



Maximize performance with HyClone™ media and supplements



Boost performance.
Strengthen results.

Off-the-shelf solutions for cell culture

Intensify your cell culture process

Achieving peak performance of protein-producing cell lines in biopharmaceutical manufacturing requires careful selection of cell culture media. Medium supplements and optimally designed feeding strategies can further improve titers and deliver desired product quality characteristics. To help you maximize cell culture performance in your biomanufacturing process, we offer a comprehensive range of HyClone media and feeds for many different industrial cell lines, including Chinese hamster ovary (CHO) and human embryonic kidney 293 (HEK293) cells. Our products take you from transfection, screening, and development, to large-scale manufacturing.

Media for monoclonal antibody (mAb) and recombinant protein production

These serum-free basal media are animal-derived component-free (ADCF), chemically defined (CD), and protein-free formulations designed to be used with common protein-producing cell lines, such as CHO and HEK293 cells (Table 1).

Medium supplements

HyClone Cell Boost™ supplements are used for feeding in recombinant protein production to enhance product titer and protein quality. The supplements are designed to provide nutrient formulations that meet your cell line’s specific requirements (Table 2).

Table 1. Composition of serum-free media (SFM) for mAb and recombinant protein production

Cell type	SFM	ADCF	CD	Protein-free†	Recombinant protein	Growth factors (peptides)	Hydrolysates	Hypoxanthine/thymidine	Lipids/cholesterol	Poloxamer 188	Product code powder	Product code liquid
CHO*	ActiPro™	•	•	•						Powder and liquid	SH31037	SH31039
	ActiSM™	•	•	•						Powder and liquid	SH31038	SH31040
	CDM4CHO	•	•	•		•			•	Liquid	SH30556	SH30557/ SH30558
	HyCell™ CHO	•	•		•	•		•	•	Liquid	SH30933	SH30934
	SFM4CHO			•		•	•		•	Liquid	SH30518	SH30549/ SH30548
	SFM4CHO-Utility					•	•		•	Liquid	SH30517	SH30516
	PF-CHO LS			•		•	•		•	Liquid	NA	SH30359
	PF-CHO MPS			•		•	•		•	NA	SH30333	NA
	CDM4NS0	•	•	•				•	•	Liquid	SH30578	SH30579
	CDM4PERMAb	•	•	•		•		•	•	Liquid	SH30872	SH30871
HEK293	CDM4HEK293	•	•	•		•				Liquid	SH30859	SH30858
Hybridoma/ myeloma†	ADCF-MAb	•			•		•	•	•	Liquid	SH30635	SH30349/ SH30547
	CDM4MAb	•	•		•			•	•	Liquid	SH30800	SH30801/ SH30802
	CDM4NS0	•	•	•				•	•	Liquid	SH30578	SH30579
	SFM4MAb						•	•	•	Powder and liquid	SH30535	SH30391/ SH30513
	PF-MAb	•	•	•						NA	NA	SH30138
PER.C6®	CDM4PERMAb	•	•	•		•		•	•	Liquid	SH30872	SH30871

* CHO cell media are for CHO-K1, CHO-M, CHO-S, DG44, DUXB11, GS-CHO and other CHO-derived cell lines
† Hybridoma/myeloma media is for cell lines such as NS0, Sp2/0 and P3-derived hybridomas
‡ Protein-free media do not contain any proteins of molecular weight > M_r 10 000.

Table 2. Composition of Cell Boost supplements

Supplement	Cell type	Amino acids	Vitamins	Glucose	Trace elements	Growth factors (peptides)	Hypoxanthine/thymidine	ADCF lipids	ADCF cholesterol	Product code
Cell Boost 1	CHO, HEK293	•	•	•						SH30584
Cell Boost 2	CHO, PER.C6	•		•						SH30596
Cell Boost 3	Hybridoma, myeloma	•	•	•	•		•			SH30825
Cell Boost 4	CHO	•	•	•	•	•		•	•	SH30857
Cell Boost 5	CHO, HEK293, Hybridoma, NS0	•	•	•	•	•	•	•	•	SH30865
Cell Boost 6	CHO, HEK293, Hybridoma, NS0, T-cells	•	•	•	•	•	•	•	•	SH30866
Cell Boost 7a	CHO	•	•	•	•					SH31026
Cell Boost 7b	CHO	•								SH31027

Basal media and Cell Boost combination

Cell Boost 1 to 7b were screened using a DoE-based approach to select the best performing combination in batch cultivations using various HyClone basal media and CHO cell lines. The general recommendations on basal media and Cell Boost supplements should constitute a starting point for further optimization of feed regimes. The study showed that a combination of Cell Boost 1, 2, 3, 4, 7a, and 7b are likely to fit a broad range of CHO cell lines (Table 3). More information on this study can be found in the application note

Optimization of fed-batch culture conditions for a mAb-producing CHO cell line (KA4131090718AN).

