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Development of an icellis nano bioreactor platform for high-yield viral vector production

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The increasing importance of viral vaccine manufacturing has driven the need for high cell density processes that allow for higher production levels of viral vectors in efficient and scalable processes. The present investigation evaluated recombinant Vesicular Stomatitis virus (rVSV) viral vector production in the Pall iCELLis Nano bioreactor. Vero cell growth within the fixed bedding system was monitored using a biomass sensor that measures conductivity and capacitance. Infection was performed upon optimal cell growth as measured by the biomass sensor. Viral vector harvest was triggered by the biomass readings, which occurred two days post-infection. All iCELLis runs within the campaign yielded an increase of 1 to 2.5 logs of virus production per mL when compared to virus production from standard flat-stock methods. This correlated to an overall increase of 4 logs of virus per batch. In terms of dosages, utilization of the iCELLis Nano resulted in an increase in the number of doses per campaign, when compared to standard flat-stock methods, which ultimately led to a reduction in the cost per dose. In summary, use of the iCELLis bioreactor platform allows for a cost-efficient and scalable process for viral vaccine production.

Biography

Eric Vela completed his PhD in the field of Virology and Gene Therapy from The University of Texas Graduate School of Biomedical Sciences at Houston. He then completed his Postdoctoral Studies at The University of Texas Medical Branch in Galveston in the field of Viral Pathology. He is currently the Associate Director for Process Development at Ology Bioservices, a premier Contract Development and Manufacturing Organization (CDMO). He has published more than 25 peer reviewed publications in reputed journals, in addition to several book chapters.

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