

## **ADVANTAGE OF HIGH TURNDOWN SUB FOR INTENSIFIED PROCESS**

Edward Chan, Genentech, Inc., USA  
echan@gene.com

Disposable technology is being used more each year in the biotechnology industry. Disposable bioreactors allow the user to avoid expenses associated with cleaning, assembly and operations, as well as equipment validation. Disposable bioreactors have played a key role to meet the increasing run rate of the Cell Culture Pilot Plant while maintaining a high success rate, reducing labor costs, increasing efficiency, and lowering the risk of contamination. Recent effort to evaluate the next generation 10:1 turndown single use bioreactor with different cell retention devices to challenges oxygen mass transfer, carbon-dioxide stripping while assessing foaming, and vent filter sizing. This presentation will focus primarily on the advantage of the next generation high turndown single use bioreactor that comes with different sparger options (enhanced DHS and microsparger), and tubing for different cell retention device connection. Additionally, the high turndown provided a wide range of working volume allowing us to truly test the true scale down of the cell retention device for its maximum flux and filter throughput. The evaluation provided important system performance, operation experience, and cell culture performance data when comparing the next generation high turndown disposable system with respect to the legacy 2:1 and 5:1 turndown single use bioreactors, and conventional stainless-steel bioreactor system.