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|  | health & safety risk register (example of a risk register for laboratory biological-based activities) |

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| For use in conjunction with the [Health & Safety: Risk management requirements](https://safety.unimelb.edu.au/__data/assets/pdf_file/0009/4708161/health-and-safety-risk-management-requirements.pdf)*.* For more information, refer to <https://safety.unimelb.edu.au/safety-topics/management-systems/implement>. |

| Activity | Associated Hazards/Risks | Inherent Risk Analysis | | Inherent Risk Rating | Legislation/Standards/ Guidance | University Policies and Requirements | Controls | Residual Risk Rating |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| Purchase and receipt of microorganisms or materials | Microorganisms or materials:   * in uncontrolled area * received by untrained workers * special permits and/or other requirements not met | Rare | Moderate | Low | * *Occupational Health and Safety Act 2004* (Vic) * *Occupational Health and Safety Regulations 2017* (Vic) Part 4.1 Hazardous Substances and Materials * *Gene Technology Act 2001* (Vic) * *Gene Technology Act 2000* (Cth) * *Gene Technology Regulations 2011* (Vic) * Guidelines for the Transport, Storage and Disposal of GMOs (Cth) | * *Infectious agent project approval policy (MPF1246)* * *Infectious agent project approval procedure (MPF1153)* * *Infectious agent reporting policy (MPF1250)* * *Infectious agent reporting procedure (MPF1161)* * *Health & Safety: Purchasing requirements* | * University Gene Technology and Biosafety web page * Gene Technology and Biosafety Officers * Shipping of Infectious Substances, Diagnostic Specimens and GMOs by Air Training * Dedicated delivery area * Staff taking delivery are trained for receipt and handling of microorganisms or materials | Low |
| Working in a PC2 laboratory (Physical containment level 2) | Working with microorganisms or materials that are normally present in the community but can pose risk to humans, animals or plants:   * accidental exposure * accidental removal of contaminant outside the laboratory * deliberate removal (eg theft) of contaminant outside the laboratory * spillage | Unlikely | Major | High | * *Occupational Health and Safety Act 2004* (Vic) * *Occupational Health and Safety Regulations 2017* (Vic) Part 4.1 Hazardous Substances and Materials * *Gene Technology Act 2001* (Vic) * *Gene Technology Act 2000* (Cth) * *Gene Technology Regulations 2011* (Vic) * AS/NZS 2243.3 Safety in laboratories. Part 3: Microbiological aspects and containment facilities * AS 2252 (series) Biological safety cabinets * AS 2476 General fumigation procedures | * *Infectious agent project approval policy (MPF1246)* * *Infectious agent project approval procedure (MPF1153)* * *Infectious agent reporting policy (MPF1250)* * *Infectious agent reporting procedure (MPF1161)* * *Health & Safety: Laboratory requirements* * *Health & Safety: Risk management requirements* * *Health & Safety: Personal protective equipment requirements* * *Containment Facility Internal Certification Policy (MPF1195)* * *Containment Facility Internal Certification Procedure (MPF1151)* | * where applicable, pathogen safety data sheets (PSDS) * Risk assessment * Signage displaying biological hazard symbol and level of containment (on door or near entrance) * Restricted access to authorised workers and away from public areas/access * Smooth easy to clean surfaces * Hand free washing facilities * Water supply with backflow prevention * Directional airflow by extracting room air * Autoclave * Refrigerator with biological hazard symbol * Appropriate PPE and clothing * Suitable storage for PPE and hooks for lab coats * Containers clearly labeled * Biohazard Laboratory Practice Training for all workers * Supervision at level appropriate to level of worker’s competency * Adoption of “Standard Precautions” as outlined in AS/NZS 2243.3 Section 4.8.7 * Work practices as outlined in AS/NZS 2243.3 Section 4.8.6 * Emergency shower and eyewash station * Spill kits and clean up procedures * Workers training for response to spills * SDS and procedures for use of associated chemicals | Low |
