



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

<p><i>An electronic copy of the original application (Word format which is saved as a PDF file) is to be forwarded to:</i></p> <p>(i) Faculty of Health Sciences: Sidney Engelbrecht Telephone: +27 21 6505057 sidney.engelbrecht@uct.ac.za</p> <p>(ii) Faculty of Science: Dr. Thomas Oelgeschläger Telephone: +27 21 6504115 thomas.oelgeschlager@uct.ac.za</p> <p><u>(iii) Faculty of Engineering and Built Environment</u> Dr Siew Tai Telephone: +27 21 6505399 siew.tai@uct.ac.za</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">For office use only</th> </tr> <tr> <td style="width: 50%;">Application No:</td> <td></td> </tr> <tr> <td>Location details:</td> <td></td> </tr> <tr> <td>Risk Assessment:</td> <td></td> </tr> <tr> <td>Containment level:</td> <td></td> </tr> <tr> <td>Date received:</td> <td></td> </tr> <tr> <td>Date approved:</td> <td></td> </tr> </table>	For office use only		Application No:		Location details:		Risk Assessment:		Containment level:		Date received:		Date approved:	
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1. PROJECT DETAILS	
Project title	
Start and end dates of project	

2. DETAILS OF APPLICANT	
Title (e.g. Prof, Dr, Mr, Ms)	
Names & Surname	
Position or appointment	
Staff number	
Department/Division	

3. CONTACT DETAILS	
Address for correspondence:	
Telephone number, extension	
Cell phone number	
E-mail address:	



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4. LOCATION OF RESEARCH:			
List laboratory rooms where research will be conducted (building, room number)			
BUILDING	ROOM NUMBER	CAMPUS	CLINICAL SITE

5. RISK ASSESSMENT		
<i>In order to identify which assessments will be required for the project, please answer YES/NO as appropriate. Does or will this Project involve the use of:</i>		
<p>A. <i>rDNA, DNA or RNA derived from rDNA into micro-organisms</i> (e.g. bacteria, yeasts, viruses) and mammalian or insect cell cultures, and including material derived from, and therefore potentially containing, GMMs) of any biosafety levels?</p> <p>If yes, carry out a risk assessment for each procedure using form GMM1 to provide guidance</p>	YES	NO
<p>B. <i>genetically manipulated plants or animals</i> (e.g. <i>Arabidopsis</i>, worms, flies, mice)? For experiments involving whole animals: will these experiments utilize animals whose genome(s) has been altered (transgenic animals) or the testing of viable, rDNA-modified microorganisms on whole animals (where minimum requirement is biosafety level 2 and higher)?</p> <p>If yes, carry out a risk assessment using form GMO1 to provide guidance.</p> <p><u>Please note</u>: Certain work <u>must</u> be notified to DAFF before commencement.</p>	YES	NO
<p>C. <i>the release of genetically engineered organisms into the environment or the deliberate transfer of rDNA or DNA or RNA derived from rDNA, into humans?</i></p> <p>If yes, please provide the approval from DAFF for the application for intentional introduction (conduct a trial release clinical trial) of genetically modified organisms (GMOs) in the environment of South Africa.</p>	YES	NO
<p>D. Biological Agents (human pathogens or potential pathogens, such as bacteria, trypanosomes, viruses, or material potentially containing pathogens, such as blood or tissue samples and mammalian cell cultures) requiring biosafety level 2 and higher?</p> <p>If yes, and they are NOT covered by assessments carried out under GMM1 or GMO1, carry out a Risk Assessment risk assessment using Form Biol.Agent1 to provide guidance.</p>	YES	NO
<p>E. cultures of more than 10 litres?</p>	YES	NO
<p>F. <i>plant or animal pathogens?</i></p> <p>If yes, contact the Biological Safety Officer and carry out a risk assessment using Form Biol.Agent1 to provide guidance.</p> <p>Please note: A DAFF registration may be necessary.</p>	YES	NO
<p>G. <i>animals</i> (e.g. amphibia, birds, fish, invertebrates, , , non-human mammals, reptiles,)?</p> <p>If yes, carry out a Risk Assessment risk assessment using Form An1 to provide guidance.</p>	YES	NO



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6. DESCRIPTION OF RESEARCH AND/OR SCIENTIFIC GOALS

Summary of Experiments (less than 250 words):

Describe the procedures involved with the normal handling of the biohazardous material including information on storage and disposal. Where appropriate, refer to guidelines, standard operating procedures or guidelines from the University, or recognised National Agencies or International Agencies.

