

ActiPro media and supplements

A high-performing, easy-to-optimize cell culture solution



ActiPro media and supplements

The comprehensive HyClone™ ActiPro™ system of media and supplements is a high-performing, easy-to-optimize cell culture solution that drives robust growth and high yield in batch or fed-batch cultures using recombinant Chinese hamster ovary (CHO) cells.

System components are chemically defined with no peptides or hydrolysates, and is animal-derived component-free (ADCF). These products do not contain glutamine, hypoxanthine or thymidine (HT); the formulation supports the dihydrofolate reductase (dhfr) gene amplification and GS selection systems.

ActiPro media and supplements are intended for industrial production of recombinant proteins, including those requiring complex post-translational modifications and correct protein folding.



Ease of optimization

ActiPro media and supplements

The system consists of ActiSM™ medium for adaptation, ActiPro medium for production, and Cell Boost™ 7a and Cell Boost 7b supplements for enhancement of cell culture performance.

The advanced formulation of this cell culture system is specially designed to provide high protein yields. In addition, this engineered ActiPro system of media and supplements can significantly reduce production process time. After a brief adaptation phase, an appropriate feeding strategy can rapidly be identified, allowing an early transfer from shaker flask to large-scale protein production (e.g., in bioreactor).

ActiPro media and supplements are balanced formulations of amino acids, vitamins, salts, trace elements, and other components, meeting the metabolic needs of CHO cells in production. The cell culture system does not contain peptides, hydrolysates, phenol red, 2-mercaptoethanol, or growth factors such as insulin, to ensure batch-to-batch consistency.

Key features

- Off-the-shelf media and supplements
- Chemically defined ADCF formulation
- Easy to optimize
- High yield of recombinant proteins
- Short time to market

High productivity

The engineered, high-performing ActiPro system comprises powerful media and feed supplements designed for a robust CHO cell process. The optimized formulation of the ActiPro system allows cell clones to reach higher viable cell density faster than when cultured in other commercially available CHO media and feeds in either batch or fed-batch processes (Fig 1 to 4). The ActiPro system is suitable for general biomanufacturing with CHO cell lines such as CHO-GS, CHO-K1, CHO-DG44, and CHO-S.

- KEY
- ActiPro
 - Dynamis™ (Thermo Fisher Scientific)
 - ProCHO™ 5 (Lonza)
 - EX-CELL™ CD CHO (Sigma-Aldrich)
 - CD FortiCHO™ (Thermo Fisher Scientific)
 - CD OptiCHO™ (Thermo Fisher Scientific)
 - CD CHO (Thermo Fisher Scientific)
 - BalanCD™ CHO Growth A (Irvine Scientific)

