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# Continuous Downstream Process Or Connected Batch Process: Which One Makes Most Sense For Biogen?

## John Pieracci, Sanchayita Ghose and Venkatesh Natarajan Biogen Corp.

As biologics-based products move into therapeutic areas with large patient populations and high doses, batch processing may not be able to keep pace with product demands. At Biogen, we have been exploring a number of options that can enable higher productivity of our downstream processes. In addition to a fully "end to end" continuous process, a batch process comprised of several steps connected in series has been evaluated. In this presentation, technologies Biogen has evaluated to enable either continuous or connected processing will be shown. Multi-Column-Chromatography (MCC) for the Protein A capture chromatography step was evaluated in order to maximize resin utilization and increase productivity. Connecting subsequent polishing steps was explored to eliminate the need for large intermediate hold tanks. Various options for continuous diafiltration were assessed to enable a fully continuous UF/DF step. The results of these evaluations will be presented as well a comparison of the expected productivity and COGs for both process options.