

current *in vivo* and *in vitro* bioproduction approaches, relies on the dynamic minimization of the active metabolic network. Dynamic metabolic network minimization allows researchers to construct a less-complex design space and create robust strains. Robust strains enable predictable scalability from high-throughput, small-scale screens or micro-fermentations to fully instrumented unprecedented production rate.

In the field of metabolic engineering, researchers have historically found it extremely difficult to predict the behavior of complex biological systems *in vivo* from simplified models and basic *in vitro* biochemical principles. In many cases, it has proven much more challenging than expected to integrate a well-characterized production pathway into a living host and balance the complex requirements of biomass growth and production.

The difficulty lies in the interconnected nature of metabolic net-

The technology dramatically reduces the cost and risk currently associated with

DMC's lead products are specialty amino acids, including L-alanine, valine, isoleucine, and leucine. These amino acids can be used in human nutritional, wellness, and personal care products, as well as in animal feed. In particular, the animal feed market is amped amino acids can parpen istraine by stmoonltyparton t

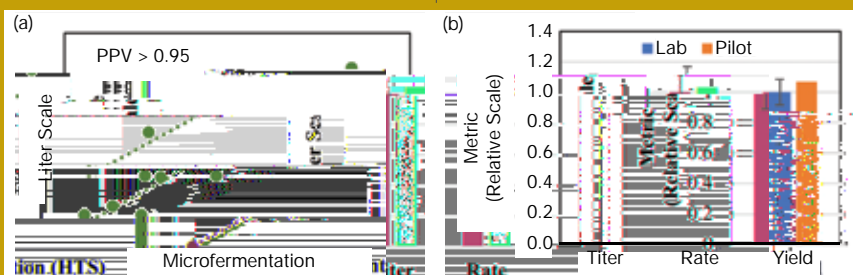
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nologies is deploying its technology platform for the production of bio-based chemicals. The platform tech-

DMC's lead product & ÷ recently been produced at pilot scale (*i.e.*, 4,000-L fermentation volume) using a third-party facility. This effort has validated two key technology features — predictable performance across several scales and robustness of the strain to the process e© process e©

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(a) DMC Biotechnologies is the first in the field to demonstrate predictive performance from microfermentation to liter scale. Data are for dozens of unique products and multiple variants of each product with a positive predictive value (PPV) > 0.95. (b) Process performance for DMC's lead product (L-alanine) was demonstrated at pilot scale (4,000-L fermentation) with results matching lab scale (1 L and 6 L).