INCREASING PROCESS PRODUCTIVITY FOR AN ANTIBODY-BASED CANCER VACCINE

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Racotumumab is a monoclonal antibody mimicking tumor associated antigens that has been used to treat lung cancer patients in a therapeutic vaccination approach. This antibody has proved the capacity to elicit an immune response against the tumor cells, when injected together with an adjuvant. The antibody is obtained from hybridoma cells using a perfusion process. In this work we explore the use of sodium acetate to increase the productivity or racotumumab perfusion process. Increasing concentrations of sodium acetate (5 – 15 mM) were evaluated first in batch cultivation to understand the effect on the physiology and secretion rates of the hybridoma cells. Further evaluation was carried on perfusion runs performed at small scale. Very low toxic effect was found for sodium acetate concentrations below 15 mM in batch culture. The negative effect of sodium acetate was even lower at perfusion culture, when no signal of apoptosis induction was found. Overall increase on specific production rate (qp) reached 2 – 4X compared to control experiments, but not a clear trend was found supporting the idea of the higher the sodium acetate concentration the higher the qp-increase. In order to understand the stimulatory effect of sodium acetate we speculate over the need of a ratio of sodium acetate availability in the culture broth and the cell concentration. By controlling this ratio we may enhance the stimulatory effect of sodium acetate without inducing significant cell death.