TetraVecta™

INTRODUCING 4TH GENERATION LENTIVIRAL VECTORS

The TetraVecta™ system by OXB

OXB

OXB pioneered the use of lentiviral vectors (LV) for *ex-vivo* and *in-vivo* gene therapy.

Trusted, reliable and safe solutions

- OXB is a global quality and innovation-led CDMO in cell and gene therapy dedicated to helping its clients deliver life-changing therapies to patients
- A pioneer in developing the previous generation of lentiviral vectors
- A global leader in viral vector development & manufacturing with over 30-years of experience

320+

Batches manufactured

320+ lentiviral vector GMP batches manufactured in the last 9 years.

8,000+

Patients treated

Over 8,000 patients have been treated with OXB lentiviral vectors to date and this continues to increase every day.

1st

FDA approved

Supplier of lentiviral vectors for the first FDA approved CAR- T product.

Responding to a demand for innovation

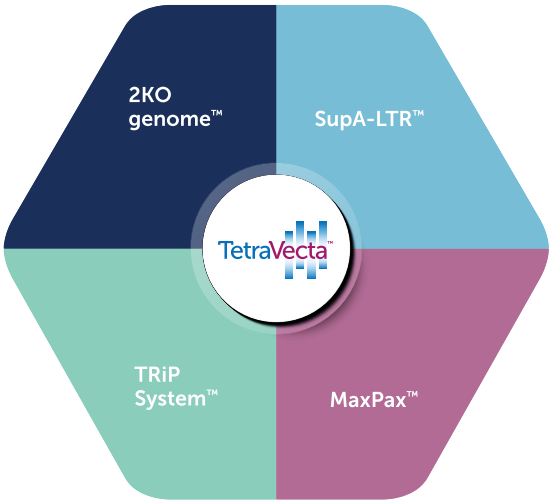
Why we have developed the TetraVecta™ System, the 4th generation lentiviral vector

- The architecture and features of lentiviral vectors used in clinical trials have not significantly changed over the last two decades. 3rd generation vectors are accepted as the current 'industry standard' technology
- After many years of research to improve the features of lentiviral vectors, OXB has launched this new vector to further improve the quality, potency and safety of lentiviral vectors, while increasing transgene packaging capacity

"We have identified and addressed challenges faced by the industry such as the impact of transgene expression on titre, payload capacity, difficulty in developing high-titre stable producer cell lines and the need for more predictable process development and manufacturing consistency."

Nick Clarkson
VP, Head of Process Development at OXB

TetraVecta™ System – Best-in-class modular lentiviral vector system



The TetraVecta™ system combines 4 building blocks acting on 4 attributes of lentiviral vectors

Quality

- Increased full length vector RNA production
- Improved consistency of vector

Potency

- Higher gene expression in target cells
- Improved particle activity

Capacity

- 1kb additional space enabling larger payloads
- Potential yield increase

Safety

- Minimal therapeutic protein in vector
- Transcriptional insulation

2KO genome™
Eliminates aberrant splicing during LV production, removing vector-derived RNA and cDNA contaminants

SupA-LTR™
Improves transcriptional termination signal, limiting interaction with host cell transcriptome and increasing gene expression in target cells

MaxPax™
Minimises backbone sequences, liberating 1kb of packaging space

TRiP System™
Suppresses transgene protein expression during LV production, increasing titre when cytotoxic payloads are used and removing transgene protein contaminants

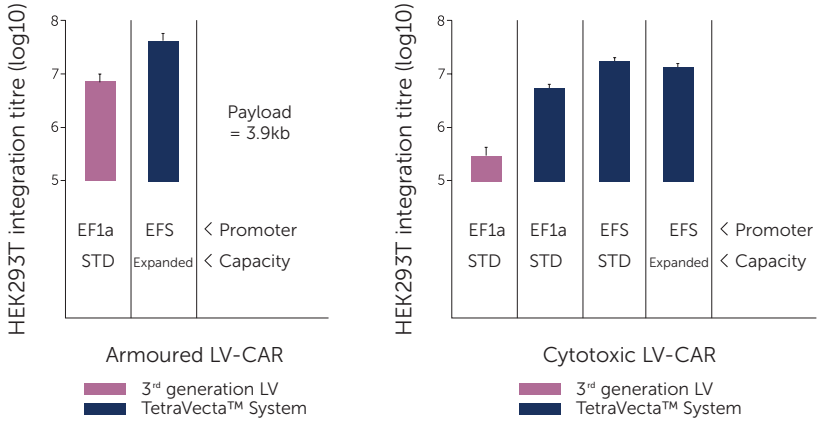
/// What applications could benefit first?