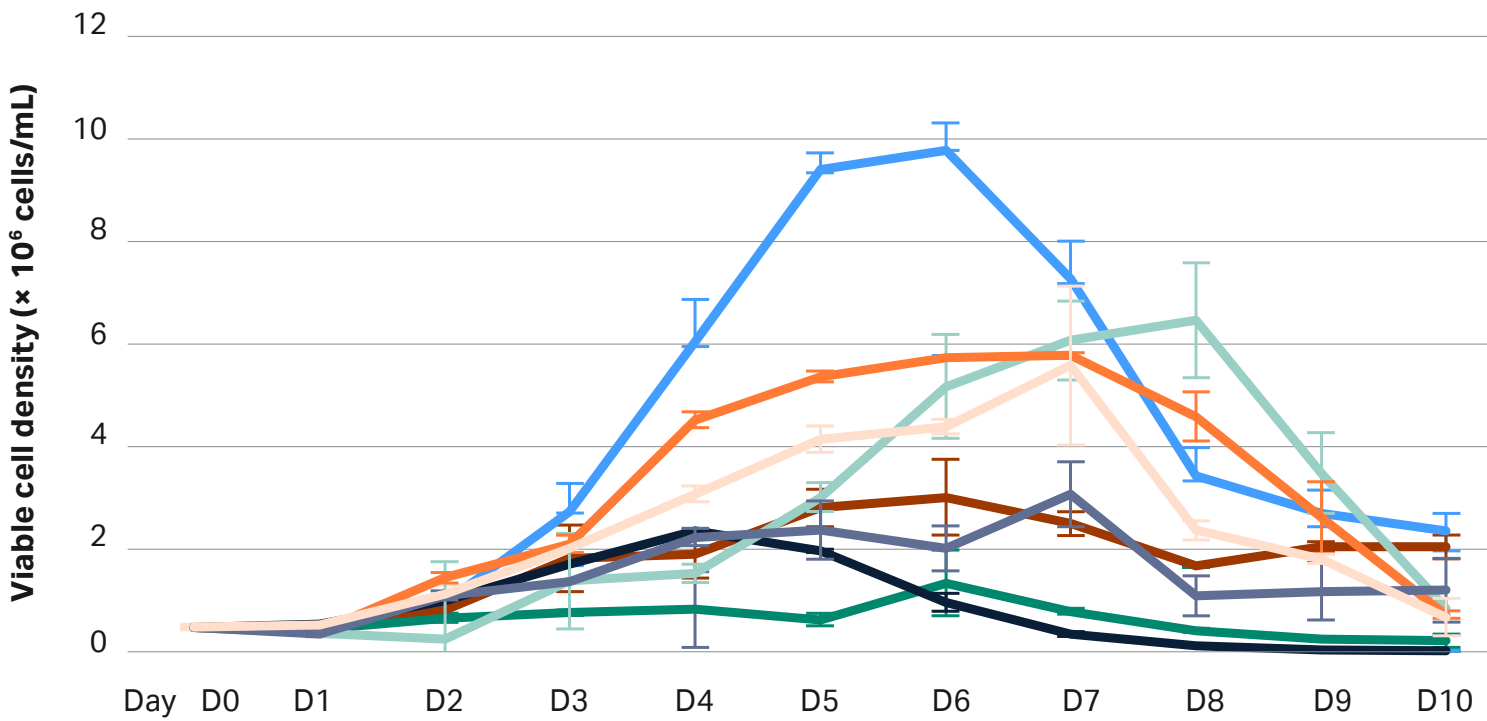


Fig 1. Terminal growth curve of CHO cell culture performed in batch mode after three successful adaptation passages in each medium in shaker flasks. Cells cultured in ActiPro medium reached a maximum viable cell density of 10×10^6 cells/mL on day 6. Cells cultured in closest other CHO cell medium reached a maximum viable cell density of 6.5×10^6 cells/mL on day 8. See key for medium types.

