HyClone™ prime expression medium

HYCLONE MEDIA AND SUPPLEMENTS

HyClone™ prime expression medium is an animal-derived component-free (ADCF), chemically defined (CD), hydrolysate-free, and regulatory-friendly cell culture medium. It is available in liquid and powder formats in user-friendly packaging (Fig 1).

HyClone prime expression medium is designed to support high viable cell density, consistent cell growth, high transfection efficiency, and robust viral titers across multiple adeno-associated virus (AAV) serotypes.

Key features of HyClone prime expression medium

- Ready-to-use medium containing stable L-glutamine and poloxamer 188
- Supports high density and viability of ELEVECTA™ transient cells and HEK293 cells to above 10^7 cells/mL
- Designed for robust virus production with upstream AAV titers greater than 10^{11} vg/mL
- Consistent performance from small- to large-scale transfection and production processes
- Compatible with polyethyleneimine (PEI) and lipid-based transfection reagents on the market
- Specialty formulation for particularly aggregation-prone HEK293 cell lines to reduce cell aggregation

Fig 1. HyClone prime expression medium is available in liquid or powder form in pack sizes suitable for small-volume cell culture as well as large-scale bioprocessing applications.

Cell culture and growth performance

HyClone prime expression medium supports high cell density and viability of HEK293 cells (Fig 2). In the data shown using Cytiva in-house HEK293 cells, with an initial seeding density of 2×10^5 cells/mL, the peak viable cell density was greater than 1×10^7 cells/mL on day six with average cell doubling rate of 20 h ± 3h. Optimum initial seeding density and doubling time

High titers across multiple AAV serotypes

HyClone prime expression medium supports HEK293 cells for robust virus titers across multiple AAV serotypes. Shake flask studies using Cytiva in-house HEK293 cells demonstrate robust titers ranging from 0.8 to 2.1 × 10^{11} vg/mL for rAAV2, 5, 8 and 9 without any supplementation. The titers were further improved when supplemented with a commercially available enhancer* to 1.8 – 3.7 ×10^{11} vg/mL (Fig 3).

Compatibility with commonly used HEK293 cell lines

In addition to Cytiva in-house HEK293, HyClone prime expression medium shows consistent virus expression across other commonly used HEK293 cell lines. HEK293F and HEK293.2sus were tested for AAV5 and AAV8 production. With both cell lines it demonstrates greater than 1×10^{11} vg/mL titer for AAV8 and greater than 2×10^{11} vg/mL for AAV5 without any enhancers or supplements (Fig 4).

* RevIT AAV enhancer (Mirus Bio)

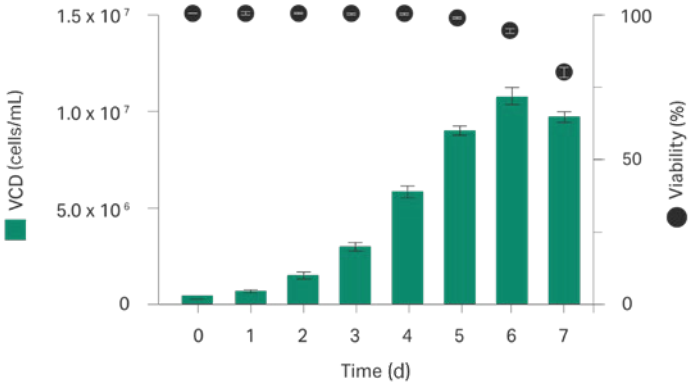

Fig 2. Cell growth characteristics of Cytiva in-house HEK293 cells in HyClone prime expression medium in shake flasks (n = 3).

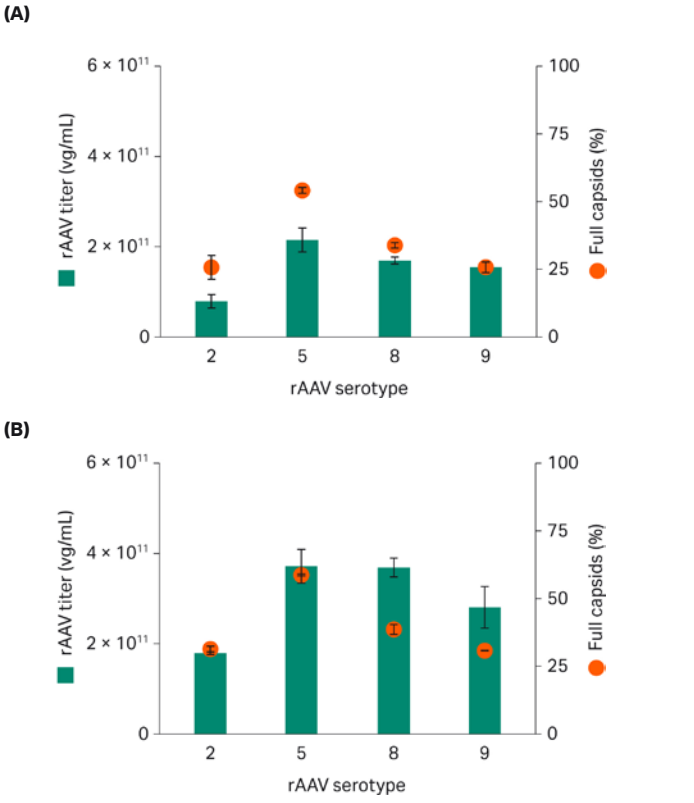

Fig 3. rAAV production performance in shake flasks. Cells were transfected using PEI MAX (A) non-enhanced baseline process (n = 2). (B) RevIT AAV Enhancer supplemented (n = 2).

