

Cellular model design

Vectalys is an R&D company with a state-of-the-art technology platform for customized viral vector production.

The company has developed a unique process enabling the production of high titer high purity lentiviral vectors for optimal knock-down or over expression in relevant models: primary and stem cells for target gene validation and specific tissue for animal models.

Key benefits

- High purity viral vectors enabling *in vitro* transduction of different cell types
- Cell models with stable and modulated gene expression systems
- Delivery of multiple genes to the same cells
- Differentiation induction studies
- Efficient scaling up of cell lines

Innovative platform

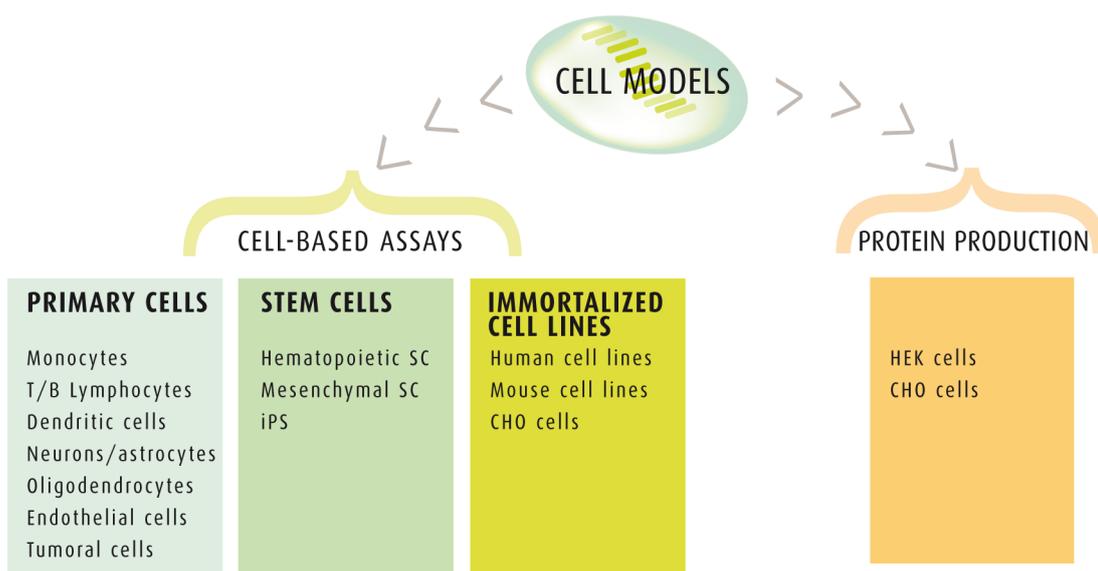
Vectalys offers a wealth of expertise in viral gene transfer technology in immortalized, primary and stem cells.

Multiple benefits of viral transduction include the establishment of **stable cell lines** in a very short time without the use of antibiotics, the **control of integrated copy number** and **high penetration efficiency**, regardless of cell type and species.

Vectalys offers an integrated range of customized services geared to developing optimal cell models for a rapid and efficient drug discovery process.

RECOMBINANT LENTIVIRAL BASED VECTOR PRODUCTION

- PLASMID DESIGN AND CONSTRUCTION
- VIRAL VECTOR PRODUCTION AND PURIFICATION

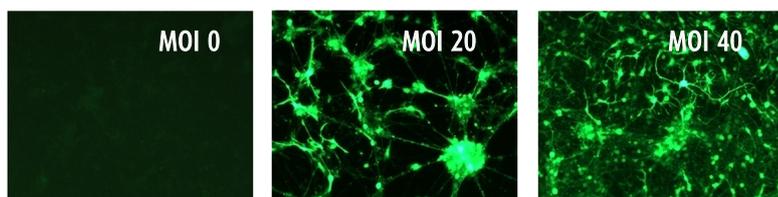


Cell-based assays for functional validation

Here are some examples of different cell types transduced with GFP-expressing lentiviral vectors.

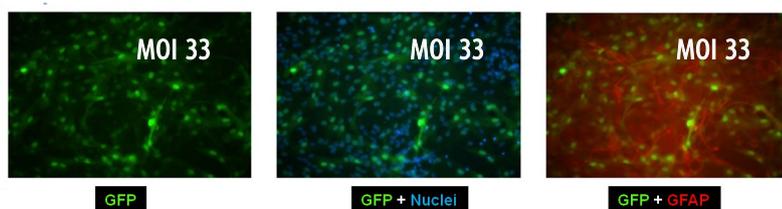
1- Primary cortical neurons from E-16 rat embryos

Transduced with HIV-derived vectors expressing e-GFP 5 days after extraction. Cells were maintained in culture for 17 days after transduction.



2- Rat primary astrocytes

200 000 cells / well were mixed with e-GFP expressing vector. Eight days post-transduction, the cells were immunostained with GFAP antibody.



Courtesy from Sanofi-Aventis.

3- Mesenchymal (MSC) and hematopoietic (HSC) stem cells

	M.O.I 0	Low M.O.I	High M.O.I	Transduction
Mesenchymal				98%
Hematopoietic stem cells				95%

Applications

- > Target gene validation
- > High content screening cell-based assays (HCS)
- > Drug safety pharmacology
- > Creation of genetically modified animal models
- > Production of protein in mammalian cells

Quality control

- > Stability of the gene of interest
- > Growth stability for viability and proliferation of the chosen cell line
- > Protein expression: stability and high expression rates
- > Biological tests (mycoplasma)

Bioproduction of recombinant protein

Vectalys also has expertise in the production of protein in CHO-S cells.

The results below demonstrate the achieved good transduction efficiency of CHO-S cells.

