

Appendix B-III. Risk Group 3 (RG3) Agents

RG3 agents are associated with serious or lethal human disease for which preventive or therapeutic interventions *may be* available.

Appendix B-III-A. Risk Group 3 (RG3) - Bacterial Agents Including Rickettsia

- Bartonella*
- Brucella* including *B. abortus*, *B. canis*, *B. suis*
- Burkholderia (Pseudomonas) mallei*, *B. pseudomallei*
- Coxiella burnetii* (except the Phase II, Nine Mile strain listed in [Appendix B-II-A, Risk Group 2 \(RG2\) - Bacterial Agents Including Chlamydia](#))
- Francisella tularensis* (except those strains listed in [Appendix B-II-A, Risk Group 2 \(RG2\) - Bacterial Agents Including Chlamydia](#))
- Mycobacterium bovis* (except BCG strain, see [Appendix B-II-A, Risk Group 2 \(RG2\) - Bacterial Agents Including Chlamydia](#)), *M. tuberculosis*
- Orientia tsutsugamushi* (was *R. tsutsugamushi*)
- Pasteurella multocida* type B -"buffalo" and other virulent strains
- Rickettsia akari*, *R. australis*, *R. canada*, *R. conorii*, *R. prowazekii*, *R. rickettsii*, *R. siberica*, *R. typhi* (*R. mooseri*)
- Yersinia pestis* (except those strains listed in [Appendix B-II-A, Risk Group 2 \(RG2\) - Bacterial Agents Including Chlamydia](#))

Appendix B-III-B. Risk Group 3 (RG3) - Fungal Agents

- Coccidioides immitis* (sporulating cultures; contaminated soil)
- Histoplasma capsulatum*, *H. capsulatum* var. *duboisii*

Appendix B-III-C. Risk Group 3 (RG3) - Parasitic Agents

None

Appendix B-III-D. Risk Group 3 (RG3) - Viruses and Prions

Alphaviruses (Togaviruses) - Group A Arboviruses

- Chikungunya virus (except the vaccine strain 181/25 listed in [Appendix B-II-D Risk Group2 \(RG2\) – Viruses](#))
 - Semliki Forest virus
 - St. Louis encephalitis virus
 - Venezuelan equine encephalomyelitis virus (except the vaccine strains TC-83 and V3526, see [Appendix B-II-D \(RG2\) – Viruses](#))
 - Other viruses as listed in the reference source (see [Section V-C, Footnotes and References of Sections I through IV](#))
- Arenaviruses
- Flexal
 - Lymphocytic choriomeningitis virus (LCM) (neurotropic strains)
- Bunyaviruses
- Hantaviruses including Hantaan virus
 - Rift Valley fever virus
- Coronaviruses
- SARS-associated coronavirus (SARS-CoV)
 - Middle East respiratory syndrome coronavirus (MERS-CoV)
- Flaviviruses - Group B Arboviruses
- Japanese encephalitis virus (except those strains listed in [Appendix B-II-D Risk Group2 \(RG2\) - Viruses](#))
 - West Nile virus (WNV)
 - Yellow fever virus
 - Other viruses as listed in the reference source (see [Section V-C, Footnotes and References of Sections I through IV](#))

Orthomyxoviruses

- Influenza viruses 1918-1919 H1N1 (1918 H1N1), human H2N2 (1957-1968), and highly pathogenic avian influenza H5N1 strains within the Goose/Guangdong/96-like H5 lineage (HPAI H5N1).

Poxviruses

--Monkeypox virus

Prions

--Transmissible spongiform encephalopathies (TSE) agents (Creutzfeldt-Jacob disease and kuru agents)(see [Section V-C](#), *Footnotes and References of Sections I through IV*, for containment instruction)

Retroviruses

--Human immunodeficiency virus (HIV) types 1 and 2

--Human T cell lymphotropic virus (HTLV) types 1 and 2

--Simian immunodeficiency virus (SIV)

Rhabdoviruses

--Vesicular stomatitis virus (except those strains listed in [Appendix B-II-D Risk Group2 \(RG2\) - Viruses](#))

Appendix B-IV. Risk Group 4 (RG4) Agents

RG4 agents are likely to cause serious or lethal human disease for which preventive or therapeutic interventions are *not usually* available.

Appendix B-IV-A. Risk Group 4 (RG4) - Bacterial Agents

None

Appendix B-IV-B. Risk Group 4 (RG4) - Fungal Agents

None

Appendix B-IV-C. Risk Group 4 (RG4) - Parasitic Agents

None

Appendix B-IV-D. Risk Group 4 (RG4) - Viral Agents

Arenaviruses

--Guanarito virus

--Lassa virus

--Junin virus (except the candid #1 vaccine strain listed in [Appendix B-II-D Risk Group2 \(RG2\) – Viruses](#))

--Machupo virus

--Sabia

Bunyaviruses (Nairovirus)

--Crimean-Congo hemorrhagic fever virus

Filoviruses

--Ebola virus

--Marburg virus

Flaviruses - Group B Arboviruses

--Tick-borne encephalitis virus complex including Absetterov, Central European encephalitis, Hanzalova, Hypr, Kumlinge, Kyasanur Forest disease, Omsk hemorrhagic fever, and Russian spring-summer encephalitis viruses

Herpesviruses (alpha)

--Herpesvirus simiae (Herpes B or Monkey B virus)

Paramyxoviruses

--Equine Morbillivirus (Hendra virus)

Hemorrhagic fever agents and viruses as yet undefined

Appendix B-V. Animal Viral Etiologic Agents in Common Use

The following list of animal etiologic agents is appended to the list of human etiologic agents. None of these agents is associated with disease in healthy adult humans; they are commonly used in laboratory experimental work.

A containment level appropriate for RG1 human agents is recommended for their use. For agents that are infectious to human cells, e.g., amphotropic and xenotropic strains of murine leukemia virus, a containment level appropriate for RG2 human agents is recommended.

Baculoviruses

Herpesviruses

- Herpesvirus ateles
- Herpesvirus saimiri
- Marek's disease virus
- Murine cytomegalovirus

Papilloma viruses

- Bovine papilloma virus
- Shope papilloma virus

Polyoma viruses

- Polyoma virus
- Simian virus 40 (SV40)

Retroviruses

- Avian leukosis virus
- Avian sarcoma virus
- Bovine leukemia virus
- Feline leukemia virus
- Feline sarcoma virus
- Gibbon leukemia virus
- Mason-Pfizer monkey virus
- Mouse mammary tumor virus
- Murine leukemia virus
- Murine sarcoma virus
- Rat leukemia virus

Appendix B-V-1. Murine Retroviral Vectors

Murine retroviral vectors to be used for human transfer experiments (less than 10 liters) that contain less than 50% of their respective parental viral genome and that have been demonstrated to be free of detectable replication competent retrovirus can be maintained, handled, and administered, under BL1 containment.