**SUSPENSION CULTURE OF PK15 CELLS FOR VETERINARY ANTIGEN PRODUCTION**

Ziomara P. Gerdtzen, CeBiB DIQBT University of Chile
Felipe Véliz, DIQBT University of Chile
Kurt Pohlhammer, DIQBT University of Chile
Iván Valdés, Veterquímica S.A. Chile
Harold Oliva, Veterquímica S.A. Chile
Samuel Valdebenito, Veterquímica S.A. Chile

Key Words: Veterinary vaccines, suspension culture, metabolic model

The aim of this work is to characterize a culture of adherent pig kidney cells used for the production of an antigen for Porcine circoviral disease (PCVD), and determine a suitable strategy for scale up.
The pig kidney cell line PK15 grown in adherence at low glucose concentration, was characterized in terms of culture and metabolic parameters, and subsequently adapted to suspension culture using a progressive adaptation method and media modification to a condition with low serum, high glucose and surfactant presence. The adapted cell was grown in suspension in 1 L flasks, and characterized also in terms of culture and metabolic parameters for comparison with the original adherent culture. Cells grown in suspension maintain a high viability and reach a similar maximum cell concentration as cells grown in adherence, while exhibiting a more efficient metabolic state. Cell concentration was increased by culture feeding, which is initiated at 5 mM residual glucose.
Cells were infected with $10^3$ viral genomic equivalents/cell, cultured and monitored for 120 hours. Cell growth and metabolic parameters were also determined.
A stoichiometric model that considers the main metabolic pathways was used to assess and compare the metabolic state and needs of cells grown in adherence, grown in suspension and after infection using metabolic flux analysis. Results from this analysis were used to determine a suitable specific media composition for the cell growth stage and the viral infection stage in suspension culture. Results obtained in this study are to be transferred to the production setting.

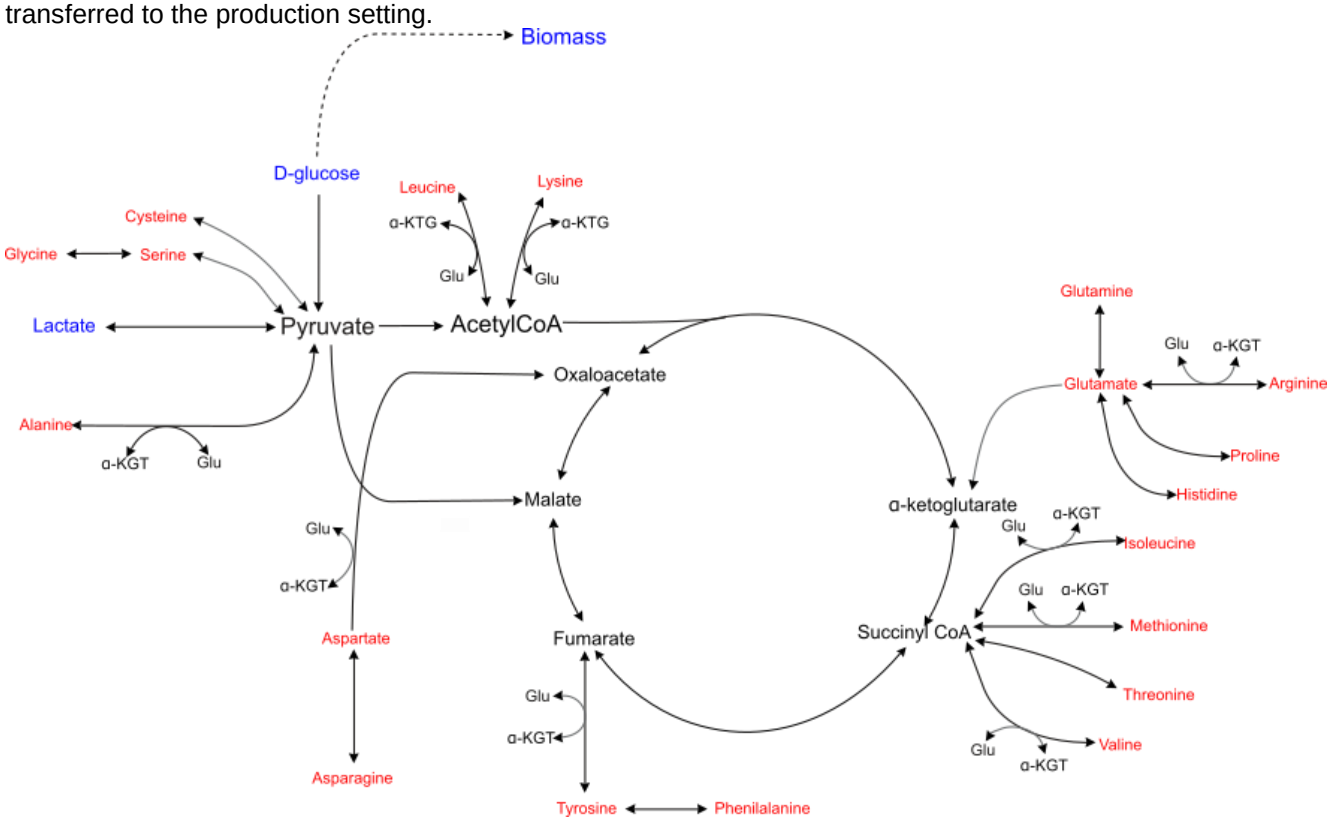


*Figure 1 – Metabolic pathways considered for the analysis of PK15 cells in culture*