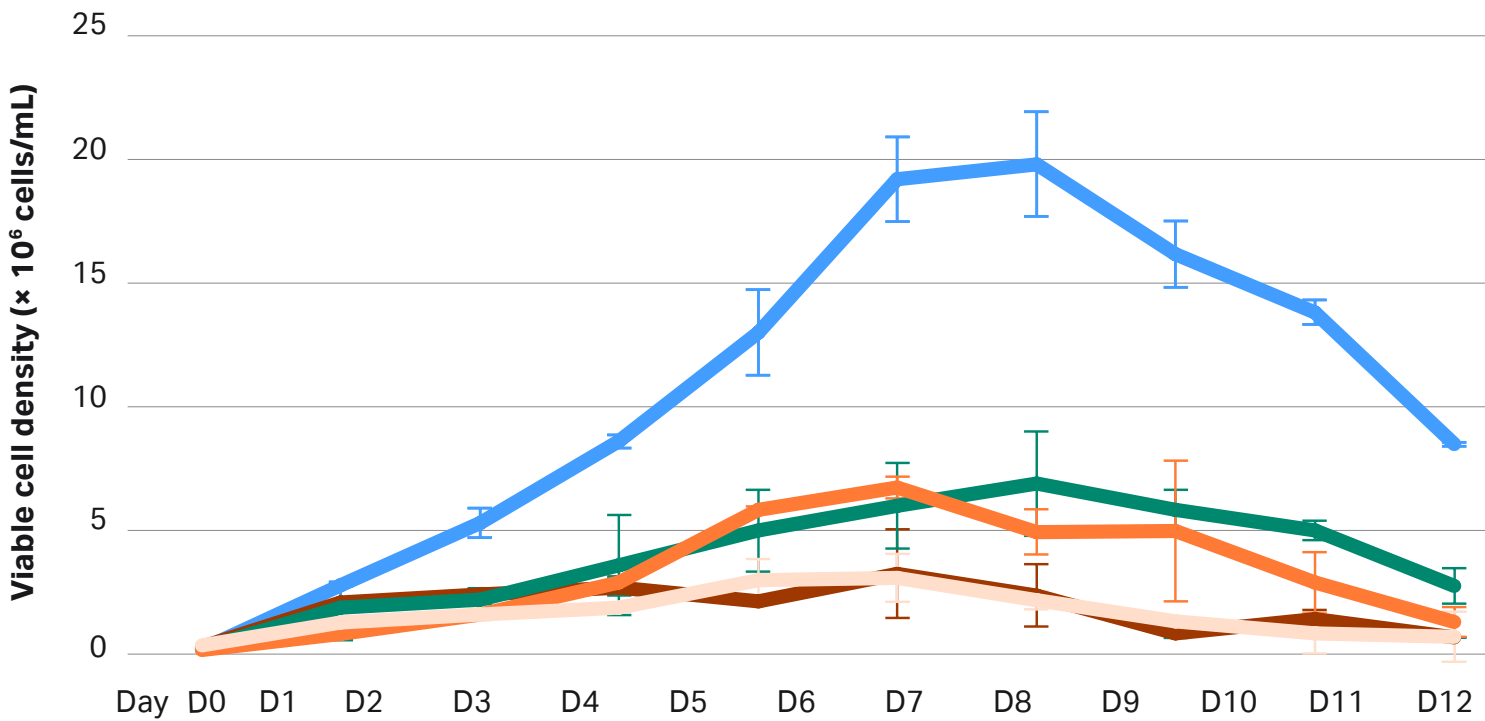


Fig 2. Terminal growth curve of CHO cell culture performed in fed-batch mode after three successful adaptation passages in each medium in shaker flasks. Each medium was fed according to manufacturer’s instruction. Cells cultured in ActiPro medium and feeds reached a viable cell density of 20×10^6 cells/mL on day 8. Cells cultured in closest other CHO cell medium reached a maximum viable cell density of 7.0×10^6 cells/mL on day 8. See key for medium types.

