SecNuc™
for AAV, lentiviral vectors and adenovirus

Oxford Biomedica

Efficient clearance of residual DNA streamlines vector production and reduces costs

Advantages of SecNuc™

— Economical:
Reduces overall manufacturing costs

— Efficient:

- ✓ Potent levels of nucleases from the point of vector production, avoiding issues with pH and salt conditions
- ✓ Improves quality of harvest material
- ✓ Reduces production timelines by streamlining downstream steps
- ✓ Avoids on-going sourcing and auditing of nuclease supplier and associated costs

— Scalable:
Facilitates the scale-up of vector manufacture for commercial manufacturing

— Broadly applicable:

- ✓ Across key vector platforms; validated with Lentiviral and AAV based vector systems
- ✓ Can be used in transient transfection and with stable producer cell lines
- ✓ Works with adherent and suspension processes

Residual DNA is a common problem in vector production caused by plasmid DNA remaining after transfection and by host cell DNA resulting from cell death after the release of the virions.

The current industry standard approach is to reduce residual DNA level by using a GMP-grade recombinant nuclease, such as Benzonase®, to treat harvested vector material prior to downstream purification. However, this treatment is expensive when considering large-scale manufacturing and its effectiveness can be limited.

For lentiviral vector production, this typically means that a second treatment step is required during downstream processing. It requires the vector substance to be exposed to elevated temperatures, resulting in potential loss in vector activity, adding variability and increasing production timelines.

Our SecNuc™ Solution

We have developed a highly efficient alternative approach to bypass the Benzonase® step by using secreted nucleases in co-production with viral vector manufacture. This can be achieved by one of two modes:

Mode 1:
Co-expression of nuclease and vector components within the same cells

Mode 2:
Co-culture of vector production cells with nuclease-expressing helper cells.

We have engineered endonucleases to be optimally expressed during vector manufacturing.

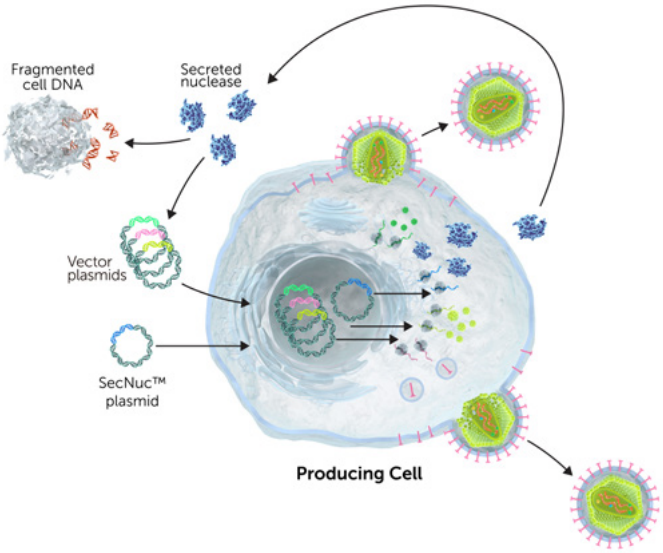
SecNuc™ is high performing under a wide range of pH and physiological salt levels. Our approach reduces manufacturing costs and improves the quality of viral vector, which will especially aid the development of viral vector for direct *in vivo* gene therapies.

SecNuc™

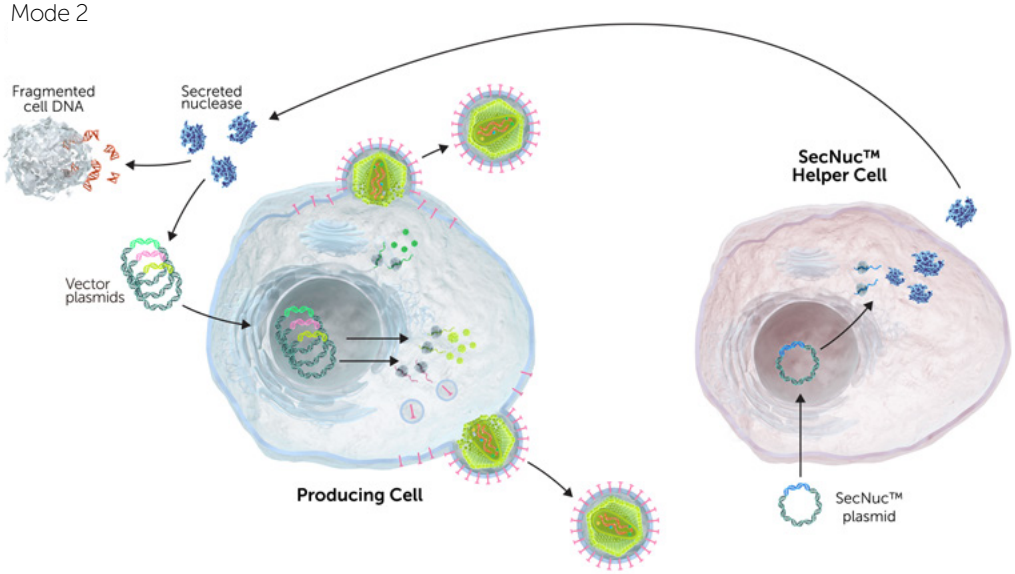
Want to learn more?
partnering@oxb.com

How SecNuc™ works

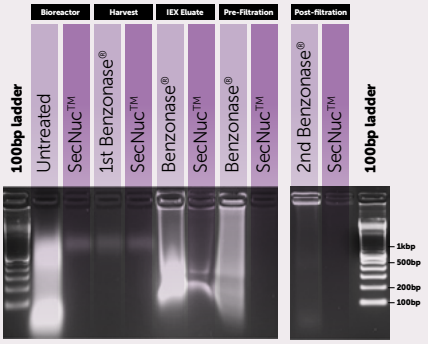
Mode 1



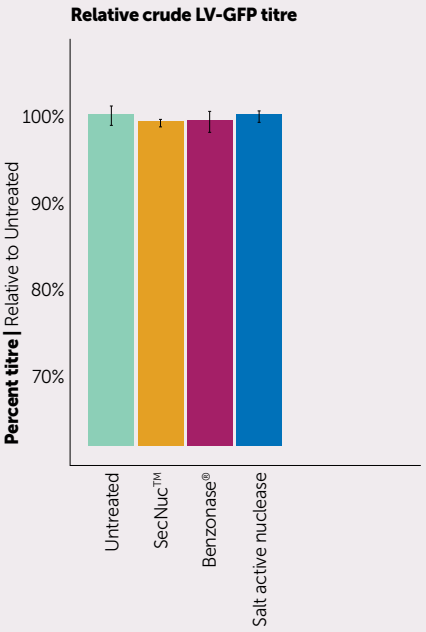
Mode 2



SecNuc™ improves quality of final product by removing residual DNA more efficiently than Benzonase®



Viral vector titre are maintained with SecNuc™



Licensing Terms
Licenses to use SecNuc™ for all key vector platforms are available

Intellectual Property
Extensive know-how and patent filed
Priority date 16 March 2018

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