FUJIFILM
Value from Innovation

IrvineScientific

BalanCD HEK293 Viral Feed

BOOST VIRAL VECTOR PRODUCTION IN HEK293 CELLS UP TO 10-FOLD

Achieve great gains

BalanCD HEK293 Viral Feed boosts viral vector production for developing life-changing therapies and vaccines.

High-Performing

Viral Genome (VG) titers for serotypes AAV2, AAV5, and AAV9 were increased 3-fold to 10-fold

Flexible

Compatible with a range of agnostic basal growth media and transfection methods

Efficient

Improves viral packaging efficiency by 67%, compared to basal control without feed

An uninterrupted supply of feed for HEK293 cell lines

BalanCD HEK293 Viral Feed is manufactured in a cGMP facility using qualified raw materials sourced from a solid supply chain to ensure continuity of supply and lot-to-lot reliability for HEK293-specific applications. Our stringent oversight provides confirmation of formula, analysis, and assurance that BalanCD HEK293 Viral Feed meets the highest global and regional standards while fulfilling regulatory demands with each manufacturing lot file.

- Stringent raw materials control and sourcing program
- cGMP-compliant manufacturing
- COA, COO, TSE/BSE statements
- ISO13485, EN 13485:2016 certified
- Drug Master Files (DMF) supported*
  *upon request

The first viral feed designed specifically for HEK293 cells

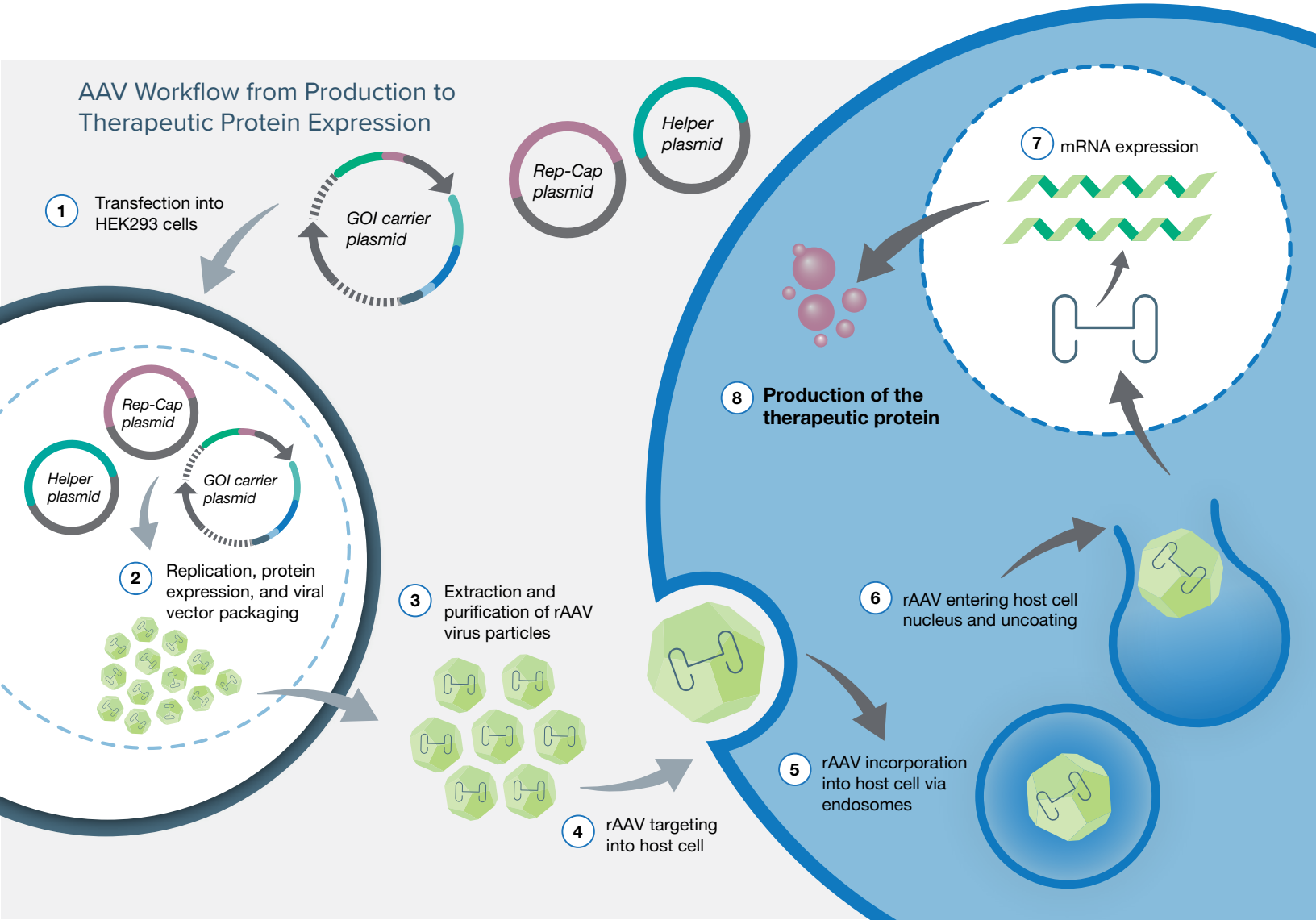
Gene therapy and viral vector-based vaccine manufacturers rely on basal media as the standard to grow their adeno-associated (AAV) viral vectors. The first-of-its-kind BalanCD HEK293 Viral Feed from FUJIFILM Irvine Scientific delivers a **3x to 10x** increase in viral vector production over basal media alone to provide consistent performance, scalability, and speed time-to-market.

