UCC
Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

UCC Biosafety

UCC Laboratory Biosafety Class 2 GMM Guidelines

The UCC Biosafety Guidelines aim to provide assistance and guidance to researchers handling biological agents in a safe manner using Good Microbial Practices (GMP) and Good Occupational Safety and Hygiene (GOSH). These guidelines are for a Class 2 Genetically Modified Micro-organism (GMM) Laboratory.

Please note that these guidelines do not replace the Environmental Protection Agency (EPA: http://www.epa.ie/) conditions on your GMM consented registry nor do they replace the S.I. No. 73/2001 – Genetically Modified Organisms (Contained Use) Regulations, 2001 (http://www.irishstatutebook.ie/2001/en/si/0073.html).

Checklist	
☐	Annual Report Submitted? (*deadline 31st March 2011)*
☐	Limiting Access to GMM facility (e.g. Biohazard sign)
☐	Disposal of GMM waste (e.g. Autoclave inactivation record)
☐	SOPs – Training of New Staff (e.g. Staff training record)
☐	SOPs – Treatment of Spills
☐	SOPs – Cleaning & Disinfection of equipment
☐	SOPs – Maintenance of Equipment
☐	SOPs – Transport of GMMs within Lab/Dept/Building
☐	Risk Assessments
☐	GM Identification & Characterization
☐	Maintenance of records & Log Books: training records/inactivation records/Storage of GMMs

(A) Access to GMM Class 2 Laboratory

1) Access to laboratory working areas should be for authorised personnel only. Visitors should grant access from Principal Investigator or designated

responsible person. Children should not be allowed to enter the lab and under no circumstances should vermin/pests and pets be authorised to enter.

2) Lab doors should be kept closed and locked when unoccupied.

3) A **biohazard symbol and sign** (**e.g. Figure 1 Biohazard Sign**) should be placed on the entrance to the laboratory if biological agents are handled in that laboratory including details of the Principal Investigator/Responsible person and phone number.

(B) Personal Protection

1) Lab coats must be worn at all times when working in the laboratory but removed before leaving the laboratory suite (such as bathroom, offices and canteen).

2) Gloves should be worn when handling biological agents and animals but removed when touching door handles, computers, telephone etc. Hands should be washed after gloves are removed.

3) Safety glasses/visor or other protective devices should be worn to protect against impacting objects, splashes or UV radiation.

(C) Lab Procedures – Class 2 Laboratory

1) Mouth pipetting is prohibited

2) Eating and drinking, applying cosmetics/contact lenses or storage of food and drinks is not permitted in the laboratory.

3) Open-toed footwear not permitted in the laboratory.

4) Limit the use of hypodermic needles and syringes. The must only be used for injection or aspiration of fluids from laboratory materials/animals.

5) Technical procedures should minimize aerosol dissemination.

6) **Standard Operating Procedures** should be in place and followed especially in relation to:

- Accidents and spills of GMM materials

7) Inactivation of biological material (**e.g. Table 2 Autoclave inactivation record**)

8) Contaminated waste liquids and solids must be inactivated and/or safely contained, and must not pose a hazard to persons exposed to or handling the material while in the waste management process.

9) Packaging and transportation of biological agents outside the University must follow National/International regulations.

10) Personnel must wash their hands after touching infectious materials and animals and before leaving the laboratory working area

11) Suitable arrangement must be made for the safe handling and transport of biological agents within the workplace.

(D) Class 2 Laboratory

1) The Laboratory should be kept clean and tidy.

2) Work surfaces should impervious to water and resistant to acids, alkalis, solvents and disinfectants

3) Work surfaces must be decontaminated after any spill of potentially hazardous material and at the end of the working day.

4) Laboratories should be subject to vermin/pest control where necessary.

5) Written documents that are expected to be removed from the laboratory need to be protected from contamination while in the laboratory.

6) There must be clearly defined storage areas for biological agents in the laboratory (**e.g. Table 3. Example of GMM storage records**, **SOP for Storage of GMM material** and **Figure 1. Biohazard Sign**).

7) An observation window (or alternative) into the laboratory should be present. This is specifically recommended in Class 2 containment laboratories.

8) Material infected with a Class 2 biological safety must be handled in a safety cabinet or other suitable containment facility.

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(E) Biosafety Management

1) It is the responsibility of the principal investigator to ensure the development and execution of a written biosafety management plan and an operations manual. Such documents may include risk assessments, safety training records, standard operating procedures, licenses, and emergency plans (e.g. **Table 1. Example of Staff training record**, **SOPs**, **Risk Assessments**).

2) The principal investigator must notify the Health and Safety Authority in relation to all Class 2 BAs, including genetically modified (micro)organisms (GMM/GMO).

3) In relation to the contained use of GMM/GMOs the principal investigator must apply to the Environmental Protection Agency for a license.

4) The principal investigator must ensure that procedures are specified for taking, handling and processing samples of human or animal origin.

5) The principal investigator must make effective vaccines or prophylaxis available, when necessary, to those who are not already immune to the biological agents to which they are exposed.

6) Laboratory personnel, university maintenance, house-keeping staff, and other authorised persons must be trained in, advised of, or consulted by laboratory management of, any special hazards involving biological agents and they must comply with safety procedures that are in place to minimise the risk of exposure to the biological agents.

7) Appropriate medical evaluation, treatment and surveillance should be provided for staff at risk, as necessary, and adequate medical records should be maintained.

8) Annual reports must be submitted to the EPA.

BIOHAZARD

*****Authorised Personnel only*****

Biosafety Level _____

Principal Investigator _____

Contact Details _____

Authorization for visitor access must be obtained from the Principal Investigator listed above

Do not remove items from this lab without prior authorization

Please keep this door locked when not attended

Figure 1 Biohazard symbol for entrance to Laboratory and/or Growth facility/Animal houses.

Table 1. Example of Staff training record.

Signature of this record states that I have received full training in appropriate GMP and GLP. I am familiar with all SOPs relevant to Class 1/Class 2 GMOs/GMMs and safe disposal of GMOs/GMMs. I am familiar with the Irish and EU guidelines relevant to the contained use of GMMs

Staff training Record		
Date:	**Name:**	**Principal Investigator**

Table 2: Example of Autoclaves Inactivation record

Autoclave GMM/GMO inactivation record		
Date:	**Name:**	**Program settings:** **121°C x 15 min**

Table 3 Example of GMM storage records.

GMM Storage Record			
Date:	**Name:**	**GMM Details**	**Location**

Useful Links:

- EPA GMO website: http://www.epa.ie/whatwedo/licensing/gmo/
- EPA Guidance Note For Users of GMOs (Contained Use) in Ireland: http://www.epa.ie/downloads/advice/gmo/name,12670,en.html
- S.I No.73/2001 – Genetically Modified Organisms (Contained Use) Regulations, 2001: http://www.irishstatutebook.ie/2001/en/si/0073.html