

Effect of Methotrexate(MTX) Concentration on Recombinant Chinese Hamster Ovary (rCHO) Cell Growth and Recombinant Antibody Production

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Abstract

The dihydrofolate reductase (dhfr) gene amplification system has been widely used for production of recombinant glycoproteins in Chinese Hamster Ovary (rCHO) cell line.^{1),2)}. The expression of the desired protein production is amplified by selecting increased dhfr gene copy numbers in culture with increasing methotrexate(MTX) concentrations.

In this study, to determine the effect of methotrexate concentration on rCHO cell growth and recombinant antibody production, rCHO cells were cultivated at variable concentration(320nM, 640nM, 1 μ M, etc.). The increase of MTX concentration showed slightly cytotoxicity effect on rCHO cells. The specific production of recombinant antibody increased up to 2.2 fold as the concentration of MTX increased from 320nM to 10 μ M and investigated specific productivity of more higher concentration, while the specific growth rate decreased gradually. The specific glucose consumption rate and lactate production rate increased up gradually as the concentration of MTX increased.

References

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