7. STATUTORY AND OTHER EXTERNAL APPROVALS

Legally you are obliged to obtain certain certificates and permits before you may commence with your research, please answer the following questions so that the committee may ascertain the status/need of your applications.

	YES (If yes, please include a copy of the permit/ approval)	NO	NOT APPLICABLE	PENDING (If pending, please include proof of application)
Department of Agriculture, Forestry and Fisheries (Section 20)				
Department of Agriculture, Forestry and Fisheries (GMO)				
Department of Agriculture, Forestry and Fisheries (Release Form)				
Medicines Control Council				
Nature Conservation Permits for Wildlife Research (e.g. SANParks, Cape Nature)				
Relevant Committee approval (with biological/biosafety oversight)				

8. CHECKLIST

Item	Required	Submitted	Not applicable	If not included, will be sent by
Application form complete and signed				
Listed SOPs included				
University approvals (animal/human ethics)				
Statutory/External approval letters or proof of application				

PLEASE NOTE: DO NOT ATTACH STANDARD OPERATING PROCEDURES (SOPs). SOPs SHOULD BE AVAILABLE ON REQUEST.



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9. DECLARATION BY APPLICANT

Assessments of biological safety have been carried out as required, and are attached.

All Research Workers on this project will be registered following the approval of the project by the Biological Safety Committee. Copies of all registrations will be sent to the Departmental Health and Safety Representative.

I understand that work involve Genetic Modification Organisms under parts 1 and 2 and some work involving biological agents/materials that are not genetically modified, must await authorisation from the Biological Safety Committee before work can commence.

Applicant Signature: _____ Date _____

10. DECLARATION BY APPLICANT'S HEAD OF DEPARTMENT

I confirm that I have read and understood the risk assessment relating to this project; in my opinion the Principal Investigator is competent to perform and oversee the work described and I thus support this application.

HoD Signature: _____ Date _____

Department: _____

APPROVAL

Approved by Faculty Biosafety Committee:

Approval number assigned: _____ (*do not assign if application to be escalated to IBC*)

Chairperson Signature: _____ Date _____

APPROVAL (*If escalation to the IBC required*)

Approved by Institutional Biosafety Committee:

Approval number assigned: _____

Chairperson Signature: _____ Date _____

NOTE: You may delete the sub-forms from the section below which **do not apply to your application.**



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

Risk Assessment of a Project Involving Genetic Manipulation of Micro-organisms

GMM1:

University of Cape Town, Faculty/Institutional Biosafety Committee

Name of Applicant:

Faculty Project Number (assigned by relevant Faculty Committee):

Project start and end dates:

Project Title:

Divide the work with Genetically Manipulated Micro-organisms (GMMs) in this project into a minimal number of procedures with related risks. Assess each procedure using this form (GMM1) to classify the procedure into Class 1, 2, 3 or 4 as defined by the ACGM.

The process involves assessing each procedure as follows:

- Identification of **hazards** to humans or the environment (including animals and plants), resulting from the recipient, insert, vector and final GMM
- Consideration of relevant classification schemes (ACDP/OHS Act Hazard Group - see page 4), giving provisional classification.
- Identification of **risk** (in terms of consequence and likelihood)
- Assign final classification to ACGM Class 1,2,3 or 4.

1 Full description of procedure detailing aims and techniques involved:



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2 Recipient Micro-organisms

Give details of **all** recipient micro-organisms and ACDP/OHS Act Hazard Group including bacteria (e.g. *E. coli* strains) viruses (e.g. vaccinia), eukaryotic cell lines (e.g. COS cells, PC12 cells):

3 Inserted Genes

Give details of **all** genes or classes of genes (with the organism of origin) to be manipulated:

N.B. Will any human genes be used?

If the genes to be manipulated are from indigenous plants/animals/invertebrates/microbes, you should pay attention to any permits that may be required to collect the material.

How much material is required for the purposes of the project and what are the possible impacts of the collection of the material on local biodiversity?

Are you making use of traditional knowledge of indigenous and local communities in your choice of biological material? Have you made any plans for benefit-sharing?

Please address these questions by completing the relevant sections of the Faculty REC form.



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4 Cloning Vectors

Give details of **all** cloning vectors used.

For Example:

- Eukaryotic viral vectors
- Plasmid vectors:

A large, empty rectangular box with a black border, intended for providing details of all cloning vectors used.

