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OPTIMIZATION OF THE CELL CULTURE MEDIA TO OBTAIN THE MOST EFFECTIVE NUTRIENT CONCENTRATIONS IN THE MEDIUM FOR THE GROWTH AND MAINTENANCE OF THE MYELOMA CELLS

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Cell culture can be described as the removal of cells, tissues or organs from an animal or a plant and their subsequent placement into an artificial environment. Basically, proper temperature, substrate for cell attachment, appropriate growth medium and correct pH and osmolality in the medium should be properly maintained in order to achieve a better growth in the cells. Typically, a culture medium is composed of a complement of amino acids, vitamins, inorganic salts, glucose, and serum as a source of growth factors, hormones, and attachment factors. The objective of this study is to optimize culture media in order to obtain the most effective nutrient concentrations in the medium for the growth/maintenance of NS0 Myeloma cell

Myeloma cells for the monoclonal antibody production were prepared using Dulbecco's Modified Eagle Medium (DMEM) as the growth media for the NS0 cell culture. In this study, the culture media was optimized in order to obtain the most effective concentrations in the media. Primarily, in order to culture the cells soon after thawing, 10% growth media was used and then the grown cells were transferred in to a nutrition rich media- Hypoxanthine Thymidine (HT) medium.

The growth of the Primary cell culture, soon after thawing, was observed within 2 days of culturing. A 60% of the bottom of the culture flask was covered with the healthy NS0 myeloma cells. The transferred cells were also grown to a rate of 60% within 2 days of transferring. The 10% growth media comprises with 422 mL of DMEM with added 4500 mg/L glucose without L-glutamine and sodium pyruvate, 50 mL of Fetal Clone Serum, 12.5 mL of 1M HEPES buffer (4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid), 5 m of 200 mM Glutamin, 5 mL of 100X Non-essential amino acids, 5 mL of 100 mM Sodium pyruvate and 0.5 mL of 55mM β-mercaptoethanol. The HT medium comprises with 366.5 422 mL of DMEM with added 4500 mg/L glucose without L- glutamine and sodium pyruvate, 100 of mL FetalClone serum, 12.5 mL of 1M HEPES buffer, 5 mL 100X HT supplement, 5 mL of 200 mM Glutamin, 5 mL of 100X Non-essential amino acids, 5 mL of 100 mM Sodium pyruvate, 0.5 mL of 50 mg/mL Genatamicin, 0.5 mL of 55 mM β-mercaptoethanol and 25 µL of Interlukin-6

Since both the culture media showed optimum growth of the Myeloma cells, the above protocol with the provided concentrations of the nutrients could be used to maintain/ grow NS0 myeloma cell line in the laboratory.

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