EurekaBio | 11th ANNIVERSARY

THE EuLV™ STABLE SYSTEM

Stable Producer Cell Line Platform for Scalable Lentiviral Vector Manufacturing

EurekaBio

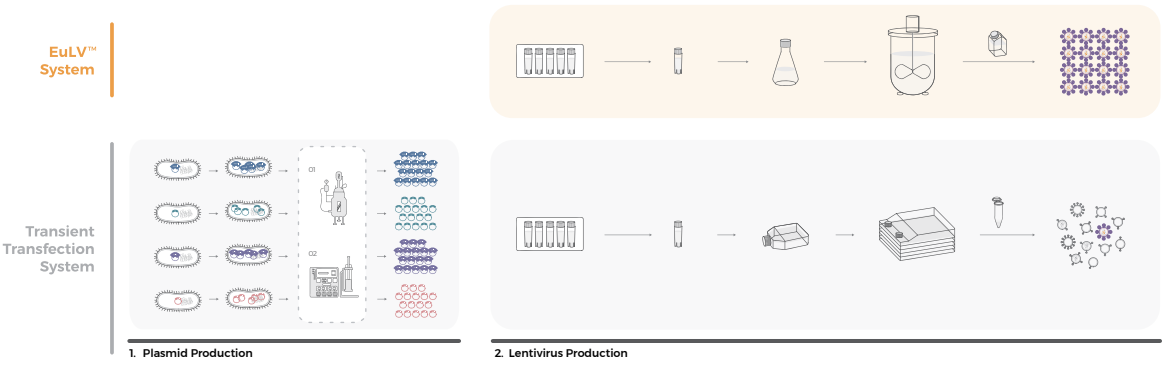
EurekaBio is a biotechnology company dedicated to advancing cell and gene therapy through innovative technologies. We specialize in developing automated cell processing systems and scalable viral vector manufacturing solutions that support both research and clinical applications. Our flagship CellSep™ series offers fully automated, closed-system cell processing, while our proprietary EuLV™ stable producer cell line platform enables efficient and reliable production of lentiviral vectors (LVVs) for clinical and commercial use.

EuLV™ Stable System

Enabling Scalable and Cost-Effective Lentiviral Vector Production

EuLV

EurekaBio has developed the EuLV™ Stable Producer Cell Line Platform,an innovative suspension-based,inducible lentiviral production system designed to overcome key bottlenecks in large-scale lentiviral vector (LVV) manufacturing. By eliminating the need for plasmid production and transient transfection, this transfection-free platform streamlines the CMC process, enhances scalability, and significantly reduces production costs. Meanwhile, the EuLV™ system delivers transduction titers 10 to 100 times higher than conventional methods.



The EuLV™ Stable System Benefits

High quality

- LVV meeting FDA/GMP standard
- Higher transduction on primary cells

High-performing and cost-efficiency

- High titers up-to 5.4E11 TU/L (10~100x Transient Titer)
- 80% batch reduction
- No pDNA/transfection raw material costs

Scalable and reproducible

- Serum-free suspension HEK293T system
- Suitable for perfusion
- Low batch to batch variance

Fast to clinic + exclusive risk mitigation program

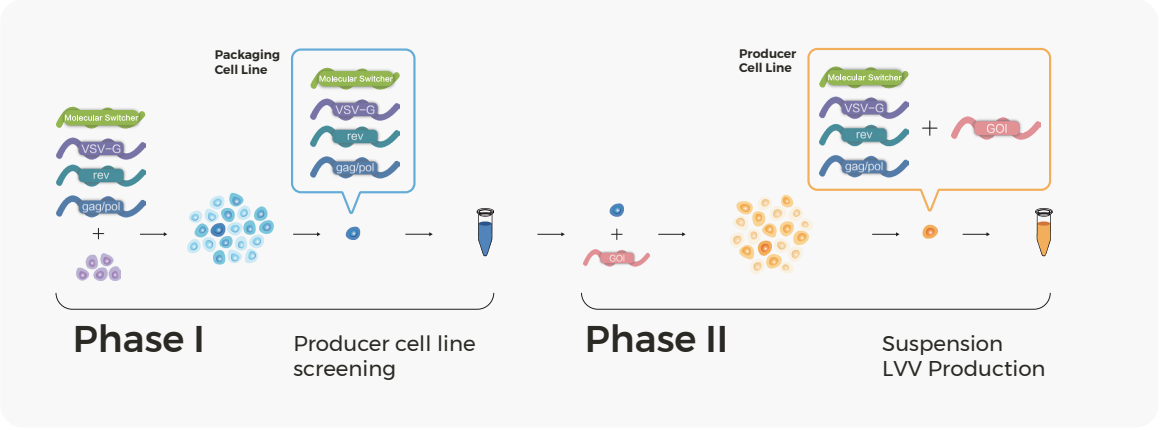
- RCB in 20 weeks
- From sequence to GMP LVV in 12 months
- Rapid GOI evaluation
- 100% success rate to-date