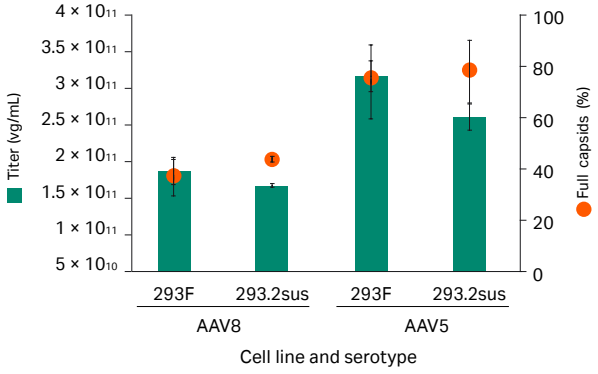

Fig 4. AAV5 and 8 titer performance with HEK293F and HEK293.2sus cells.

Bioreactor scale-up performance

HyClone prime expression medium supports applications from bench-scale to large-scale bioreactors with consistent AAV titer. Application study using Cytiva in-house HEK293 cells demonstrates consistent cell growth and viable density, and linear scalability of AAV8 titer levels across different scales (Fig 5).

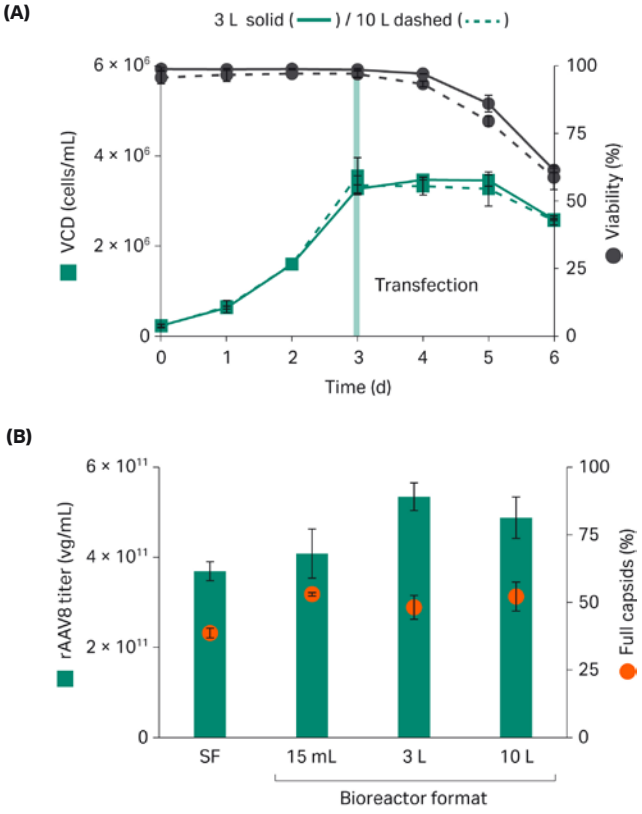

Fig 5. Bioreactor scale-up for AAV8 and process comparability. (A) Growth characteristics and viability of Cytiva in-house HEK293 cells in 3 L (n = 3) and 10 L (n = 3) bioreactors. (B) Comparison of AAV8 titers and fullness in shake flasks (SF, n = 2), amber™ 15 (n = 6), Appliikon™ 3 L or Xcellerex™ XDR-10 L bioreactors (each n = 3).

In addition to component traceability and regulatory-friendly characteristics, ISO 13485-certified manufacturing is maintained to provide a quality product for cell culture, bioprocessing, and current Good Manufacturing Practice (cGMP) environments.

Specifications

HyClone prime expression liquid medium

- ADCF, CD
- With sodium bicarbonate, poloxamer 188 and stable L-glutamine

HyClone prime expression dry powder medium

- ADCF, CD
- With poloxamer 188 and stable L-glutamine
- Without sodium bicarbonate

Product handling

Store medium at 2°C to 8°C, away from light. In addition, powder medium should be stored protected from moisture in a tightly sealed container. Liquid media product is stable up to 12 months, and powdered medium is stable up to 24 months at 2°C to 8°C.

Custom production

Formulations and delivery systems can be customized to your specific process requirements or optimized to help increase process yields.

Rapid response production (RRP)

Our RRP program manufactures up to 200 L of your custom prototype formulation within seven working days of your request. Use our RRP service to expedite the development and testing of custom buffers and process liquids for your biopharmaceutical manufacturing process.

Ordering information

Product	Size	Packaging	Product code
HyClone prime expression medium, dry powder	5 L	HDPE† bottle	SH31198.01
	10 L	HDPE bottle	SH31198.02
	50 L	HDPE bottle	SH31198.03
	100 L	Poly bag/pail	SH31198.04
	500 L	Poly bag/pail	SH31198.05
	1000 L	Poly bag/pail	SH31198.06
HyClone prime expression medium, liquid	1 L	Bag	SH31199.01
	1000 mL	Bottle	SH31199.02
	5L	Bag	SH31199.03
	10 L	Bag	SH31199.06
	20 L	Bag	SH31199.07
	50 L	Bag	SH31199.15
	100 L	Bag	SH31199.04
	200 L	Bag	SH31199.05

† HDPE = high-density polyethylene

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