| Using an autoclave | Touching hot surfaces – burns  Exposure to steam - burns  Autoclave not reaching required temperature and/or pressure  Failure of the autoclave  Slips from wet floor  Manual handling from lifting and moving objects in and out to the autoclave | Unlikely | Moderate | Medium | * *Occupational Health and Safety Act 2004* (Vic) * *Occupational Health and Safety Regulations 2017* (Vic) Part 3.5 Plant | * *Health & Safety: Regulated plant requirements* * *Research ethics and integrity – Biosafety* | * ERMS/Plant hazard risk assessments * ERMS/Hazardous manual handling risk assessments * Worker Training * Personal Protective Equipment * All liquid spills cleaned up immediately * Scheduled maintenance and calibration * Annual registration | Low |
| Using centrifuge | Centrifuge “walks” across bench  Contents escape during use  Hand/clothing caught in moving parts  Centrifuge becomes contaminated during use | Unlikely | Minor | Low | * *Occupational Health and Safety Act 2004* (Vic) * *Occupational Health and Safety Regulations 2017* (Vic) Part 3.5 Plant | * *Health & Safety: Regulated plant requirements* * *Research ethics and integrity – Biosafety* | * Centrifuge fixed to bench during operation * Centrifuge not placed inside a Class I or Class II biological Safety Cabinet * ERMS/Plant hazard risk assessment * Centrifuge moving parts guarded * Inspected prior to use * Inspection log book * Contents secured and “locked” during use * Cleaning procedures following use of centrifuge | Low |
| Using a pipette | Repetitive motion of hands  Long duration of activity  Contamination | Unlikely | Moderate | Medium | * *Occupational Health and Safety Act 2004* (Vic) * *Occupational Health and Safety Regulations 2017* (Vic) Part 3.1 Hazardous Manual Handling | * *Health & Safety: Hazardous manual handling requirements* * *Health & Safety: Risk management requirements* | * ERMS/Hazardous manual handling risk assessment * Where ever possible use: * multipipette to reduce repetitive motions * electronic assisted pipettes * pipettes with ergonomic design * Use PPE | Low |
| Using sharps such as needles | Accidental sharps injury and possible infection | Unlikely | Moderate | Medium | * *Occupational Health and Safety Act 2004* (Vic) | * *Research ethics and integrity – Biosafety* | * Local procedures and training for handling and disposing of sharps * Use PPE * First aid and follow up screening where required * First aid kit * Trained first aider | Low |
| Using a biological safety cabinet | Biological safety cabinet not appropriate for laboratory use  Contamination of cabinet  Power failure or other failure (eg mechanical) of cabinet | Rare | Moderate | Low | * *Occupational Health and Safety Act 2004* (Vic) * AS 2252 (series) Biological safety cabinets | * *Health & Safety: Risk management requirements* | * Risk assessment to determine type of biological safety cabinet:   + Class I   + Class II   + Laminar flow   + Hepa filter and so on * Scheduled maintenance and inspection * Alarmed and procedures in place where cabinet “fails” * Good housekeeping and cleaning procedures * Use PPE | Low |
| Disposal of biological wastes | Damaged, removed or incorrect labels  Biological wastes stored in inappropriate containers  Uncontrolled access to biological wastes | Unlikely | Major | High | * *Occupational Health and Safety Act 2004* (Vic) * *Occupational Health and Safety Regulations 2017* (Vic) Part 4.1 Hazardous Substances and Materials * *Environment Protection Act 1970* (Vic) * *Environmental (Prescribed wastes) Regulations 1998* (Vic) | * *Health & Safety: Hazardous waste requirements* * *Health & Safety: Risk management requirements* | * Removed by EPA licensed contractor * Risk assessment of area where biological wastes are picked up for disposal * Restricted access where appropriate * Local induction and emergency training * Emergency procedures in place * Spill kits available * First aid kits * Trained first aiders | Low |
| Handling glassware | Lacerations from broken glass  Burns from handling heated glass  injection of biologicals from contaminated glass | Unlikely | Moderate | Medium | * *Occupational Health and Safety Act 2004* (Vic) | * *Health & Safety: Risk management requirements* * *Health & Safety: Personal protective equipment requirements* | * Workers training in basic use and care of glassware * All glassware checked prior to use * Processes that may put glass under stress (e.g., vacuum) fully enclosed/guarded * Heated glass handled according to localised procedures * Use PPE * Damaged and broken glass disposed of in designated waste * First aid kits * Trained first aiders | Low |