New possibilities for breakthrough treatments

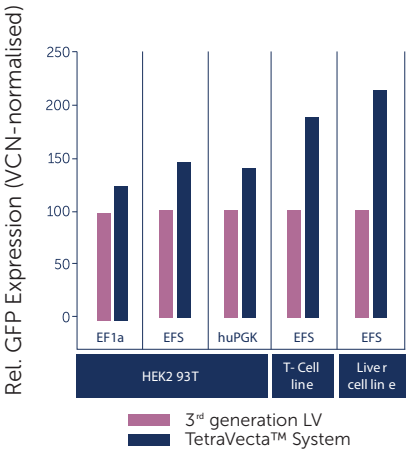
The TetraVecta™ system opens new possibilities for lentiviral vector-based treatments previously difficult or impossible to make.

For example, therapeutic products involving a cytotoxic transgene, a large or complex payload (such as dualCAR and armoured CAR).

The TetraVecta™ system increases titre in LV carrying a large or cytotoxic payload



The TetraVecta™ system increases gene expression in target cells



TetraVecta™

1. High-quality streamlined lentiviral vector production
2. Enables the manufacture of previously unachievable lentiviral vectors
3. Enables development of high-titre producer cell lines
4. Optimal LV genome for in-vivo gene therapies

Did you know?

High quality

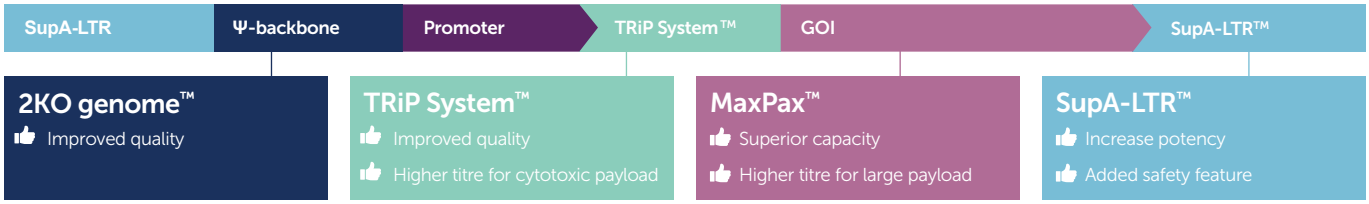
Up to 95% of vector genome RNA is spliced in production cells.

The 2KO genome™ feature of the TetraVecta™ system removes the major splice donor sequence, reducing aberrant splicing of vRNA to undetectable levels during vector production. These spliced vRNAs can be packaged into 3rd Gen LVs and converted to episomal cDNA in target cells.

High expression

Standard SIN-LTR polyadenylation of the sequences are sub-optimal.

The SupA-LTR™ feature of the TetraVecta™ system provides modified self-inactivating LTRs with optimised bidirectional polyadenylation sequences, improving termination during mRNA synthesis, leading to transcriptional insulation and increased expression.



The door to genuine plug and play manufacturing

The TetraVecta™ system reduces RNA and protein contaminants in LV particles. Process development is more predictable for any given product, increasing manufacturing consistency, saving time and money.

The development of high-titre stable producer cell lines for any transgene

The limited availability of full-length vector RNA and the chronic expression of transgene protein in production cells prevent the development of certain stable cell lines and reduce the ability to isolate high production clones. The TetraVecta™ system overcomes these challenges and allows the development of any stable producer cell lines.

Speeding up the adoption of in-vivo therapies

The absence of transgene protein in the final drug product made with the TetraVecta™ system, negates potential induction of an immune response to the transgene, further increasing the safety of in-vivo therapies.

TetraVecta™ System - A novel lentiviral vector backbone with improved features

The TetraVecta™ system outperforms traditional 3rd generation lentiviral vectors.

	3rd generation	TetraVecta™ System
Packaging size	Standard	1kb additional space
Particle activity (P:I ratio)	Standard	Improved
Yield	Standard	Up to 7-fold higher
Contaminants in LV particles	Transgene protein Spliced vRNA	Minimal
Transgene expression in target cells	Standard	Up to 3-fold higher

Contact us to discover how the TetraVecta™ system can help you achieve your goals
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