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EVALUATION OF SINGLE-USE BIOREACTORS FOR THE PRODUCTION OF A HEPATITIS C VACCINE CANDIDATE

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During the last decade, the usage of single-use bioreactors has been increasing in the biopharmaceutical industry. This technology offers some appealing advantages over their conventional counterparts made of glass or stainless steel, such as operational flexibility, faster batch-to-batch turnaround times and the reduction of clean-up and validation characteristic of single-use materials.

The present work examines a stirred single-use bioreactor for its suitability for the production of a Hepatitis C Virus-Like Particles (VLPs) vaccine candidate using the baculovirus expression system with Sf9 cells.

In this sense a 2L glass stirred tank and a Mobius® 3L Bioreactor are compared in terms of viable cell concentration, viability percentage, growth kinetics, stability, and VLPs production, showing that comparable results can be obtained with a simple matching of hydrodynamic working parameters between the two systems.

Moreover, we report on the successful scale-up of this disposable alternative from a 3L to a 50L scale, demonstrating the potential, and ease-of-use of this technology for the production of complex biopharmaceutical products.