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| **Risk Group 1 Agents** |
| Escherichia coli (cloning strains) | MC1061, K-12, MG1655, MC1061, DH5alpha, DH10b, AD494(DE3), NovaBlue, HMS174, Origami (DE3), B strain, Bl21, NEB T7 Express, Bl21(DE3) pLysS, B834(DE3) pLysS, Rosetta, HB101, JM110 |
| Bacteria | Acetobacter aceti, Acidovorax, Agrobacterium tumefaciens, Akkermansia muciniphila, Alcaligenes faecalis, Alistipes onderdonkii, Anabaena sp., Bacillus cereus, Bacillus licheniformis, Bacillus mageterium, Bacillus mojavensis, Bacillus subtilis, Caulobacter, Cellulomonas spp., Cupriavidus metallidurans, Desulfovibrio spp, Enterobacter aerogenes, Enterobactor cloacae, Faecalibacterium prausnitzii, Hartmannella vermiformis, Geobacter metallireducens, Gluconacetobacter diazotrophicus, Kalamiella piersonii, Kocuria rosea, Kineococcus radiotolerans, Lactobacillus spp., Lecanicillium kalimantanense, Lecythophora mutabilis, Methylobacterium organophilum, Methylobacterium fujisawaense, Micrococcus luteus, Mycobacterium smegatis, Naelgleria sicca, Neisseria subflava, Neurospora crassa, Oidiodendron eucalypti, Pantoea gaviniae, Pediococcus damnosus, Penicillium notatum, Phanerochaete chrysosporium, Pseudoalteromonas atlantica, Pseudopyrenochaeta terrestris, Ralstonia eutropha, Ralstonia pickettii, Rhizopus stolonifera, Rhodospirillum rubrum, Rhodotorula mucilaginosa, Serratia marcescens, Shewanella oneidensis, Sporosarcina pasteurii, Staphylococcus epidermidis, Stenotrophomonas spp., Streptococcus bovis, Streptococcus lactis, Sulfolobus spp., Vibrio alginolyticus, Vibrio corralliityticus |
| Fungi | Fusarium venenatum, Phanerochaete chrysosporium, Vagicola arundinis |
| Plant Pathogens | Fusarium pseudograminearum, Fusarium oxysporum, Aphanomyces cochlioides, Barley stripe mosaic virus, Paraburkholderia phytoformis, Potato virus X, Potato virus Y, Phytophthora infestans, Puccinia spp., Pythium ultimum, Rhizoctonia solani, Wheat streak mosaic virus, Barley yellow dwarf luteovirus, Barley stripe mosaic virus, Aphanomyces euteiches |
| Yeast | Saccharomyces cerevisiae, Pichia pastoris |
| Cell lines | Sf9 Insect cell lines, Rodent cell lines |
| Algae | Chlorella sp., Trentepohlia sp., |
| Archaea | Methanosarcina barkeri, Methanococcus voltae, Methanococcus maripaludis |
| Virus | Sacbrood virus, Deformed wing virus, Israeli acute paralysis virus, Lake Sinai virus 2, Andrena-associated bee virus-1 |

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| **HEALTH HAZARDS** |
| Host Range | Soil, fresh and sea water, humans, animals, plants. |
| Modes of Transmission | Contact, inhalation.  |
| Signs and Symptoms | Varies. |
| Infectious Dose | Varies. |
| Incubation Period | Varies. |

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| **MEDICAL PRECAUTIONS/TREATMENT** |
| Prophylaxis | Varies. |
| Vaccines | None. |
| Treatment | Varies. |
| Surveillance | Monitor for symptoms. |
| MSU Requirements | Report any exposures. |

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| **LABORATORY HAZARDS** |
| Laboratory Acquired Infections (LAIs)  | Some have been reported. |
| Sources | Cultures, frozen stocks, other samples described in IBC protocol. |

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| **RISK GROUP & CONTAINMENT REQUIREMENTS** |
| Risk Group 1 | Agents that are not associated with disease in healthy adult humans. |
| BSL1 | For all procedures involving suspected or known infectious specimen or cultures. |
| ABSL1 | For all procedures utilizing infected animals. |

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| **VIABILITY** |
| Disinfection | 0.5% sodium hypochlorite (1:10 bleach:water), 70% ethanol  |
| Inactivation | moist heat (60 minutes at 121oC) and dry heat (1 hour at 160-170oC). |
| Survival Outside Host | Varies. |

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| **SUPPLEMENTAL REFERENCES** |
| BMBL | <https://www.cdc.gov/labs/BMBL.html>  |
| NIH Guidelines | <https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf>  |

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| **SPILL PROCEDURES** |
| Small | Notify others working in the lab. Remove PPE and don new PPE. Cover area of the spill with absorbent material and add fresh 1:10 bleach:water. Allow 20 minutes (or as directed) of contact time. After 20 minutes, cleanup and dispose of materials. |
| Large | * Immediately notify all personnel in the lab and clear all personnel from the area. Remove any contaminated PPE/clothing and leave the lab.
* Secure the area by locking doors, posting signage and guarding the area to keep people out of the space.

For assistance, contact MSU's Biosafety Officer (406-994-6733) or Safety and Risk Management (406-994-2711). |

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| **EXPOSURE PROCEDURES** |
| Mucous membrane | Flush eyes, mouth, or nose for 5 minutes at eyewash station. |
| Other Exposures | Wash area with soap and water for 5 minutes. |
| Reporting | Immediately report incident to supervisor, complete a [First Report of Injury](https://firstreportinjury.mus.edu/) form, and submit to Safety and Risk Management. |
| Medical Follow-up | **During business hours:**Bridger Occupational Health 3400 Laramie Drive Weekdays 8am -6pm. Weekends 9am-5pm406-577-7674**After business hours:**Bozeman Deaconess Hospital Emergency Room915 Highland Blvd |

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| **PERSONAL PROTECTIVE EQUIPMENT (PPE)** |
| Minimum PPE Requirements | Lab coat, disposable gloves, safety glasses, closed-toed shoes, long pants. |
| Additional Precautions | Additional PPE may be required depending on lab specific SOPs and IBC Protocol. |