

Enhancement of monoclonal antibody productivity by promoting active hypothermic growth in hybridoma cells

ABSTRACT

BACKGROUND: Many reports have suggested that mild hypothermic culture conditions improve the specific monoclonal antibody (mAb) productivity of mammalian cells. The effect of active hypothermic growth on the mAb productivity of the hybridoma C2E7 was investigated. Hybridoma growth under hypothermic conditions (32 °C) was stimulated by supplementation of the culture medium with high serum concentrations (up to 30%).

RESULTS: Specific and volumetric mAb productivity of a stimulated, active growth, mildly hypothermic hybridoma culture (30% FBS supplemented, 32 °C) were 1.38- and 1.34-fold greater than the control culture (10% FBS supplemented, 37 °C). The enhanced specific mAb productivity under hypothermic conditions was associated with an increase in IgM mRNA levels during both the lag and early exponential phases of hypothermic growth.

CONCLUSION: Stimulation of hybridoma growth under mildly hypothermic conditions increased both the specific and volumetric mAb productivity of hybridoma cells.

Keyword: Hypothermic growth; Hybridoma; Monoclonal antibody; Specific productivity