

Risk Groups of Microorganisms

Note: Some organisms which are risk group 2 can be particularly hazardous to certain individuals and so a thorough understanding of the routes/ risk of infection, diseases caused is essential before any work is conducted with any microorganism. For example Rubella, *Toxoplasma gondii* and cytomegalovirus are all RG2 but are known to be teratogenic, so pregnant women or women that may be pregnant should not work with or be exposed to these organisms. Careful consideration of whether individuals that are immunosuppressed or on chemotherapy and or radiotherapy should be undertaken as these individuals may be at increased risk of infection. **This list is not fully inclusive and is a modified from that in the Curtin University Biosafety manual.**

Bacteria

Scientific name	Risk Group
<i>Acinetobacter</i> spp.	2
<i>Aeromonas hydrophila</i>	2
<i>Bacillus anthracis</i>	3
<i>Bacillus cereus</i>	2
<i>Bartonella henselae, quintana, vinsonii, elizabethiae, weisii</i>	2
<i>Bartonella bacilliformis</i>	3
<i>Bordetella pertussis</i>	2
<i>Borrelia</i> spp.	2
<i>Brucella ovis</i>	2
<i>Brucella</i> spp.	3
<i>Burkholderia pseudomallei</i>	2
<i>Burkholderia mallei</i>	3
<i>Campylobacter coli, fetus, jejuni</i>	2
<i>Chlamydia</i> spp.	2
<i>Chlamydia psittaci</i> (avian)	3
<i>Clostridium botulinum</i>	2
<i>Clostridium tetani</i>	2
<i>Corynebacterium diphtheriae</i>	2
<i>Corynebacterium renale, pseudotuberculosis</i>	2
<i>Coxiella burnetii</i> (smears and serum samples)	2
<i>Coxiella burnetii</i> (cultures and concentrates)	3
<i>Edwardsiella tarda</i>	2
<i>Eikenella tarda</i>	2
<i>Enterococcus</i> spp. (Vancomycin-resistant strains)	2
<i>Erysipelothrix rhusiopathiae</i>	2
<i>Escherichia coli</i> (pathogenic strains)	2
<i>Escherichia coli</i> VTEC strains (O157, O111)	2
<i>Francisella tularensis</i> type A	3

Scientific name	Risk Group
<i>Fusobacterium</i> spp.	2
<i>Gardnerella vaginalis</i>	2
<i>Haemophilus influenzae, ducreyi</i>	2
<i>Helicobacter pylori</i>	2
<i>Klebsiella</i> spp.	2
<i>Legionella</i> spp.	2
<i>Leptospira interrogans</i>	2
<i>Listeria monocytogenes</i>	2
<i>Listeria</i> spp.	2
<i>Moraxella</i> spp.	2
<i>Mycobacterium</i> spp.	2
<i>Mycobacterium tuberculosis</i> complex	2
<i>Mycobacterium tuberculosis</i> multi-drug resistant	3
<i>Mycoplasma pneumoniae, fermentans</i>	2
<i>Neisseria gonorrhoeae</i>	2
<i>Neisseria meningitidis</i> (except serogroup B)	2
<i>Neisseria meningitidis</i> (serogroup B)	2
<i>Nocardia</i> spp.	2
<i>Pasteurella</i> spp.	2
<i>Rickettsia</i> spp.	3
<i>Salmonella</i> serovars	2
<i>Salmonella typhi</i>	2
<i>Shigella</i> spp.	2
<i>Shigella dysenteriae</i> type 1	2
<i>Staphylococcus aureus</i>	2
<i>Streptobacillus moniliformis</i>	2
<i>Streptococcus pyogenes, pneumoniae</i>	2
<i>Treponema pallidum, pertenue</i>	2
<i>Ureaplasma ureolyticum</i>	2
<i>Vibrio cholerae, parahaemolyticus, vulnificus</i>	2
<i>Yersinia</i> spp.	2
<i>Yersinia pestis</i>	3

Parasites – Infective stages only

Scientific name	Risk Group
<i>Ancylostoma duodenale</i>	2
<i>Ascaris lumbricoides</i>	2
<i>Babesia divergens, microti</i>	2
<i>Cryptosporidium</i> spp.	2
<i>Echinococcus</i> spp.	2
<i>Entamoeba histolytica</i>	2
<i>Giardia lamblia</i>	2
<i>Hymenolepis diminuta, nana</i>	2
<i>Leishmania</i> spp.	2
<i>Loa loa</i>	2
<i>Nagleria fowleri</i>	2
<i>Necator americanus</i>	2
<i>Plasmodium</i> spp.	2
<i>Strongyloides stercoralis</i>	2
<i>Taenia saginata, solium</i>	2
<i>Taenia ovis</i>	2
<i>Toxocara canis</i>	2
<i>Toxoplasma gondii</i>	2
<i>Trichinella spiralis</i>	2
<i>Trypanosoma brucei, cruzi</i>	2
<i>Wuchereria bancrofti</i>	2

