. While we envision making a generalized tool for the development of enzymes, pathways, and microbial strains for any targeted product, the focus of this project is the production of terephthalic acid (TPA), a commodity chemical that is of interest to the ABF.

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**Performance period:** 9/20/2018 to 9/19/2020

**Resulting publication(s)/patent(s):** None to date.