Media for vaccine and viral vector production

Our portfolio includes media for Vero, MDCK, MDBK, and COS-7 cells, for production of vaccines against, for example, influenza, polio, and MMR, as well as for EB66® and other cell lines used in the production of viral vectors (Table 4).

Table 3. The suitability for use of selected Cell Boost supplements with various CHO cell lines

	Basal media	Cell Boost 1	Cell Boost 2	Cell Boost 3	Cell Boost 4	Cell Boost 7a	Cell Boost 7b
CHO-S (mAb 7)	ActiPro*					+	+
	CDM4PERMAb	+	+		+	+	+
	CDM4MAb	+	+		+		
DG44 (mAb 5)	ActiPro	+				+	+
	CDM4NSO	+	+	+		+	+
CHO-M	ActiPro	+		+		+	+
	CDM4NSO	+		+		+	+

+ Good performance
* No screening of Cell Boost 1 to 7b performed: recommendation on Cell Boost 7a and 7b for ActiPro is based on product description and previous studies.

Table 4. Composition of media for vaccines and viral vectors

Cell type	SFM	ADCF	CD	Protein-free	Recombinant protein	Growth factors (peptides)	Hydrolysates	Hypoxanthine/thymidine	Lipids/cholesterol	Poloxamer 188	Product code powder	Product code liquid
EB66	CDM4Avian	•	•	•	•				Liquid	SH31035	SH31036	
	CDM4HEK293	•	•	•		•			Liquid	SH30859	SH30858	
HEK293	SFM4HEK293	•		•	•	•	•		Liquid	SH30522	SH30521	
	PF-293	•		•		•	•		Liquid	SH30355	SH30356	
Sf9, Sf21, High Five™	SFM4Insect	•					•		Powder and liquid	SH30912	SH30913	
	SFX-Insect						•		Liquid	SH30350	SH30278	
	TMN-FH						•		NA	NA	SH30280	
PER.C6	CDM4PERMAb	•	•	•		•		•	Liquid	SH30872	SH30871	
	CDM4Retino	•	•	•		•		•	Liquid	SH30519	SH30520	
Vero, COS-7, MDCK, MDBK	SFM4MegaVir	•		•		•	•		NA	SH30587	NA	

* Protein-free media does not contain any proteins of molecular weight > M, 10 000.

Table 5. Composition of transfection media

Cell type	SFM	ADCF	Recombinant protein	Growth factors (peptides)	Hypoxanthine/thymidine	Lipids/cholesterol	Poloxamer 188	Product code powder	Product code liquid
CHO	HyCell TransFx-C [†]	•	•	•	•	•	NA	SH30942	SH30941
HEK293	HyCell TransFx-H [†]	•	•	•	•	•	NA	SH30944	SH30939
	SFM4Transfx-293 [‡]	•	•	•			Liquid	SH30861	SH30860

[†] developed for transient transfection and recombinant protein production.
[‡] developed for stable transfection and transfection of lentiviral and adenoviral constructs and production of virus.

Media for transfection and transient expression

Our transfection media have been tested with a wide range of HEK293 and CHO cell lines and support high transfection efficiency using lipid-mediated (e.g., DharmaFECT™), polymer-mediated, and other transfection methods (Table 5). HEK293 transfection medium is suitable for adenovirus (AdV), adeno-associated virus (AAV), lentivirus, retrovirus, and recombinant protein production. CHO cell transfection medium is suitable for recombinant protein and mAb production.

About our media and supplements for bioprocessing applications

For your convenience, our media are available in both liquid and powder format in a variety of package sizes, which can be customized to meet your needs. To support your large-scale manufacturing needs, the media can be custom manufactured in lot sizes up to 10 000 L for liquid and 6500 kg for powder (density-dependent). If you prefer a customized medium formulation, ask about our Fast Trak medium development and optimization services.

GE Healthcare is a global provider of biomanufacturing solutions. Our medium and supplement manufacturing operations are part of our holistic security of supply program, based on the three pillars of supply chain sustainability, business continuity, and communication.