Herpesvirus: Herpes Simplex Virus (HSV) is a DNA virus with two serological types, HSV-1 and -2. Humans are the natural host of HSV, although other mammals can be infected in the laboratory. HSV is not found naturally in any other species except humans. The virus can establish latent infection in post mitotic neurons. These latent infections can be reactivated to produce a productive infection.

HSV can be transmitted by direct contact with epithelial or mucosal surfaces. HSV-1 is typically transmitted by saliva. HSV-2 is typically transmitted through sexual contact. Laboratory infections are rare but HSV can be transmitted by ingestion, parenteral injection, droplet exposure of the mucous membranes (eyes, nose or mouth), and inhalation of aerosolized materials. Herpesvirus infections classically result in fever blisters or cold sores on either the oral mucosa (HSV-1) or the genital areas (HSV-2). However, both HSV-1 and -2 can infect the oral mucosa and genital region. HSV-1 is very common in the general human population, with the most common symptom being cold sores or fever blisters. The majority of humans in the US have antibodies to HSV-1. In immunosuppressed individuals and infants, more systemic infection can occur. Rarely, HSV-1 infections can cause encephalitis.

The HSV-1 strain H129 is an isolate from an infected human that has reduced capacity to spread from pre-synaptic to postsynaptic neurons, while retaining the capacity to spread from post-synaptic to pre-synaptic neurons. Accordingly, H129 is sometimes used in neuroscience to trace neural circuitry. The complete genome sequence of H129 and other HSV-1 strains is published.

Generally, HSV is classified as a Biosafety Level 2 (BSL-2) organism requiring BSL-2 practices and procedures for all virus and Animal Biosafety Level 2 (ABSL-2) for all animal manipulation as well as animal housing.

Acyclovir and its derivatives (e.g., famcyclovir) are excellent antiviral compounds with well established use protocols for humans.

The most effective disinfectant against HSV is a 1% sodium hypochlorite (bleach) solution that is made fresh daily.
- To make this solution, dilute 1 part of Clorox to 5 parts tap water.
- Ensure a 15-minute contact time.
- Use this disinfectant for treatment of reusable equipment, surfaces, and liquid waste (final volume 1% bleach).

Disinfectant alternatives include phenolics, 2% glutaraldehyde, and 70% ethanol.
Autoclaving for 1 hour at 121°C or 250°F (15 lbs psi of steam pressure).
- Use this disinfection method for reusable equipment, liquid waste or solid waste.

References:
CDC-BMBL, 5th ed., www.cdc.gov/od/ohs/biosfty/bmbl5/BMBL_5th_Edition.pdf

The biosafety containment level may be inferred by consulting primarily the current edition

of the BMBL **http://www.cdc.gov/biosafety/publications/bmbl5/index.htm** and secondarily the American Biological Safety Association site for Risk Group Classification for Infectious Agents (**http://www.absa.org/riskgroups/**) and the Material Data Safety Sheets compiled by the Public Health agency of Canada (**http://www.phac-aspc.gc.ca/msds-ftss/index.html**).

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