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Accelerate cell culture development using the modular automated sampling technology (MASTTM) platform in an integrated bioprocess lab environment

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TITLE

Accelerate Cell Culture Development Using the Modular Automated Sampling Technology (MAST™) Platform in an Integrated Bioprocess Lab Environment

ABSTRACT

Biopharmaceutical companies are continually striving to fundamentally understand and optimize cellular performance within their bioreactors. While on-line process analytical technology (PAT) tools like dielectric and Raman spectroscopy are helping to provide insight into cell processes that impact titer and antibody quality, the integration of these data with off-line measurements such as cell density, viability, titer and glycosylation remains an elusive goal.

Bend Research Inc., in collaboration with Lilly, Pfizer and other major biopharmaceutical companies, is advancing the Modular Automated Sampling Technology (MAST™) platform and integrating this system with automated analytical and data retrieval systems. This approach allows application of novel experimental methods providing greater insight into the bioreactor environment. In this process, aseptically collected bioreactor samples are delivered to multiple analytical devices with resulting data being automatically retrieved and curated. This data is presented at a graphical user interface (GUI) for real-time data analysis and predictive model development. Early studies with the MAST sample delivery system coupled with our data-processing software increased system observability and real-time process understanding by the end user.

This presentation describes how Bend Research has used the MAST platform as a cornerstone of an integrated lab environment. We will describe how the MAST system works and the features that set it apart from other autosampling solutions. Applications will be presented where MAST facilitated the use novel development approaches yielding enhance process understanding

From this new level of insight into the bioreactor, scientists can obtain enhanced data-driven guidance for key activities like optimizing process operation. With this new technology, the bioprocess industry can make major advances toward advanced real-time testing, predictive control, and overall enhanced bioprocess design and operation.