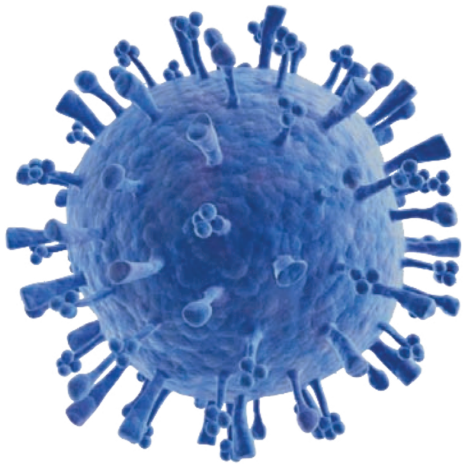
replication-competent virus testing – RCR / RCL

WuXi AppTec offers a comprehensive GLP/GMP testing platform for gene-mediated cell therapy and viral vector-based gene therapy programs. With more than 20 years of experience in providing fully integrated biosafety testing for these programs, we have supported a vast number of successful regulatory submissions.



The use of retroviral vectors has increased dramatically, including lentiviral vectors in gene therapies and gene-mediated cell therapies. In manufacturing these vectors, it is necessary to test for replication-competent virus that may have been produced through recombination during the various stages of vector preparation and ex vivo patient treatment.

FDA Guidance

- Minimum of 5 passages on a permissive cell line including a relevant positive and negative control along with an inhibition (spike) control.
- Supernatant testing – test at least 5% of the cell supernatant or 300 mL whichever is less.
- Cell testing – test 1% of the total cells or 10^8 cells (whichever is less) of pooled vector-producing cells or ex vivo transduced cells by co-culture.

SOURCE: Supplemental Guidance on Testing for Replication Competent Retrovirus in Retroviral Vector Based Gene Therapy Products and During Follow-up of Patients in Clinical Trials Using Retroviral Vectors, FDA/CBER (October 2000).

Replication-Competent Retrovirus and Lentivirus (RCR and RCL) Testing

Manufacturing Step	Required Testing
Master Cell Bank (MCB)	Cells and Supernatant
Working Cell Bank (WCB)	Cells or Supernatant
End of Production (EOP) Cells	Cells
Vector-Containing Supernatant	Supernatant
Ex Vivo Transduced Cells Cultured <4 days after transduction Cultured ≥4 days after transduction	 None Cells and Supernatant

Testing Services Include:

Replication-Competent Retrovirus (RCR)Testing

Gibbon Ape Leukemia Virus (GaLV)

Detection of GaLV–Co-Cultivation of Test Article with HEK 293 Cells: 5 passes (GLP)
Test Code 30647.1 *TAT 49 days*

Detection of GaLV–Supernatant Amplification with HEK 293 Cells: 5 Passes (GLP)
Test Code 30648.1 *TAT 49 days*

Murine Leukemia Virus (AMULV, XMULV, and EMULV)

Co-Cultivation of Test Article with Mus dunni Cells: 5 Passes - Small Scale (GLP)
Test Code 30222.1 *TAT 63 days*

Supernatant Amplification with Mus dunni Cells: 5 Passes - Small Scale (GLP)
Test Code 30629.1 *TAT 63 days*

PG4 S+L- Focus Assay: In Vitro Detection of Murine Xenotrophic, Amphotrophic & MCF Viruses (GLP)
Test Code 30165.4 *TAT 35 days*

XC Plaque Assay: In Vitro Detection of Murine Ecotropic Virus (Standard Duration) (GLP)
Test Code 30015.1 *TAT 35 days*

Large-scale testing of supernatant volumes up to 300 mL also available.

Replication-Competent Lentivirus (RCL) Testing

Co-cultivation of Test Article Cells with C8166 Cells (GLP)
Test Code 21353.1 *TAT 56 days*

Co-cultivation of Test Article Cells with C8166 Cells with VSV-G qPCR Endpoint (GLP)
Test Code 21353.2 *TAT 63 days*

Amplification of Supernatant with C8166 Cells - Small Scale (GLP)
Test Code 21354.3 *TAT 56 days*

Amplification of Supernatant with C8166 Cells - Small Scale with VSV-G qPCR Endpoint (GLP)
Test Code 21354.6 *TAT 63 days*

RCL assays use a p24 production endpoint. A VSV-G PCR can also be used.
Large-scale testing of supernatant volumes up to 300 mL also available.

Talk to us and find out how our replication-competent virus testing services can work for you.

Contact a WuXi AppTec Account Manager at 651-675-2000 or email: info@wuxiapptec.com

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