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|  | health & safetyrisk 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 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| L | C |
| 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 – burnsExposure to steam - burnsAutoclave not reaching required temperature and/or pressureFailure of the autoclaveSlips from wet floorManual 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 benchContents escape during useHand/clothing caught in moving partsCentrifuge 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 handsLong duration of activityContamination | 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 useContamination of cabinetPower 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 labelsBiological wastes stored in inappropriate containersUncontrolled 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 glassBurns from handling heated glassinjection 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 |