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EVALUATION OF PERFORMANCE ENHANCING EFFECTS OF SUPPLEMENTATION WITH COMPLEX FEED SYSTEM AND SUPPLEMENTS WITH SHEFF-CHO CD COMPLETE MEDIA IN CHO-K1 AND CHO DG44 CULTURES

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Key words: CHO cells, CD media, hydrolysates, yeast extract, Fed-batch

Biopharmaceutical companies routinely utilize feed systems for maximizing the yield of recombinant proteins in Chinese Hamster Ovary (CHO) cells. Synergies between plant-derived hydrolysates, yeast extracts and recombinant proteins have previously been demonstrated to enhance productivity in CHO fed-batch cultures. Based on this knowledge, Kerry has developed CHO specific ACF (animal component free) feed systems and supplements for improving the overall culture health and enhancing recombinant protein yields. The availability of protein-free (PF) versions of the feeds and supplements provides an option for production platforms with PF requirements. Kerry has developed Sheff-CHO CD complete a CD media designed to work synergistically with these complex supplements and feed systems.

The Sheff-CHO series of supplements and the Sheff-Pulse series of feed's are available as powders and are ACF. The supplements and feeds were developed in two different IgG expressing CHO DG44 dhfr- cell lines and one CHO-K1 cell line expressing recombinant secreted embryonic alkaline phosphatase (SEAP). The applicability of the supplements and feed was demonstrated by performing multiple bioreactor experiments over 14 days using a competitor CD media and Sheff-CHO CD complete media. Media samples were collected daily and viable cell density, productivity and nutrient profiles were evaluated and performance differences were observed between the various media and complex feed supplement systems.

The use of Sheff-CHO series of supplements and Sheff-Pulse feeds with both the Kerry CD media and competitor CD media resulted in an enhanced performance in terms of cell density and recombinant protein productivity for both CHO DG44 and CHO-K1 cell lines. This demonstrated the versatility of Kerry's complex feeds and supplements. The combination of Sheff-CHO CD complete media in combination with the complex supplements and feeds provides significantly enhanced yields due to improvements in cell viability over the course of a production run .