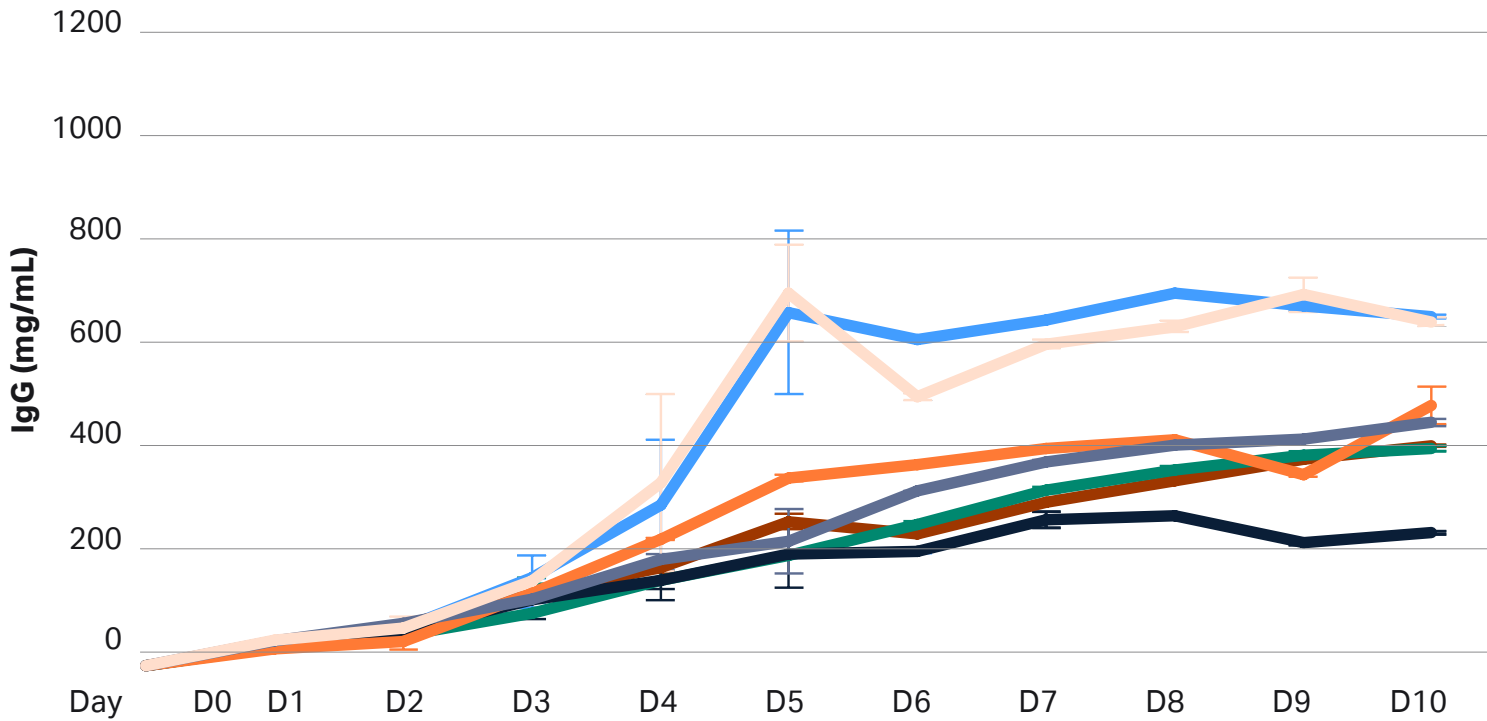


Fig 3. Productivity of IgG-producing CHO cells grown in ActiPro medium in batch mode in shaker flasks reach higher IgG production than when cultured in other media studied. See key for media types.

