

## **OPTIMIZATION OF THE SINGLE USE BIOREACTOR FOR GROWTH AND BEAD-TO-BEAD TRANSFER OF VERO CELLS CULTURED ON MICROCARRIERS**

Paula Decaria, Thermo Fisher Scientific  
paula.decaria@thermofisher.com  
Nephi Jones, Thermo Fisher Scientific  
Tony Hsiao, Thermo Fisher Scientific  
Alex Hodge, Thermo Fisher Scientific

Key Words: Single-Use, Vero, Microcarrier, Scale-up

Scale up and vaccine production processes of adherent cells, such as Vero cells face many challenges. The fundamental steps of equipment selection and chosen operating parameters have a significant impact upon the detachment and reattachment of cells through the scale up process. Microcarriers greatly increase the surface area for adherent cells and offer flexibility for expansion to bioreactors, but scale-up methods require optimization of the mixing within the vessel and also optimization of how the cells are transferred from bead to bead at each step in the seed train. In this study we take a process previously shown to work in spinner flasks (<1L)<sup>1</sup> and demonstrate how the 50L Thermo Scientific™ HyPerforma™ Single-Use Bioreactors (S.U.B.) can be optimized for growing and scaling adherent cells on microcarriers, methods for bead-to-bead transfer of the cells at each scaling step, and final cell isolation using the Harvestainer single use bead capture bag.

### References

1. Hachmann A, Campbell A, Gorfien S. Scale-up Optimization of Vero Cells Cultured on Microcarriers in Serum-Free Medium for Vaccine Production. Poster presented at: Vaccine Technology VI; 2016 June 12-17; Albufeira, Portugal.