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TOWARDS A VIRUS PRODUCTION PLATFORM BASED ON VEROS CELLS GROWN ON CHEMICALLY DEFINED MEDIA

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Vero cells are nowadays widely used in the production of vaccines. However, they are anchorage dependent, which greatly complicates upstream processing and process scale-up. Moreover, there is a recognized need to reduce the costs of vaccine manufacturing to develop vaccines affordable worldwide. The use of cell lines adapted to suspension growth contributes to reach this objective. We had previously adapted Vero cells to suspension growth for rabies virus (strain LP2061) production in different serum free media (Rourou et al. 2019).

In this work, we describe the use of a chemically defined medium (CDM) provided by Xell AG to assess the growth of suspension adapted Vero cells, VeroS, and the production of both rabies and Bluetongue Serotype 1 (BTV-1) viruses.

The viruses were first adapted to VeroS grown on CDM by successive passages. Then, kinetics of cell growth and virus production were studied in shake flask cultures.

The maximum VeroS cell density was between 2 and 3×10^6 cells/ml (batch mode without medium replacement). Preliminary results showed virus titers equivalent to (or higher than) those obtained on adherent cells were reached. Rabies (4 days post infection) and BTV1(5 days post infection) titers were successively 5×10^7 UFF/mL and $10^{7.2}$ TCID₅₀/mL.

Ultimately, the current study could be considered as a first step towards a new and cost effective vaccine platform.

References

Rourou S., Ben Zakkour M., Kallel H (2019). Adaptation of Vero cells to suspension growth for rabies virus production in different serum free media. *Vaccine* 37: 6987–6995.