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Grow With Us

IS CHO-V™ Medium IS CHO-V-GS™ Medium

Figure 1. CHO Line 2 in Shaker



Figure 1. Growth and Expression in Shaker Culture. CHO Line 2 (dhfr selection). 30 mL culture in 125 mL shaker flask at 160 RPM. Protein determination by HPLC.

Figure 2a. CHO Line 3 in Bioreactor - Growth

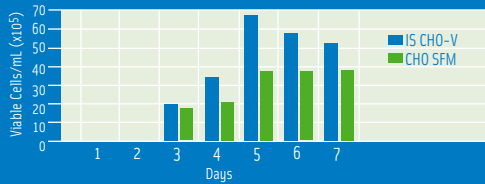


Figure 2b. CHO Line 3 in Bioreactor - Expression

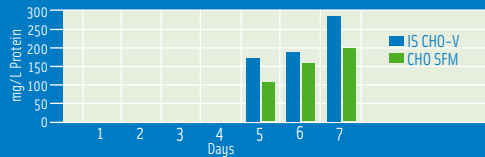


Figure 2. Growth and Expression vs CHO SFM in Bioreactor. CHO Line 3 (dhfr selection). 10L bioreactor with pH feedback control and O₂/CO₂ sparging. Same control settings used for both cultures. Cultures were adapted to each medium tested before comparison. Protein determination by HPLC. CHO SFM contains >100 µg/mL bovine serum proteins.

Figure 3. Growth vs. Competitor (CHO Line 4)

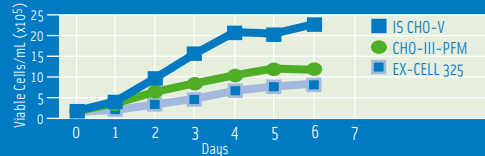


Figure 3. Growth vs Competitors in Shaker Culture. CHO Line 4 (GS selection). Parallel 30 mL cultures in 125 mL shaker flasks at 160 RPM. Cultures were adapted to each medium tested before comparison. Protein determination by HPLC. Each of the competitors' media was supplemented with Hypoxanthine and Thymidine before the experiment. IS CHO-V-GS contains Hypoxanthine and Thymidine.

Figure 4. Selective Pressure

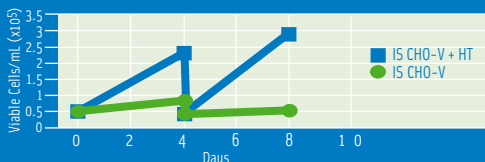


Figure 4. Selective Pressure. dhfr (-) CHO Line. Stationary cultures grown in parallel. Passaged on day four.

IS CHO-V™ and IS CHO-V-GS™ are serum-free media optimized for the production of recombinant proteins in Chinese Hamster Ovary (CHO) cells. These media are free of any components derived from human, bovine, or other mammalian sources.

Two versions are available to meet your specific requirements. IS CHO-V medium has been designed without Hypoxanthine and Thymidine for use with the dihydrofolate reductase (dhfr) and other selection systems. IS CHO-V-GS medium has been designed specifically for use with the Glutamine Synthetase (GS) selection system. IS CHO-V meets the customer requirements for a safe, regulation-friendly CHO medium while offering performance that is unmatched even by media that contain serum-derived proteins.

Performance

IS CHO-V medium promotes long term, high density growth of CHO cells with high expression levels of recombinant proteins. IS CHO-V was developed to meet the various performance requirements of different culture systems and different recombinant CHO cells. Studies of various applications consistently demonstrated the superior performance and versatility of the IS CHO-V medium.

IS CHO-V achieves a higher density and a higher rate of growth in this recombinant CHO cell line grown in shaker flasks (Figure 1). In this case, the cells reached nearly 3×10^6 cells/mL by day six and expressed 180 mg/L recombinant protein.

When IS CHO-V was compared to a serum-free medium for CHO cells (CHO SFM) for performance in a bioreactor (Figure 2), the IS CHO-V culture reached over 6.5×10^6 cells/mL in just five days and produced 280 mg/L recombinant protein by day 7 - 20% more than the CHO SFM. This experiment demonstrates the capacity of IS CHO-V to support high density growth and expression without the serum-derived proteins found in CHO SFM. IS CHO-V consistently outperforms competitors' media in both growth and expression.

IS CHO-V-GS was designed specifically for use with the popular GS selection system. The superior growth capacity of this medium was demonstrated in a head-to-head comparison with competitors' media (Figure 3).

Features and Benefits

- IS CHO-V medium is provided without L-Glutamine to extend shelf life and to allow the use of L-Glutamine feeding strategies. The recommended L-Glutamine concentration to add is 8 mM. The medium should be used without L-Glutamine if the GS selection system is being used.
- IS CHO-V medium helps maintain pH in culture systems without pH feedback control by providing carbon source alternatives to glucose. Media containing glucose as the only carbon source can result in the formation of excessive lactic acid. The blend of glucose and other carbon sources in IS CHO-V has been optimized for use in systems with and without pH feedback control.
- IS CHO-V and IS CHO-V-GS are available in 500 mL and one liter sizes with larger packaging configurations available on request.

Catalog Numbers 9197 (IS CHO-V) and 9198 (IS CHO-V-GS)

Selection

Experiments demonstrate that IS CHO-V maintains selective pressure when using the dhfr selection system (Figure 4). dhfr(-) cells would not grow in IS CHO-V medium unless the medium was supplemented with Hypoxanthine and Thymidine. IS CHO-V is provided without Hypoxanthine and Thymidine specifically for use with the dhfr selection system.

The Final Conclusion

IS CHO-V and IS CHO-V-GS provide several important benefits for the production of recombinant proteins in CHO cells. This medium allows for rapid adaptation from serum-containing cultures, offers superior performance and provides exceptional lot-to-lot consistency for use in a standardized process.

Partnering

This medium has been optimized for the specific cells we have used. Your cells and application may differ to varying degrees. This medium may be tailored to meet the specific requirements of individual customers. Whether your efforts are focused on optimizing yields, improving product quality or addressing regulatory concerns, Irvine Scientific has the answers to your specific requirements.

For more information on all of our Industrial Cell Culture products, call 1 800 437 5706 and request that your Territory Manager contact you. Visit our website at www.irvinesci.com or e-mail us at nucleus@irvinesci.com.

Note: Always refer to product insert for complete instructions for use.

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CATALOG #9197 & 9198 REV.2