BIO_30 - Evaluation of culture media as a platform for CHO cell line development for a biosimilar monoclonal antibody production

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Introduction: A study aimed to enhance biosimilar antibody productivity by testing six culture media on two clones.

Objectives: Evaluate the best monoclonal antibody productivity of two clones in different cullture media.

Methodology: Clones 1 and 2, were selected for a study evaluating six culture media from different suppliers: A, B, C, D, E and F. The concentration of L-glutamine in all the media was -day fed-batch production - 37°C, 8% CO2, at 125 rpm. Cell densities and viabilities of the cultures were evaluated daily. Samples were taken and stored at -30° C for IgG quantification.

Results: For Clone 1, the kinetic profiles showed concentrations between 5.5 x 106 cells/mL (medium B) to 19.6 x 106 cells/mL (medium D). The results of specific ELISA assays demonstrated that clone 1 showed higher productivity in culture medium E. Maximum concentration was achieved on culture day 12. The second-highest concentration was obtained with F culture medium, on culture day 17. For clone 2, the kinetic profiles showed concentrations ranging from 6.1 x 106 cells/mL (medium B) to 21.6 x 106 cells/mL (medium E). The results of the specific ELISA assays demonstrated that clone 2 showed greater productivity in culture medium E. The maximum concentration was achieved on culture day 12. The second highest-concentration was obtained with culture medium F, on cultivation day 17. When evaluating the kinetic profiles of cell growth, along with the antibody titers produced by clones 1 and 2, it was identified that cultures in medium E and F presented the most expressive results.

Conclusion: Comparing the results obtained from the cultures using different media for each clone it is possible to observe the positive influence of these media impacting in higher cell concentration and productivity.

Keywords: Fed-batch cultures; Stable cell line; Culture media selection