Scalable and adaptable for viral vector production

From discovery into commercialization, BalanCD HEK293 Viral Feed simplifies media preparation and promotes seamless process workflows to help bioprocessing groups achieve their goals faster. BalanCD HEK293 Viral Feed can be used with HEK293 suspension cultures from small- to large-scale for AAV production of multiple serotypes, as well as a range of agnostic basal growth media and transfection methods.

- Chemically defined BalanCD HEK293 Viral Feed, optimized to enhance viral vector production
- Supplement to HEK293 suspension cultures post-transfection and supports high cell densities
- A complete solution to achieve viral vector production goals for gene therapy applications
- Optimized for use with BalanCD HEK293 chemically defined medium and compatible with other basal growth media

AAV Workflow from Production to Therapeutic Protein Expression



Multiple-fold increases in viral titers

BalanCD HEK293 Viral Feed promotes vigorous VG/capsid yields and multiple-fold increases in titers to help manufacturers get more output for their applications.

Cell Growth: Viable cell density (VCD) and viability

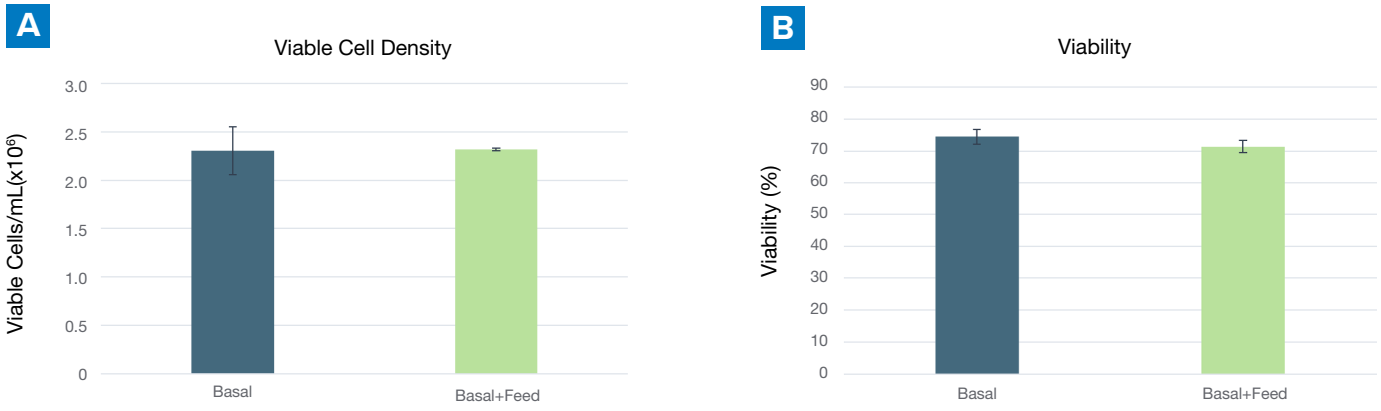


Figure 1. HEK293 suspension cells (cell line 1) were seeded in BalanCD HEK293 medium (30 mL) and transfected 24 h later at cell density of 1.8-1.9 X10^6 using PEIpro method with 1.5 µg DNA/mL (DNA to PEI ratio at 1:2). BalanCD HEK293 Viral Feed was added at 12% v/v at 24h post transfection. Viable cell density **(A)** and viability **(B)** were plotted at time of harvest. The data indicates that the feed media has no detrimental effect on cell growth and viability.

AAV2 titer improvement upon feed

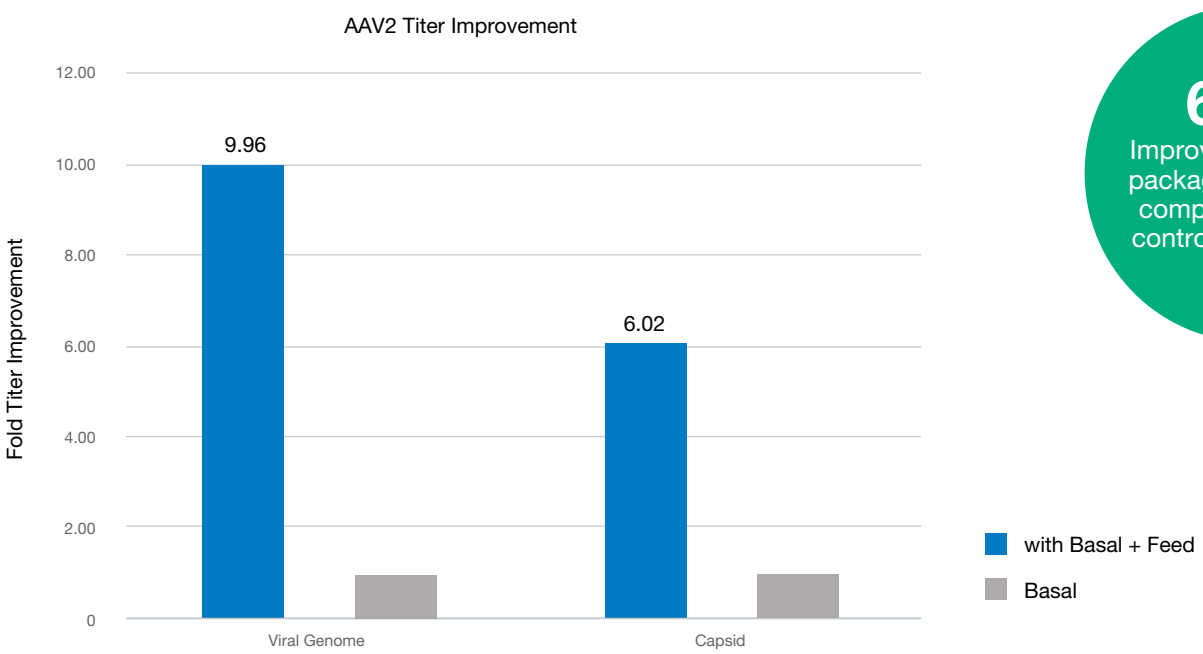
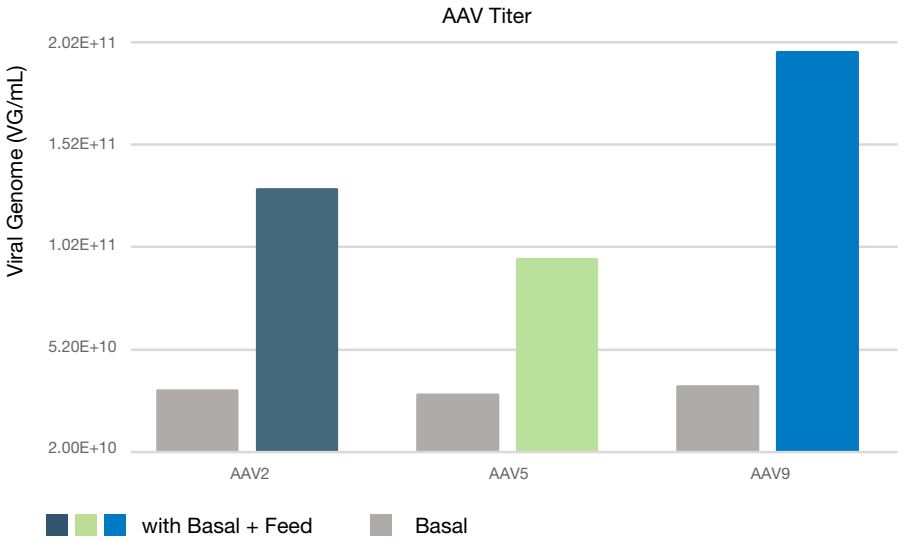