Track record

- 1st ever stable producer cell line system in CAR-T with
- FDA approved IND
- 40+ GOIs
- MNC customers

The EuLV™ Stable Producer Cell Line Development & 25L LVV Production Process

The EuLV™ stable producer cell line system provides a transfection-free approach to lentiviral vector production. The following flowchart illustrates the Anti-CD19 CAR stable producer cell line development process. The lentiviral genome transcription cassette, carrying the target GOI gene, is integrated into the EuLV™ packaging cells. Multiple rounds of monoclonal screening are conducted to obtain the optimal stable producer cells.



The flowchart below demonstrates the outcomes of 25L-scale lentiviral production utilizing the Anti-CD19 CAR stable producer cell line in a WAVE20/50 bioreactor. The producer cells are initially seeded at a density of 0.5x106 cells/mL on day 0 and continued to expand until day 18, at which point the inducer is introduced. Following 48 hours, on day 20, the lentivirus present in the culture medium are harvested. Importantly, the cell viability at harvest remains above 85%, which is clearly advantageous for the downstream process.

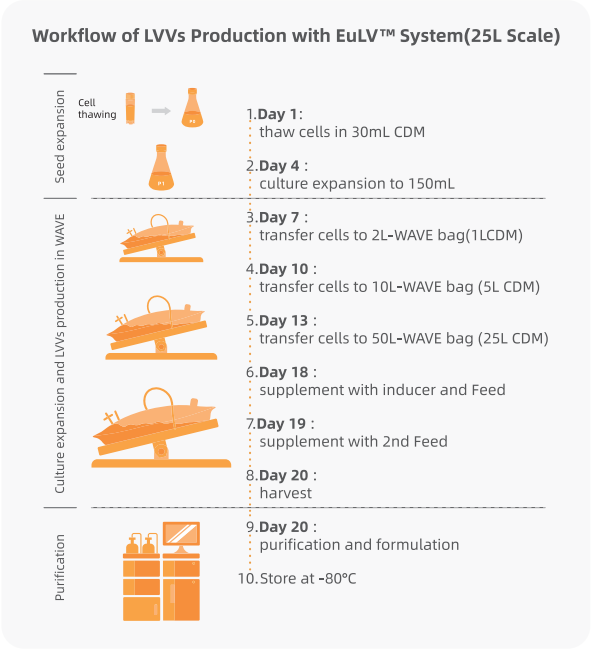


Figure 1

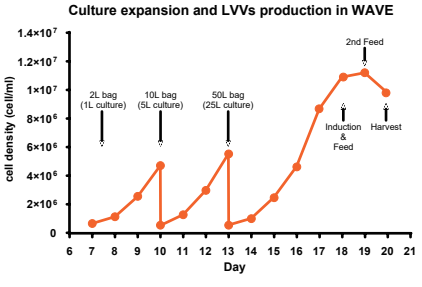
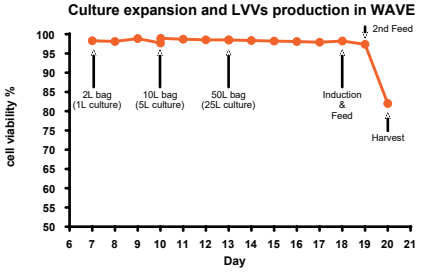


Figure 2



High Titer and High-Quality EuLV™ Lentivirus Vectors

In this case study, we use the EuLV™ stable platform to generate a stable producer cell line expressing an Anti-CD19 CAR for a client developing off-the-shelf CAR-T therapies. In collaboration with our CDMO partner, we establish a suspension-based LVV production process that demonstrated robust, high-titer & high-quality lentiviral vectors, supporting efficient and scalable manufacturing for advanced cell therapy applications.