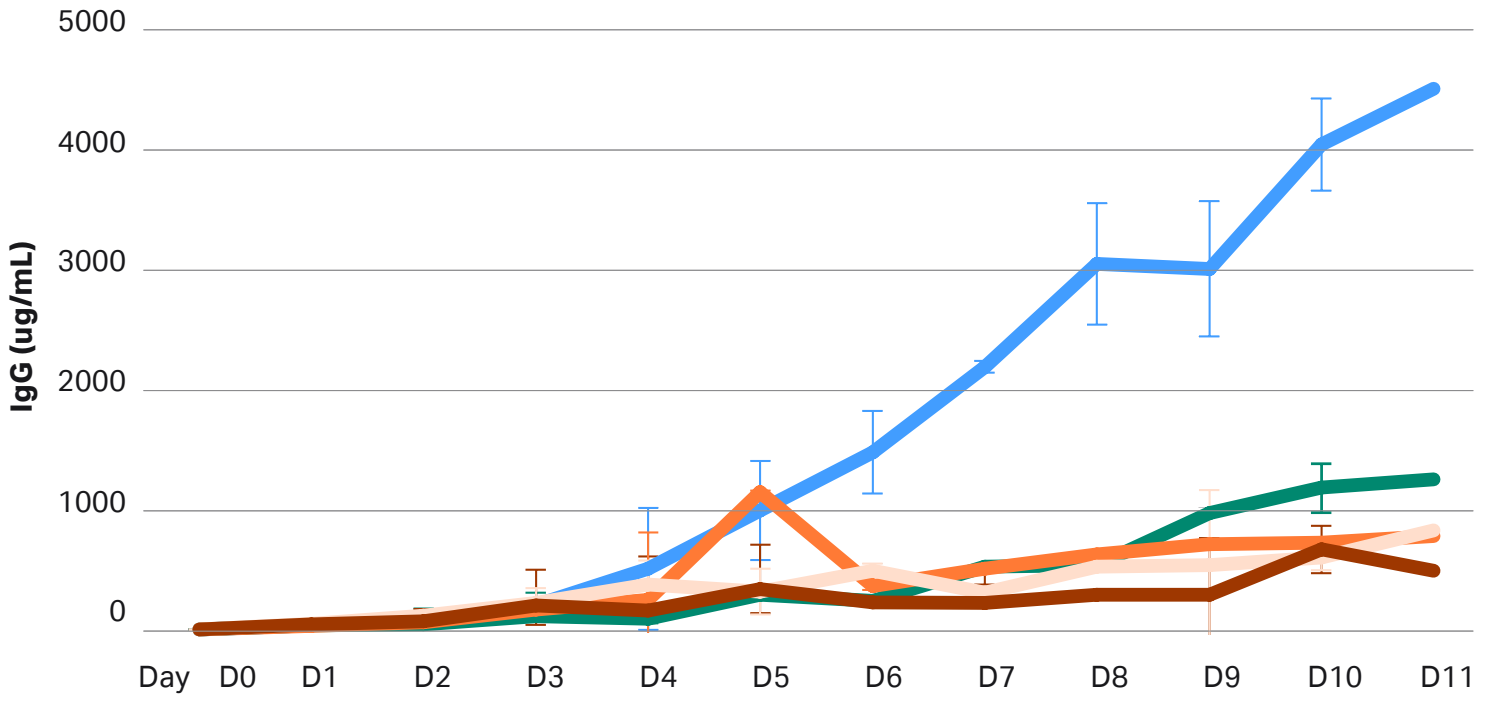


Fig 4. Fed-batch cultures of IgG-producing CHO cells grown in shaker flasks in ActiPro medium fed with Cell Boost 7a and 7b supplements showed substantially increased productivity versus when cultured in other studied media and feeds or when cultured in batch mode. See key for medium types.

*For additional cell line data, see technical poster 29176091 AA available at www.cytiva.com

*Error bars represent ± 1 standard deviation.

ActiPro production medium

ActiPro production medium is intended for batch, fed-batch, or perfusion processes in a variety of culture formats and scales. The medium is used for achieving high yield of active protein during cultivation of recombinant CHO cells. Using ActiPro medium with Cell Boost 7a and 7b supplements in fed-batch or perfusion cultures can contribute to significantly increased cell growth and protein yield.

ActiSM adaptation medium

ActiSM medium allows the cultivation or adaptation of recombinant CHO cells in small-scale shaker flasks or spinner bottles. This adaptation medium may also be used while working with methotrexate. The lean formulation of ActiSM medium can help simplify and shorten the time-consuming adaptation to fed-batch culture.

Cell Boost 7a and Cell Boost 7b feed supplements

Cell Boost 7a and 7b supplements are used as an essential part of a cell culture feed strategy to enhance cell culture performance and increase product yield. Cell Boost 7a and 7b are feed additives especially matched to the ActiPro production medium and intended for use together in defined concentrations. Combining Cell Boost 7a and 7b in fed-batch culture has demonstrated significantly increased productivity when compared with batch culture. Established protocols facilitate easy and efficient identification of a feeding strategy.

High flexibility with the ActiPro system of media and supplements

Use of the complete ActiPro system of media and supplements helps accelerate the time-consuming fed-batch optimization process. For fast-growing CHO cells with higher carbon consumption, glucose supplementation is needed.

Ordering information

Product	Description	Product code
ActiPro powder medium	5 L*	SH31037.01
	10 L [†]	SH31037.02
	25 L [†]	SH31037.05
ActiPro liquid medium	500 mL*	SH31039.01
	1000 mL*	SH31039.02
	1 L [†]	SH31039.03
ActiSM powder medium	5 L*	SH31038.01
	10 L [†]	SH31038.02
	25 L [†]	SH31038.05
ActiSM liquid medium	500 mL*	SH31040.01
	1000 mL*	SH31040.02
	1 L [†]	SH31040.03
Cell Boost 7a powder supplements	1 L [†]	SH31026.07
	5 L*	SH31026.01
	10 L [†]	SH31026.02
	25 L [†]	SH31026.03
Cell Boost 7b powder supplements	0.5 L*	SH31027.01
	5 L [†]	SH31027.02
	10 L [†]	SH31027.04
	1 L [†]	SH31027.07
L-Glutamine	100 mL*	SH30034.01
	500 mL*	SH30034.02
	500 g [†]	SH30336.03V

Note! Powder product quantity is shown as the final volume after powder reconstitution.
* Stock items.
[†] Item is made to order. Lead times and minimum order quantities apply.

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CY12877-14Jul20-BR

