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Risk Assessment Details ID: RA_SCELSE_103574 Rev No: 1 Draft ID: 0

User's School/ Department/ Student Activity Group:	Singapore Centre for Environmental Life Sciences Engineering	**Project Title:**	Use of Super Resolution ELYRA & CLSM 780 Microscope
Workplace:	Singapore Centre for Environmental Life Sciences Engineering	**Other workplace:**	-
Location:	Advanced Biofilm Imaging Facility	**Conducted By:**	Radek Machan(RADEK.MACHAN);Foo Yong Hwee(YHFOO)
Approved By:	Peter Torok (PETER.TOROK@ntu.edu.sg)	**Submitted By/Submitted Date:**	Radek Machan/28-Feb-23
Approved Date:	28-Feb-23	**Next Review Date:**	27-Feb-26
Status:	Approved	**Comments:**	-

1. Hazard Identification					**2. Risk Evaluation**				**3. Risk Control**				
1a.	**1b.**	**1c.**	**1d.**	**1e.**	**2a.**	**2b.**	**2c.**	**2d.**	**3a.**	**3b.**	**3c.**	**3d.**	**3e.**
No.	**Work Activity**	**Hazard**	**Sub Hazard**	**Possible Accident/Ill Health & Person-at-Risk**	**Existing Risk Control**	**S**	**L**	**R**	**Additional Risk Control**	**S**	**L**	**R**	**Follow Up by & date**
1	Use of Super Resolution ELYRA & CLSM 780 Microscope	Biological	Contact with or infection by bacteria, virus, fungal spores or toxin	Others:Depending on the properties of the chemicals or biological materials, contact may cytotoxic to user, cause irritations, infections or other injuries.	Wear the appropriate PPE ; Lab coat, nitrile gloves & covered shoes. Additional PPE may include safety eyewear & thicker gloves. Wear mask whenever appropriate. Dispose specimen in the sharps bin immediately after use. User shall inform the person-in-charge of the imaging facility beforehand should any toxic substances or any Schedule 1 or 2 biological agents (not allowed in SCELSE) are used. Users are expected to submit a detailed risk assessment (with approval from supervisor and/or cluster head) of their activities involving the substance/agents.	3	2	6	NA				
		Chemical	Others:Chemical hazard. Fluorescent dye used may be cytotoxic.	Others:Fluorescent dye used may cause skin irritation or may be mildly cytotoxic when in contact.	User shall read the SDS of the fluorescent dye used and wear the appropriate PPE : Lab coat & covered shoes. Nitrile gloves must be used when handling the specimen. Additional PPE may include safety eyewear, thicker gloves, and mask, whenever appropriate. Staining procedures shall be conducted in the designated SCELSE main laboratory modules and not in the imaging facility, which is meant to be a dry lab facility.	3	2	6	NA				
		Mechanical	Cut	Others::Cuts, lacerations or puncture from sharp edges of coverslips and slides	Wear the appropriate PPE ; Lab coat, nitrile gloves & covered shoes. Additional PPE may include safety eyewear & thicker gloves. Dispose specimen in sharps bin immediately after use.	2	2	4	NA				
		Physical	Non-ionisation radiation	Eye injury	The CLSM system comes with a Plexiglas reflection shield or a non-transparent enclosure	3	2	6	NA				

			to protect users from stray laser beams. The CLSM system comes with a safety interlock feature which prevent user to be exposed to direct laser beam; laser beam can never enter the microscope eyepiece. Appropriate warning signs are in place to warn users not to look directly into the laser beam. All users are required to hold a valid NEA N3 license, which ensures that they have familiarised themselves with fundamentals of non-ionising radiation safety and undergone an eye checkup before being allowed to operate the microscope. Besides that, users are required to take every 3 years an online non-ionising radiation safety module (Working with Non-Ionising Radiation - OHS2NIR01).				
Ergonomic	Awkward posture	Sprains, strains	Maintain good posture at all times while working at the CLSM. Ensure that the chair is adjusted to a comfortable height. Take breaks in between the long sessions on the CLSM. Do not work at the microscope/computer for more than two hours without taking a break (SCELSE recommends users to take a 10 mins break with every 50 mins of microscopy time).	2	3	6	NA
Electrical	Contact with electrical energy	Others:Potential for electric shock from electrical components of the equipment	Conduct visual inspection of electrical plugs, wires & cables before use. Use approved & suitable electrical plugs with the `SAFETY MARK logo. User shall ensure that the area surrounding the equipment is kept dry.	3	2	6	NA
Chemical	Sensitizer or irritant	Others:Skin irritation from Immersion oil for using oil Objectives.	Users are advised to read the SDS and abide by the precautions documented. Wear the appropriate PPE ; Lab coat & covered shoes. Use nitrile gloves when handling specimen. Apply BSL2 hygiene standards, wash hands at the end of the experiment.	1	3	3	NA
Physical	Others:Users are advised to read the SDS and abide by the precautions documented. Wear the appropriate PPE ; Lab coat & covered shoes. Use nitrile gloves when handling specimen. Apply BSL2 hygiene standards,	Property or equipment damage	User shall ensure that switching on and off should be at least 30 min interval in between. The lamp is in an enclosed housing which shall be never opened unless exchanging the lamp and unless the lamps has been off for at least 30 min to allow it to cool down. Use of the metal halide lamps shall not exceed 2000 hours. When the lamp usage approaches 2000 hours, only authorized personnel in SCELSE or service engineers from the equipment supplier are allowed to change the metal halide lamps.	3	2	6	NA