DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY, YONG LOO LIN SCHOOL OF MEDICINE, NATIONAL UNIVERSITY OF SINGAPORE, 5 SCIENCE DRIVE 2, SINGAPORE 117545

Activity-Based Risk Assessment Form		**Risk Assessment No. :**	MIC-RA-LJ-Practical Classes	**Category :**	Teaching Laboratories
Name of Department:	MICROBIOLOGY AND IMMUNOLOGY	**Location of Lab:**	MD4, LEVEL 4, Life Science Teaching Laboratory 9		
Name of Laboratory:	Life Science Laboratory 9	**Name of PI:**	Dr Ch'ng Jun Hong		
Name of Researcher/LO:	MICROBIOLOGY STAFF, LIFE SCIENCES STUDENTS	**Name of Activity/Experiment:**	PRACTICAL CLASSES for Learning Journey		

		1. Hazard Identification		**2. Risk Evaluation**				**3. Risk Control**		
No	**Description/Details of Steps in Activity**	**Hazards**	**Possible Accident / Ill Health & Persons-at-Risk**	**Existing Risk Control (Mitigation)**	**Severity**	**Likelihood (Probability)**	**Risk Level**	**Additional Risk Control**	**Person Responsible**	**By (Date)**
1	Viewing of inactivared Risk Group 2 microorganism (*Plasmodium falciparum* , *Aspergillus fumigatus* and biofilm taken from washing machine) in sealed glass slides under microscopes.	Biological hazard, fixed and inactivated in case of microorganisms in contact with skin.	(1) Lab acquired infection from exposure to biological agents through wounds when in contact to skin. IHF: 1. Skin conditions - skin irritation from allergens. 2. Immunocompromised- increased risk of infection when exposed to biological agents.	1) Students attending Learning Journey must view the Lab Safety Video. 2) All biological microorganisms on glass slides are securely sealed with sealant and properly labeled before they are demonstrated to students. 3) All specimen on glass slides are already mounted and adjusted to focus on the microscope for viewing. 4) Secondary trays are to be used during transportation of glass slides. 5) Staff and students must put on proper PPE: lab coats, safety glasses, latex gloves and covered shoes. 6) Availability of 70% ethanol for surface decontamination. 7) Staff/students with health conditions are encouraged to discuss their situation with their teacher to explore any necessary preventive measures and adjustments to work practices.	**2**	**1**	**2**	**NA**	**NA**	**NA**
		Chemical hazard i.e. stained slides containing residual Gram stain, Lactophenol Cotton Blue Stain, Giemsa Stain.	(1) Direct skin contact with residual chemicals may cause skin irritation. ***IHF*** (1) Existing skin conditions such as eczema or contact dermatitis will exacerbate the conditions when in direct contact. (2) Immunocompromised- increased risk of infection when directly exposed to chemicals.	1) Chemicals used for staining are in minimal, non hazardous quantities. 2) All stained microorganisms on glass slides, petri dish and culture plates are securely sealed with parafilm and tapes and properly labeled before they are demonstrated to students. 3) Staff and students must put on proper PPE when handling chemicals: lab coats, safety glasses, nitrile gloves and covered shoes. IHF: Students are encouraged to discuss with their teachers/supervisors on their conditions and consider if any adjustments to laboratory procedures are needed.	**2**	**1**	**2**	**NA**	**NA**	**NA**
		Electrical hazard due to water source near electrical outlets and frayed or spliced electrical cables.	Electrical shock to staff and students when in contact with wet electrical plugs or frayed electrical cables.	1) Visually inspect the cables and plugs before switching on the microscopes to ensure that they are properly insulated. 2) Students are not to place any water source near the electrical outlets located on the student work benches or touching them with wet hands.	**2**	**1**	**2**	**NA**	**NA**	**NA**