Fungi

Scientific name	Risk Group
<i>Aspergillus fumigatus, flavus</i>	2
<i>Blastomyces dermatitidis</i>	3
<i>Candida albicans</i>	2
<i>Coccidioides immitis</i>	3
<i>Cryptococcus neoformans</i>	2
<i>Epidermophyton floccosum</i>	2
<i>Histoplasma</i> spp.	3
<i>Microsporium</i> spp.	2
<i>Paracoccidioides brasiliensis</i>	3
<i>Phytophthora cinnamoni</i>	3
<i>Sporothrix schenckii</i>	2
<i>Trichophyton</i> spp.	2

Viruses and Prions

Scientific name	Risk Group
<i>Adenoviridae</i>	
Adenovirus	2
<i>Arenaviridae</i>	
Arenavirus	4
○ Guanarito	4
○ Junin	4
○ Lassa	2
○ Lymphocytic choriomeningitis (LCM)	3
○ LCM neurotropic strains	4
○ Machupo	4
○ Mopeia viruses	4
Sabia	4
<i>Bunyaviridae</i>	
Group C	3
○ Oropouche	3
○ Phlebovirus	
○ Hantavirus	3
○ Hantaan and related viruses	3
Nairovirus	4
○ Crimean-Congo hemorrhagic fever	4
Hazara	
<i>Caliciviridae</i>	
Feline calicivirus	2
Norwalk-like	2
Sapporo-like	2
Largovirus	2
○ Rabbit haemorrhagic disease	2
<i>Coronaviridae</i>	
Coronavirus	2
<i>Filoviridae</i>	
Ebola	4
Marburg	4

Scientific name	Risk Group
<i>Flaviviridae</i>	
Flavivirus	4
○ Absettarov	4
○ Central European encephalitis	2
○ Dengue 1, 2, 3, 4	2
○ Japanese encephalitis (Nakayama)	3
○ Japanese encephalitis	4
○ Hanzalova	4
○ Hypr	4
○ Kumlinge	2
○ Kunjin	4
○ Kyasanur Forest disease	2
○ Murray Valley encephalitis	4
○ Omsk hemorrhagic fever	4
○ Russian spring summer encephalitis	3
○ St Louis encephalitis	3
○ Tick-borne viruses	4
○ Tick-borne encephalitis	3
○ West Nile	2
○ Yellow fever (17D)	2
Hepacivirus	2
○ Hepatitis C	2

<i>Hepadnaviridae</i> ○ hepatitis B	2
<i>Herpesviridae</i> Alpaherpesvirinae ○ Herpes virus simiae (B virus) ○ Simplex ○ Varicella Betaherpesvirinae ○ Cytomegalovirus Gammaherpesvirinae ○ Herpes 6, 7 Lymphocryptovirus	4 2 2 2 2 2 2
<i>Orthomyxoviridae</i> Influenza	2

Scientific name	Risk Group
<i>Paramyxoviridae</i> Paramyxovirinae ○ Henipavirus Hendra Nipah ○ Morbillivirus Measles ○ Rubulavirus Mapuera Menangle Mumps Newcastle disease (non-virulent) Newcastle disease (exotic strains) ○ Pneumovirus Respiratory syncytial virus ○ Respirovirus Parainfluenza 1, 2, 3, 4	4 4 2 3 2 2 2 3 3 2 2
<i>Parvoviridae</i> Human parvovirus	2
<i>Picornaviridae</i> Encephalomyocarditis virus Enterovirus ○ Coxsackie ○ Echo ○ Entero ○ Parecho ○ Polio 1, 2, 3 Rhinovirus Hepatovirus ○ Hepatitis A	2 2 2 2 2 2 2 2
<i>Poxviridae</i> Orthopoxvirus ○ Vaccinia Parapoxvirus ○ Orf	2 2
Prions Gerstmann-Straussler syndrome Kuru Creutzfeldt-Jakob	2 2 2

<i>Reoviridae</i>	
Orbivirus	2
○ Bluetongue viruses	
Rotavirus	2
○ Rotavirus	
<i>Retroviridae</i> (clinical samples)	
Oncovirinae	2
○ Human lymphotropic virus 1	2
○ Human lymphotropic virus 2	
Lentivirinae	2
○ Human immunodeficiency virus	
<i>Retroviridae</i> (cultures and concentrates)	
Oncovirinae	3
○ Human lymphotropic virus 1	3
○ Human lymphotropic virus 2	
Lentivirinae	3
○ Human immunodeficiency virus	
<i>Rhabdoviridae</i>	
Lyssavirus	3
○ Australian bat lyssavirus	3
Rabies fixed strain (CVS II)	
<i>Togaviridae</i>	
Alphavirus	3
○ Eastern equine encephalitis	2
○ Barmah Forest	2
○ Ross River	2
○ Semliki Forest	3
○ Western equine encephalitis	3
○ Venezuelan equine encephalitis	
Arterivirus	2
○ Equine viral arteritis	
Rubivirus	2
○ Rubella	
Unclassified	
Hepatitis D	2
Hepatitis E	2