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-S mutans Rapid Test	**Category :**	Teaching-practical classes
Name of Department:	Microbiology and Immunology	**Location of Lab:**	Life Science 9 Laboratory, MD4 Level 4 & Medical Teaching Laboratory, MD1 Level 7		
Name of Laboratory:	Teaching Laboratories	**Name of PI:**	Dr Png Chin Wen		
Name of Researcher:	Staff and Students	**Name of Activity/Experiment:**	*Streptococcus mutans* Agglutination Rapid Test		

		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	Pipette heat inactivated/killed Streptococcus mutans onto glass slide	Biological hazard Biological agent comes into contact on open wounds or cut skin.	May come down with laboratory-acquired infection. IHF: 1. Skin conditions - skin irritation from allergens. 2. Immunocompromised- increased risk of infection when exposed to biological agents.	1. Bacteria are heat inactivated and confirmatory test done by technical staff. 2. Less than 20ul of the biological agent is provided. 3. Put on proper PPE (laboratory coat, latex gloves, safety glasses and covered shoes). 4. 70% ethanol available for decontamination in case of spill 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
		Chemical hazard. Chemicals used to preserve the bacteria (glycerol-phenol solution) may be harmful or cause irritation when in contact on skin.	Chemicals may cause burns or irritation to skin or eye. IHF: 1. Skin conditions -skin irritation from allergens/irritants. 2. Asthma - exposure to chemical aerosols could trigger an asthma attack/exacerbation.	1. Chemicals used for preservation is used in minimum non hazardous quantities. 2. Eye wash is available in case of chemical contact to the eye. 3. Put on proper PPE (laboratory coat, latex gloves, safety glasses and covered shoes) at all times in the lab. 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
2	Prepare diluted saliva and drop onto glass slide	Biological hazard. Saliva may contain infectious agents.	May come down with laboratory-acquired infection when in contact through the skin. IHF: 1. Immunocompromised- increased risk of infection when exposed to biological agents.	1. Students are to test their own saliva samples. 2. Put on proper PPE like laboratory coats, latex gloves, safety glasses and covered shoes. 4. 70% ethanol if available for decontamination in case of spill 5. Tubes containing saliva to be disposed in biohazard bin. 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
3	Handling glass slides	Physical hazard. Cuts by broken glass slides.	User handling glass slides: Mishandling of glass slide might lead to accidental breakage of the slides resulting in cuts. IHF: 1. Diabetes- personnnel with diabetes may have complications due to poor wound healing.	1. Put on proper PPE (laboratory coat, latex gloves, safety glasses and covered shoes). 2. Glass slides are given to the student in a secondary container. 3. Dispose all contaminated glass slides into biohazard sharp bin provided on the bench near to student workplace.These eliminate the chances of dropping and breaking the slides. IHF: diabetic personnel should take extra care when handling glass slides and should not handle broken glass.	2	1	**2**	NA	NA	NA
		Biological hazard Biological agent comes into contact on cut skin.	May come down with laboratory-acquired infection. IHF: 1. Skin conditions - skin irritation from allergens. 2. Immunocompromised- increased risk of infection when exposed to biological agents.	1. Bacteria are heat inactivated and confirmatory test done by technical staff. 2. Put on proper PPE (laboratory coat, latex gloves, safety glasses and covered shoes) at all times in the lab. 3. 70% ethanol available for decontamination in case of spill 3. Dispose all contaminated glass slides into biohazard sharp bin provided on the bench near to student workplace.These eliminate the chances of dropping and breaking the slides. 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

4	Discarding hazardous biological waste into biohazard bag by students.	Biological hazard. Exposure to biological agents on open wounds or cut skin.	Lab acquired infections from direct contact with biological agents: IHF: 1. Skin conditions - skin irritation from allergens. 2. Immunocompromised- increased risk of infection when exposed to biological agents.	1) Put on proper PPE (laboratory coat, latex gloves, safety glasses and covered shoes). 2) Dispose all contaminated materials into biohazard bags provided on the bench. 3) 70% ethanol available for decontamination on surface in case of spill 4) Students are to wash their hands thoroughly with antiseptic before leaving the teaching laboratory. 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

Conducted By

Madhushanee Weerasooriya Madhushani W

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Approved By

Name Dr Ch'ng Jun Hong

Signature

Approval date 7-May-25 Next Revision date 6-May-28
(Maximum 3 years)

		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....