5 Final GMM

Give details of all final GMMs created during the procedure.

A large, empty rectangular box with a black border, intended for providing details of all final GMMs created during the procedure.



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6 HAZARD IDENTIFICATION

Identify any hazards to humans and the environment (animals and plants) resulting from the recipient, insert, vector and final GMM. Explain how you reach your conclusions.

(i) Consider the properties of the recipient micro-organism (e.g. bacterial host or viral vector).

For example:

- Is it listed in Advisory Committee on Dangerous Pathogens (ACDP)/ OHS Act hazard groups 2, 3 or 4?
- Which animals can be infected by the recipient micro-organism? Does it infect domestic or wild animals?
- Is it a pathogen that is controlled by DAFF?
- If it is a disabled micro-organism, is there any possibility of complementation or reversion of the disabling mutations?
- Is it a plant pathogen?



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- (ii) Consider whether the product of the inserted gene has a biological activity which can act directly to cause harmful effects. If appropriate read the ACGM guidance notes on the generation of recombinants containing potentially oncogenic nucleic acid sequences.

For example

- Does the inserted DNA encode a toxin, an oncogenic protein, an allergen, a modulator of growth or differentiation (hormone or cytokine) or any other protein with a potentially harmful biological activity?
- When constructing a cDNA or genomic library, consider the properties of the donor organism - might certain clones encode toxins or oncogenes?
- What is the known or suspected biological activity and the levels and nature of the product required to elicit this activity, e.g., activity, toxicity, allergenic or pathogenic effects? The full biological activity may be dependent on post-translational modification, glycosylation or renaturation which may, in some cases, only be achieved in certain host organisms. Is the protein to be synthesised as an inactive or active fusion?

- (iii) Consider whether the inserted gene encodes a product that might act alongside the existing characteristics of the recipient micro-organism, so as to endow the GMM with altered pathogenic properties towards humans, or other organisms in the wider environment.

For example

- Does the inserted gene encode a pathogenicity determinant, such as an adhesion, a penetration factor or a surface component providing resistance to host defence mechanisms?
- Is it possible that expression of the inserted gene could alter the tissue tropism, host range or infectivity as compared to the recipient micro-organism?
- Does the inserted DNA encode resistance to an antibiotic, other than the commonly used selection antibiotics, that might be used for the treatment of infections acquired either in the laboratory or outside?



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- (iv) Consider whether an inserted sequence, that does not give rise to a harmful phenotype in the recipient micro-organism, could give rise to harm as a result of natural gene transfer to another, possibly related, organism.

For example

- In the event of a breach of laboratory containment, could the recipient organism survive in the environment, either as a "free living" organism (e.g. in soil or sewage), or by infection of some other host?
- Is the vector mobilisable?
- Is the nature of the inserted gene such that its widespread dissemination in the environment would present environmental concerns e.g. a drug resistance or antibiotic resistance gene, or an intact provirus?

- (v) Does this procedure involve work with GMMs in animal models? If so will this give rise to any additional hazards?

For example

In the case of infected animals will there be an increased risk of infection due to bites or sharps injuries? Will the GMM be excreted from the infected animal?



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- (vi) Briefly describe the biological activity of each gene product, identifying any potential hazards. Examples of harmful genes are those which could act directly to cause harmful effects (e.g. toxins or oncogenes) or those which, when engineered into the recipient organism, endow it with altered pathogenic properties (e.g. an engineered viral receptor).

- (vii) Evaluate the severity or consequence of any harmful effect not only from humans but also for the environment.

7 Provisional Classification

Based on the hazards identified and the Biological Agent Hazard Group listed above, assign a provisional classification level (1, 2, 3, 4).

1 / 2 / 3 / 4

8 Comments:



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9 RISK IDENTIFICATION

This is the estimation of the likelihood that the hazards will be realised. Assess the risk of access and expression, which together give an overall indication of which level of containment should be used. Remember to consider not only the risks to humans, but also the risks to the environment, should there be a breakdown in containment or a failure of killing-off.