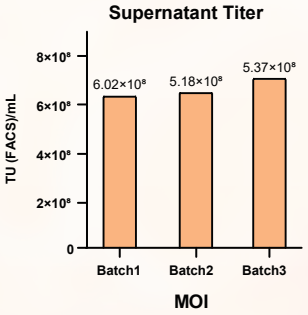


Figure 3

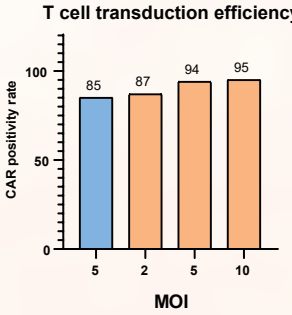


Figure 4

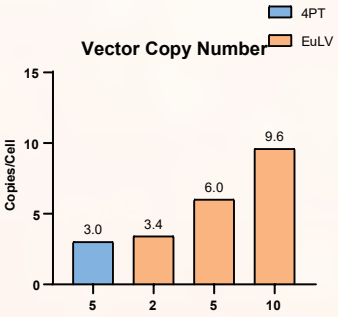


Figure 5

Figure 3 illustrated the supernatant titers of three 25L GMP production batches. All batches have titers exceeding 5E8 TU/ml, with inter-batch differences under 30%, highlighting the EuLV™ system's high productivity and excellent process stability. Three batches showed a similar purification yield of about 34%. Each batch resulted in a final purified virus titer of 4E12 TU.

Figure 4 illustrated the improved transduction efficiency of T cells using the EuLV™ lentivirus. In the control process, T cells transduced with lentivirus produced via the conventional 4-plasmid transient transfection system at MOI = 5 achieved 85% CAR positivity. In contrast, T cells transduced with EuLV™ lentivirus at MOI = 2 reached a comparable or higher CAR positivity of 87%, demonstrating superior T-cell transduction efficiency at a lower MOI.

Figure 5 presented the corresponding vector copy number (VCN) data. At MOI = 2, the EuLV™-produced lentivirus demonstrated higher gene insertion efficiency compared to lentivirus generated via the traditional 4-plasmid transient transfection system. These results suggest that the EuLV™ lentivirus enabled more efficient transgene integration.

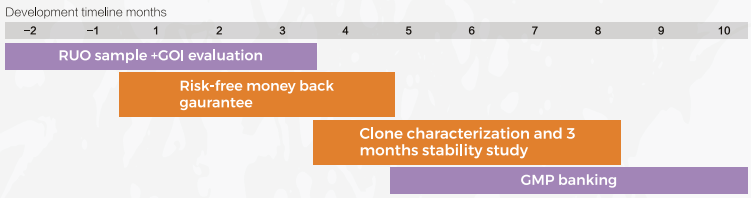
The EuLV™ System – “Plug and Go” Business Model

The EuLV™ platform resolves key LVV manufacturing bottlenecks while maintaining high product quality. By implementing Quality by Design (QbD) principles, the platform achieves a 40-fold increase in productivity and an 80% cost reduction through the elimination of plasmid DNA and transfection reagents. With multiple EuLV™ stable cell line platform enabled IND programs advancing to clinical stages, this technology establishes a scalable, cost-effective paradigm for accelerating CAR-T therapy industrialization and broader gene and cell therapy applications.

Why Choose EuLV™ Stable Producer Cell Line System

Stable Producer Cell Line Development

EurekaBio delivers the producer cell line in as short as 4 months with PCB.



- Optional: GOI optimization, small scale production and simultaneously screening for variant GOIs
- Optional: Process development

EurekaBio delivers the producer cell line (RCB) after the GOI sequence provided.

RCB is delivered to clients or clients’ CDMO partner for “plug and go” LVV manufacturing.

All records and related SOPs will be provided for the tech transfer process.

LVV Manufacturing

Upon receiving the RCB, clients can generate MCB/WCB and produce GMP- grade LVV in-house or through CDMO.

Clinical & Commercial Use

GMP-grade LVV produced can be used for clinical and commercial purpose.

Website

Contact us:
EuLV@eurekabio.com
www.eurekabio.com