Figure 2. AAV2 viral genome titer and capsid titer were measured using cell extracts subjected to three cycles of freeze-thaw, followed by clarification by centrifugation and treatment with DNAse I and lysis buffer prior to qPCR (using AAVpro titration kit, Takara Bio) and ELISA (AAV2 titration ELISA, Progen). Blue bars indicate the viral genome (VG) and capsid titer fold over the basal control without a feed. The data indicates that the feed media enhancing the AAV2 production approximately 10-fold in VG and 6-fold for the capsid titer. As an overall result, viral packaging was determined to improve about 67%, from 13% in basal to 21.81% in basal+feed (data not shown).

Viral titer enhanced in multiple AAV serotypes



Serotype	Fold Over Control
AAV2	4X
AAV5	3.22X
AAV9	5.8X

Figure 3. AAV2, AAV5, and AAV9 were produced in HEK293 suspension cell line 2. Cells were seeded in BalanCD HEK293 medium (30 mL) and transfected 24 h later, when the cell density was 2.8 X 10^6 cells/mL, using PEIpro method utilizing 1 µg DNA/mL (DNA to PEI ratio at 1:2). BalanCD HEK293 Viral Feed was added at 12% v/v at 24h post transfection. VG titer data measured by digital droplet PCR (ddPCR). The viral genome (VG) titers for serotypes AAV2, AAV5, and AAV9 were increased over 3X fold, with fold indications in the plot, compared to control (basal media alone).

BalanCD HEK293 Viral Feed increases the AAV titer in 10 liter scale-up

Figure 4. Verification of the BalanCD HEK293 Viral Feed performance on improving the production of AAV5 in 10 L bioreactor scale. HEK293 suspension cells (cell line 2) were seeded at density of 0.8X10^6 cell/mL in 8.3 L culture volume in 10 L bioreactor (XDR10 bioreactor). BalanCD HEK293 Viral Feed was added at 12% v/v at 24 hr post transfection. Titer was measured using ddPCR.

Ordering Information

Product	Catalog #	Size*	Additional Information
BalanCD HEK293 Viral Feed, Liquid	91176	500 mL	Chemically defined, animal component-free formula
BalanCD HEK293 Viral Feed, Powder	981921	10 L**	Chemically defined, animal component-free formula
BalanCD HEK293, Liquid	91165	1 L	Chemically defined, animal component-free formula
BalanCD HEK293, Powder	94137	10 L	Chemically defined, animal component-free formula
Anti-Clumping Supplement	91150	50 mL	Animal component-free formula

*Custom sizes and packaging available upon request.
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To learn more about BalanCD HEK293 Viral Feed and the chemically defined, animal component-free BalanCD HEK293 medium, please contact your representative at **getinfo@irvinesci.com** or visit **www.irvinesci.com/contact-us**.

www.irvinesci.com

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