

Enhancing Cells. Enhancing Outcomes.

We believe that current viral vector optimization technologies fall short because they fail to address a fundamental challenge: **innate cellular defenses**. Viral vectors used in cell & gene therapy and vaccine applications trigger these cellular defenses which prevents optimal production, leading to lower yield, efficiency, and limited scalability. Virica has developed a unique approach to address this challenge.



Higher
Virus
Titers

Scalability



Improved
Quality
Attributes

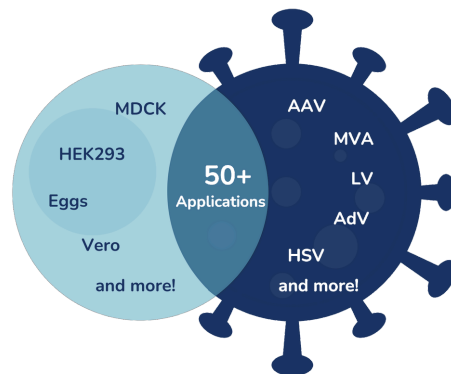
▼ Reduced Costs ▲ Greater Access

UNLOCK YOUR POTENTIAL WITH VIRAL SENSITIZERS (VSEs™)

Virica has developed a library of platform-agnostic small-molecule cell enhancers called Viral Sensitizers (VSE™), that temporarily reduce host cell defenses during production. This allows the virus to infect, transduce and replicate better. The outcome: higher yields, quality and scale-up success.

SMALL MOLECULE, BIG IMPACT

VSEs are patented small molecules that transiently attenuate innate defenses in cells, **enhancing virus production up to 10x*** and **transduction up to 4x*** across a broad range of applications. VSEs are a simple additive introduced at the time of infection or transfection and leaves non-detectable residual trace after purification.



“By combining our cloud-connected 250mL bioreactors with Virica’s VSE enhancers and applying DoE optimization, we consistently achieved 2 to 5 fold increases in AAV titers. Virica’s deep technical expertise and commitment to open scientific dialogue made the integration of VSEs into Culture Biosciences’ bioreactors seamless.”

-Jean-Marc Guedon, Senior Director of Technical Business Development, Culture Biosciences

“ReiThera has partnered with Virica to enhance its AAV production platform. We successfully achieved our goal by combining the strengths of our two platforms: ReiThera’s proprietary cell line, ReiCell-AAV, and Virica’s VSEs. The use of their compounds led to a 3–4 fold increase in AAV productivity in our cells.”

-Michela Gentile, Process Development Cell Line Development Supervisor, ReiThera

CELLVANTAGE™ -AAV:

CellVantage™-AAV is an off-the-shelf, plug-and-play enhancer that rapidly boosts AAV titers in suspension HEK293 cells. Add it to your existing workflow and accelerate AAV production. **No tweaks, just titers.**

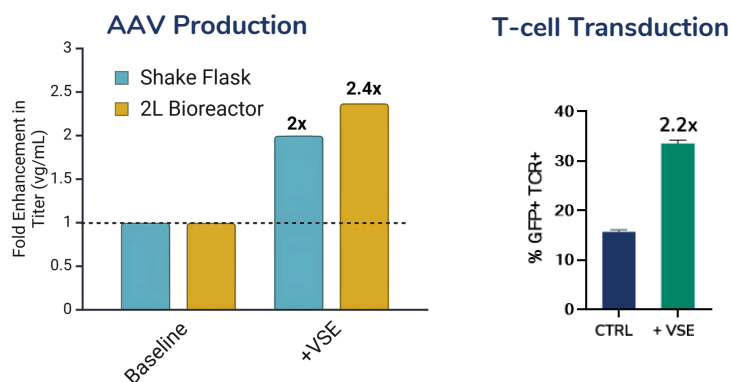
Order Now at www.viricabiotech.com/cellvantage-aav/



*Yields are application dependent. VSEs must be evaluated in each application to determine actual yield

**Residuals after purification were found to be below limits of detection of both HPLC and Mass Spectrometry based assays

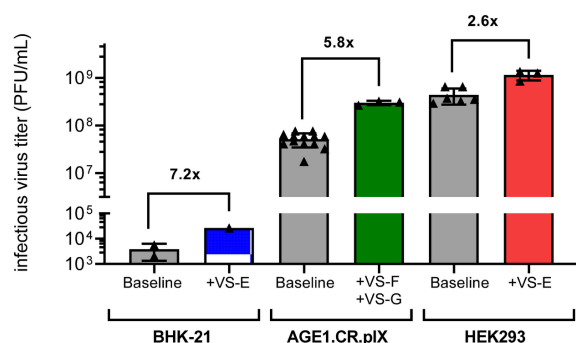
Case Study: CGT Production and Transduction



Addition of VSEs to HEK293 cells enhances AAV production. VSE effect is scalable to larger-scale production volumes, showing similar AAV yield enhancements between shake flask and bioreactor scale.

Addition of VSEs to T-cells prior to transduction with lentivirus improved transduction efficiency >2x. Results were repeated across multiple independent donors with minimal impact on cell viability (data not shown).

Case Study: Vaccine Production and Scale-up

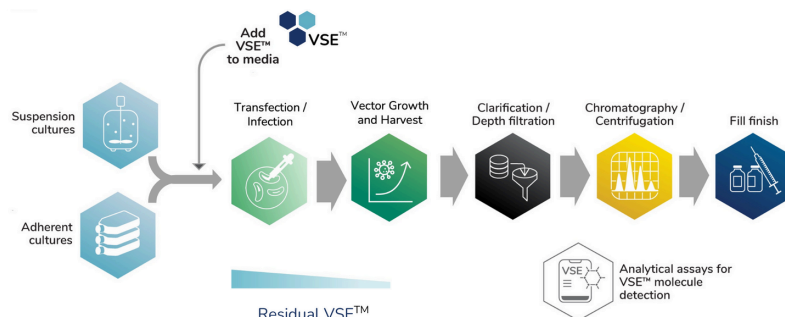


Addition of small-scale optimized VSE formulations across three manufacturing cell lines of varying baseline productivity significantly increased infectious titers of a chimeric Zika virus vaccine candidate between 2.6 - 7.2 fold.

Results were validated at 1L STR scale across the highest productivity cell lines (HEK293 and AGE1.CR.pIX cells; data not shown).

Implementing VSEs

VSEs are a simple upstream process additive that integrates into existing processes, leaving non-detectable levels of residual ** as they are rapidly metabolized by cells; remaining traces are removed using standard purification methods. Residual testing is performed using specially developed and highly sensitive analytical assays such as mass spectrometry and HPLC.



The Virica Advantage

Virica pairs decades of cell-enhancer expertise with our High-Throughput Virology (HTV™) platform to unlock productivity, efficiency, and scale with VSEs. Beyond supplying off-the-shelf reagents, we operate as a fast-turnaround partner using HTV™, DoE optimization, and analytical testing to rapidly pinpoint optimal transfection and transduction conditions, accelerating scale-up while lowering cost.

Typical VSE Evaluation Workflow



Regulatory Support

- ✓ GMP Grade Available
- ✓ DMFs Available
- ✓ Filing Support
- ✓ Material Traceability
- ✓ Residual Studies
- ✓ Toxicology Studies

Learn More

