

Effect of Pluronic F-68, 5% CO₂ atmosphere, HEPES, and antibiotic-antimycotic on suspension adapted 293 cells

ABSTRACT

The influence of different parameters upon cell culture of serum-free adapted 293 cells including the surfactant Pluronic F-68, carbon dioxide (5% CO₂ atmosphere), buffer HEPES and antibiotic-antimycotic has been explored. A defined serum-free medium (SFM) formulated without human or animal origin components from Invitrogen was used to grow the suspension adapted 293 cells. For all cell culture parameters cell density and viability of the suspension adapted 293 cells were monitored. The results indicated that the PF68 concentrations ranging from 0.05% to 0.2% can be used in the culture of the suspension adapted 293 cells since no negative effect upon either cell density or viability was detected. This will minimize the formation of aggregates during cell culture. It was demonstrated that neither the cell density nor the viability of the suspension adapted 293 cells were affected by the 5% CO₂ atmosphere at the inoculation cell densities evaluated. The use of the buffer HEPES in the cultivation of suspension adapted 293 cells did not cause negative effects upon cell density and viability. The addition of HEPES makes more robust the culture to pH fluctuations. The antibiotic-antimycotic can be used when needed at concentrations of up to 50 IU/ml for the culture of this particular cell line, with no apparent effect upon cell growth. The results obtained will contribute to a basic understanding of the 293 cell culture in the 293 SFM II and to the process development of their culture in bioreactors for the expression of different products of biotechnology interest.

Keyword: 293 cells; Serum free medium; Cell density; Cell viability; Suspension