		Physical hazard due to cuts from sharps from accidental breakage of glassware and glass slides.	Contact with broken glass slides may result in cut and injuries to students.	1) All specimen on glass slides are already mounted and adjusted to focus on the microscope for viewing. 2) Put on proper PPE such as lab coat, safety glasses, latex gloves and covered shoes. 2) Inspect all glassware before use. Dispose cracked, chipped or worn out glassware and glass slides.	**2**	**1**	**2**	**NA**	**NA**	**NA**
1	Viewing of microorganism in petridish and culture plates	Biological hazard in case of microorganisms in contact with skin, eyes due to spillage.	(1) Lab acquired infection from exposure to biological agents through wounds when in contact to skin. (2) Inhalation of aerosols, direct contact on skin and in eyes during spillage may cause laboratory acquired infection to user and surrounding lab personnel. IHF: 1. Skin conditions - skin irritation from allergens. 2. Immunocompromised- increased risk of infection when exposed to biological agents.	1) Students attending Learning Journey must view the Lab Safety Video. 2) All biological microorganisms in petri dish and culture plates are securely sealed with parafilm and tapes and properly labeled before they are demonstrated to students. 3) Secondary trays are to be used during transportation of petri dish and culture plates. 5) Staff and students must put on proper PPE: lab coats, safety glasses, latex gloves and covered shoes. 6) Availability of 70% ethanol for surface decontamination. 7) Availability spill responder and biological spill kit for decontamination in the teaching lab in case of spillage. 8) Staff/students with health conditions are encouraged to discuss their situation with their teacher to explore any necessary preventive measures and adjustments to work practices.	**2**	**1**	**2**	**NA**	**NA**	**NA**
		Physical hazard due to cuts from sharps from accidental breakage of glassware and glass slides.	Contact with broken glass slides may result in cut and injuries to students.	1) All specimen on glass slides are already mounted and adjusted to focus on the microscope for viewing. 2) Put on proper PPE such as lab coat, safety glasses, latex gloves and covered shoes. 2) Inspect all glassware before use. Dispose cracked, chipped or worn out glassware and glass slides.	**2**	**1**	**2**	**NA**	**NA**	**NA**

Conducted By Fatimah Binte Mustafa

Signature

Approved by: Ch'ng Jun Hong

Signature

Approval date 7-May-25 Next Revision date 6-May-28

		Likelihood		
		Likely	Possibly	Unlikely
Severity	Low	3	2	1
	Med	6	4	2
	High	9	6	3

Risk = Likelihood x Severity

RISK	DECISION PROCESS
< 3	**RISK ACCEPTABLE**
3, 4	**CONSIDER ADDITIONAL RISK CONTROL**
> 4	**ADDITIONAL RISK CONTROL REQUIRED**

Likelihood

1	**Unlikely**	Not likely to occur (has not occurred in the PI's Lab or similar Lab setup.)
2	**Possible**	Possible or known to occur (has occurred in the PI's Lab or Similar Lab setup.)
3	**Very Likely**	Common or repeating occurrence (has occurred repetitively in the PI's Lab or similar Lab setup.)

Severity

1	**Low**	(e.g. No injury, injury or ill-health requiring first aid treatment only - includes minor cuts and bruises, irritation, ill-health with temporary discomfort)
2	**Medium**	(e.g. Injury requiring medical treatment or ill-health leading to disability – includes lacerations, burns, sprains, minor fractures, dermatitis, deafness, work-related upper limb disorders)
3	**High**	(e.g. Fatal, serious injury or life-treatening occupational disease – includes amputations, major fractures, multiple injuries, occupational cancer, acute poisoning and fatal diseases)

Severity - Consider the magnitude/severity of the consequences of the Risk Factor occurring and then list this as 3 (High), 2 (Moderate) or 1 (Low).
Severity normally will not change unless there is a physical change to the equipment or process.

Likelihood - Team should rely upon their experience and consider realistic scenarios. Listed below are examples of factors that may be considered in determining the likelihood.

- Past experience / incidents
- Complexity of the activity
- Number of personnel involved in the activity (e.g. all personnel, a limited number of trained personnel, etc)
- Frequency of use or execution
- Degree of control (involvement of contractors)
- Strength/completeness of administrative controls
- Sufficiency/formality of training
- Other....