



Lentivirus (HIV) Vector

General Information

Lentivirus (HIV) is a medium sized, enveloped retrovirus that is characterized by a long incubation period. It has a single stranded, linear, positive sense RNA that is converted to DNA upon entry into the host cell. This DNA transcript then integrates into the host's genome.

Host Range

Humans

Incubation Period

Minimum range from 6 months to more than 7 years. Infectious dose is unknown.

Survival Outside Host

Can survive up to 7 days on dry surfaces and can remain viable in blood for 42 days.

Laboratory Hazards

Parenteral inoculation, mucous membrane contact, ingestion; aerosol transmission unknown

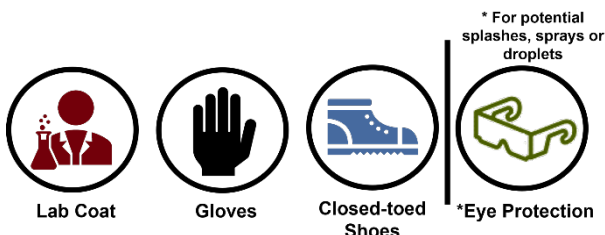
Symptoms of Exposure

Infection with lentivirus (HIV) can cause initial symptoms that are flu-like. Symptoms can be more severe in very young and immunocompromised individuals. Infection is persistent and lifelong due to the ability to integrate into the host chromosome and the ability to evade host immunity.

Lab Acquired Infections (LAIs)

There have been at least 5 reported laboratory acquired infections with HIV (splashing of infected materials, inapparent skin exposure, puncture wounds) and at least 20 lentivirus occupational exposures reported to the NIH. HIV-1 infection of a laboratory worker with a replication-competent recombinant clone was reported in 2016.

Personal Protective Equipment



Disinfection & Inactivation

Susceptible to many disinfectants including bleach (10-20%), iodine, phenolics, and to a lesser extent 70% ethanol. Can be inactivated by UV light and autoclave (121°C for at least 30min).

Waste Management

Refer to [USC's Biological and Infectious Waste Management Plan](#).

Lab Containment

[Biosafety Level 2 \(BSL-2\)](#) for activities with materials and cultures known or reasonably expected to contain lentivirus (HIV).

Animal Containment

[Animal Biosafety Level 2 \(ABSL-2\)](#) for activities with experimentally infected animals.

Medical Surveillance/Treatment

Surveillance: presence of virus can be detected by immunoassays, PCR, immunofluorescence

Prophylaxis: antiretroviral drugs

Vaccines: none approved

Treatment: antiretroviral drugs

Spill Procedures

See [USC Biological Spill Procedures](#)

Exposure Procedures

See [USC Protocol for Post Exposure Evaluation and Follow-up](#) Use of sharps should be strictly limited.

References

[Addgene Lentiviral Guide](#)

[Recombinant DNA Advisory Committee \(RAC\) Guidance Document. Biosafety Considerations for Research with Lentiviral Vectors.](#)

[ThermoFisher Scientific, Viral Vectors.](#)

Daniel Eisenman. [Introduction to Retro/Lentiviral Vectors and the Institutional Biosafety Committee \(IBC\) Presentation.](#)

Alessandro Soria, et al. Occupational HIV Infection in a Research Laboratory With Unknown Mode of Transmission: A Case Report. *Clinical Infectious Diseases*, Volume 64, Issue 6, 15 March 2017, Pages 810–813

Canadian Pathogen Safety Data Sheets: Infectious Substances – [Human immunodeficiency virus \(HIV\)](#)