

425e Effects of Culture Conditions on Recombinant Protein Glycosylation in Cho Cell Culture

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The increasing demand for therapeutic proteins and the projected shortage of reactor capacity for mammalian cell culture has renewed interest in high cell density cultures, particularly using microcarriers. However, it is not well understood how changes from suspension to microcarrier culture affect growth characteristics of cells, yield and glycosylation of recombinant proteins. Of particular concern is the use of microporous microcarriers which may have significant mass transfer limitations which may reduce cell viability or alter the glycoforms of the recombinant proteins produced. Here we have investigated the growth characteristics, metabolic activity, productivity and N-glycosylation patterns of secreted alkaline phosphatase (SEAP) produced by a Chinese hamster ovary (CHO) cell line in grown in suspension and attached to two different types of microcarriers, solid and microporous. CHO were grown in serum-free medium in batch bioreactor culture with dissolved oxygen and pH control. Growth and nutrient uptake rates were measured and the N-linked glycoforms were characterized with MALDI-TOF and HPLC/mass spectrometry. The glycan distribution was quantified using capillary electrophoresis with fluorescence detection. The degree of sialylation of SEAP under different culture conditions was also determined.