9.1 Risk of Access

Assess the probability that the GMM, or the DNA contained within it, will be able to enter the human body and survive there; or to spread in the environment, either as 'free-living' organism (e.g. in soil or sewage) or by infection of some other organism. The properties of the host organism and the vector need to be taken into account. Include in your assessment consideration of the following:

- Does growth require the addition of specific nutrients not available in humans or outside the culture media, and is sensitive to physical conditions/chemical agents, in man or environment, e.g. *E. coli* K-12, *Bacillus subtilis*, *Aspergillus oryzae*, *Saccharomyces cerevisiae*, *Schizosaccharomyces pombe*.
- Is the micro-organism a multiple auxotroph or other host which is unlikely to persist in the gut, lung or survive outside the culture media, e.g. *E. coli*-DH5, JM109, TG2, XL-1Blue, *Pichia Pastoris*. Although the disablement of BL21 is unclear, HSE commissioned research suggests it is unlikely to persist in the gut of healthy individuals.
- Consider mobility of the vectors.
 - Bom^- (Nic^-), Mob^- and Tra^- vectors are non-mobilisable. They include *E. coli* vectors pUC, pGEM, pCAT, pBluescriptII, and *Bacillus* vector pUB110 and their derivatives.
 - Bom^+ , Mob^- and Tra^- vectors are mobilisation defective. They include *E. coli* vectors pBR322, pGEX and their derivatives.
 - Mobilisable vectors are Bom^+ , Mob^+ and Tra^+ . They include RP4, RSF1010, ColE1 and F.



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9.2 Risk of Expression

Assess the anticipated level of expression of the inserted DNA. For each gene, is there:

- A deliberate in-frame insertion of expressible DNA downstream of a strong promoter with the intention of maximising expression.
- Insertion of expressible DNA downstream of a strong promoter with no attempt to maximise expression.
- Insertion of expressible DNA into a site of limited promoter activity.
- Insertion of expressible DNA at a site specifically engineered to prevent expression
- non-expressible DNA.

What is the likelihood of harm being caused to a person or the environment by exposure to the GMM? Consider the scale of the work and the provisional containment level suggested above.

10 What is the scale of the proposed experiments (e.g. volume of cell cultures)?

11 Define the containment level that will need to be used to control the risk:

1 / 2 / 3 / 4



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12 Waste Inactivation and Disposal, Disinfection and Spillage.

- (i) How will you dispose of waste materials (both solid and liquid laboratory waste and waste from animal experiments)?

For example

- All solid waste generated is autoclaved using a program of 15 minutes pulsed free steaming and 30 minutes at 132°C
- Liquid-based waste material is treated by soaking in 1% final concentration of Biocide for a minimum of 12 hours before disposal via the drains.
- Solid biological material is securely packaged and disposed of by incineration *via* a registered contractor.

- (ii) How has each method for inactivation of GM waste been validated, what is the 'Degree of Kill' and what monitoring is carried out to ensure this?

For example

- Autoclaving: Effectively 100% kill at this programme as shown by microbiological testing. Certificated testing of all autoclaves is carried out annually and records are held by the Department. Printed readouts from each run are retained to ensure temperatures within the autoclave were maintained during the cycle.
- Incineration: Effectively 100% kill
- Liquid waste: Biocide is a total spectrum disinfectant prepared and used as per the manufacturer's instructions. Effectively 100% kill as shown by the results of validation experiments carried out in-house using microbiological testing. (Results attached).

- (iii) What procedures will be used to deal with spills? Consider all likely cases of accidental spillage: e.g. spills in a safety cabinet, spills on the floor, spills in an orbital shaker (or an incubator) and spills in a centrifuge due to bottles breaking or leaking. Name the disinfectants to be used in each case. It is strongly recommended that the SOP for spillages be displayed in the laboratory.

Routine Disinfection

Spillage



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- (iv) How has the effectiveness of each disinfectant used for routine disinfection and spillage control been validated?

- (v) What monitoring procedures are used on a routine basis to confirm inactivation of waste and effectiveness of disinfection procedures?

For example

- Regular swab testing of bench areas.

- (vi) Does your laboratory avoid use of sharps? (Does this include glass Pasteur pipettes?) If the answer is no, how are these disposed of?

13 Check list covering other work procedures and relevant issues

On the basis of the risk assessment it may be deemed necessary to provide additional control measures over and above the minimum requirements for the containment level selected.

Additional control measures may take the form of one or more specific measures taken from the list of measures recommended for the containment level one level higher than that assigned. Thus, some projects may be assigned to containment level 1 with one or two additional measures taken from the requirements of containment level 2 e.g. the requirement that all work with infectious materials should be undertaken in a safety cabinet.

The requirements for containment levels can be seen in the OHS Act and regulations or the ACDP guidebook.

