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Standard Operating Procedure		
Title: Transporting of Biological Materials		

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1. OBJECTIVE

The SOP details how biological materials are to be safely transported between laboratories within the same building, between National University of Singapore (NUS) buildings, into and out of NUS. This is to ensure that the public and the workers in the transportation chain are protected from exposure to any substances that might be in the package.

2. SCOPE

This procedure covers the transport of biological materials within, into or out of NUS, for research purposes only. This procedure is to be followed when transferring or transporting any biological agents, (including cultures, tissues, pathological organs, blood samples, all supplies contaminated by body fluids).

3. RESPONSIBILITIES

3.1 The PI of the lab performing the transfer/transport has overall responsibility for ensuring a system is established for the safe transfer or transport of biological materials. The PI or his/her nominated representative holds the responsibility:

- To classify if the material is a dangerous goods or not
- To select a proper means of transfer or transport
- To select a proper packing and packaging material
- To ensure proper marking/signage and labeling on the package
- To establish the most appropriate route of transfer/transport


3.2 The staff and students should ensure that the packaging and labeling of container as well as other transportation procedures are in accordance with those described in this SOP.

4. PROCEDURES

The personnel performing the transfer or transport of biological materials are required to consult the OSHE NUS Laboratory Biorisk Management Manual (NUS/OSHE/M/01) on chapter 8 "Transportation"

4.1 Procedure for Packaging

- a. The sample must be triple packaged. (See Appendix) The sample must be placed in a sealed primary container that is securely closed, and leak-proof. Plastic containers should be used whenever possible.
- b. The primary container should be placed in a leak-proof and sealed watertight secondary container, with enough absorbent material (e.g. paper towels or commercially-available absorbent material) placed around the primary container sufficient to absorb the entire contents of the primary container in case of breakage or leakage.

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- c. Information sheet including quantity and type of biological material, and particulars about the transferor and transferee (including emergency contact numbers) shall be available.
- d. The secondary container must be placed in a tertiary carrier/cooler that is sturdy and leak-proof, with a lid that can be fastened.
- e. The outside of the tertiary container must be free of any biohazardous material so that the package can be carried safely between facilities or outside NUS without wearing gloves or lab coats. External surfaces of every container shall be decontaminated during the assembly of the package, including the tertiary container
- f. The outer container must be labeled with:
 - The universal biohazard symbol
 - Name of the PI responsible for transferring / transporting the material
 - Contact number of the safety lead/lab manager of the transferring lab

4.2 Procedure for Transporting


- a. Biological materials shall not be transported via public buses and trains including NUS internal shuttle bus. Examples of acceptable modes of transport include walking, personal vehicles, commercial carriers (i.e. courier services).
- b. When transporting biological agents between the MD1 and MD6 building and NUH, care must be taken to select a route that minimizes exposure to the NUS community and avoids crowded areas, especially canteens.
- c. Within the building, all biological materials must be transported using the service lift.
- d. A spill kit should be carried / nearest available location of a spill kit should be known when transferring between NUS laboratories (i.e. within the same building or across buildings).
- e. A spill kit shall be carried for transport between NUS laboratories and laboratories of other research institutions/ universities.
- f. The nearest spill kit at NUH available for use can be obtained from UMC Satellite Lab, main building, level 3, near lift lobby 3. Tel: 67722155.
- g. The package must be taken directly to its intended location without stopping at other locations along the way and shall not be opened during transport. If a spill is suspected, the package shall be opened at the destination inside a biosafety cabinet.

5. TRAINING

All individuals handling biological samples are required to complete the relevant safety training: Biosafety for BSL-2 Laboratories (OSHBIO08) and Safe Handling of Human Tissue and Fluids (OSHBIO03) via LumiNUS.

6. REFERENCE

NUS Laboratory Biorisk Management Manual (NUS/OSHE/M/01)

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7. APPENDIX

Example of triple packaging of biological materials



15ml Falcon tubes (primary container) and absorbent material are placed together into a sealable zip lock bag (secondary container). The assembled pack is then placed into a leak-proof carrier with a lid that can be fastened (tertiary container).

8 REVISION HISTORY

Date Revised	Version No.	Author	Summary of Revisions
18-03-2016	001	Wang Juling / Yeo Soh Bee	
18-10-2016	002	Wang Juling / Yeo Soh Bee	Section 6: Reference-Link to "NUS Laboratory Biorisk Management Manual" is added
15-04-2019	003	Wang Juling / Yeo Soh Bee	Section 4.2: Added "Procedure for Transporting" (NUS/OSHE/M/01) Section 5: Replaced Biological Safety with Biosafety for BSL-2 Laboratories" Section 7: Replaced picture on "Example of triple packaging of biological materials" (NUS/OSHE/M/01)
15-04-2022	004	Wang Juling / Adeline Chow	Section 4.1: Update the Procedure for packaging (e and f) Section 5: Updated training portal to LumiNUS