- (i) Are any of the work procedures likely to generate aerosols? If so, should the work be undertaken in a safety cabinet?



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- (ii) Does the nature of this work preclude it being undertaken by any workers who have a serious skin condition (e.g. eczema) or other health problems which might make them more susceptible to infection (e.g. some kind of immunological defect)?

- (iii) Will workers receive any vaccinations?

- (iv) Which other precautions are necessary to minimise risks?

- (v) It is important that those working nearby are aware of potential hazards. Does the work involve items of communal equipment? If so, list the items. Devise a suitable procedure for labelling the equipment when in use and decontaminating it if spillage occurs. Identify below the person in charge of each item, and obtain their approval for the proposed use.



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14 FINAL CLASSIFICATION

Assign the final class of activity to all aspects of the procedure. This classification is directly related to the containment level required to control the risk. It may be necessary to assign the containment level above or below that suggested by the hazard assessment.

N.B. It is a requirement that all new projects designated Class 2 or higher are notified to the Faculty Biological Safety Committee **before** work commences.

Signature of Applicant: _____ Date _____



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

Risk Assessment of a Project involving Genetic Manipulation of Plants, Animals or Insects

GMO1:

University of Cape Town, Faculty / Institutional Biosafety Committee

Name of Applicant:

Group:

Faculty Project Number (assigned by relevant Faculty committee):

Project start and end dates:

Project Title:

(i) Give details of **all** organisms to be manipulated:

(ii) What are the possible hazards from the un-modified organisms?

- Consider all possible hazards e.g. possible allergic responses, bites, transmissible pathogens.

(iii) Give details of **all** genes or classes of genes to be manipulated:

If the genes to be manipulated are from indigenous plants/animals/invertebrates/microbes, you should pay attention to any permits that may be required to collect the material.

How much material is required for the purposes of the project and what are the possible impacts of the collection of the material on local biodiversity?

Are you making use of traditional knowledge of indigenous and local communities in your choice of biological material? Have you made any plans for benefit-sharing?

Please address these questions by completing the relevant sections of the Faculty REC form.

(iv) Are the Genetically Manipulated Organisms as safe for humans as the non-manipulated organisms? Explain how you arrive at this conclusion.

- Consider all possible hazards e.g. allergic responses, bites.
- Consider the severity should any harm be realised.
- Consider the likelihood of any harmful effect occurring.

If a GM plant, animal or insect poses a greater risk to humans than the un-modified organism, the work must be notified to the DAFF.



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(v) Are the Genetically Manipulated Organisms as safe to animals, plants and the environment as the non-manipulated organisms? Explain how you arrive at this conclusion.

- Consider the potential capacity of any GM plant (and its seeds) to survive, establish, disseminate and compete with or displace other plants in the environment.
- Consider the possible adverse effects of any GM animal or insect on animals, plants etc in the environment.
- Consider possible adverse effects resulting from natural transfer of inserted genetic material to wild organisms in the environment.
- Consider the severity of any such harmful effects.
- Consider the likelihood of any harmful effect being realised.

(vi) What containment level is required for the work?

Plant Containment Level
Animal Containment Level

(vii) How will you dispose of waste materials (both solid and liquid laboratory waste and waste from animal experiments)?

For example

- All solid waste generated is autoclaved using a program of 15 minutes pulsed free steaming and 30 minutes at 132°C
- Liquid-based waste material is treated by soaking in 1% final concentration of Biocide for a minimum of 12 hours before disposal via the drains.
- Solid biological material is securely packaged and disposed of by incineration *via* a registered contractor.

(viii) What additional special control measures are to be used?



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

Signature of Applicant: _____ Date _____



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

Risk Assessment Risk Assessment of a Project involving Biological Agents

Biol. Agent:

University of Cape Town, Faculty / Institutional Biosafety Committee

Name of Applicant:

Group:

Faculty Project Number (to be assigned by relevant Faculty committee):

Project Title:

The Advisory Committee on Dangerous Pathogens (ACDP) defines a Biological Agent as: "Any micro-organism, cell culture or human endoparasite, including any which have been genetically modified, which may cause any infection, allergy, toxicity or otherwise create a hazard to human health."

NB If all Biological Agents in this project are genetically modified then the assessment of safety carried using form GMM1 will be sufficient for the purposes of Risk Assessment.

1. Risk Assessment

(i) Give details of all Biological Agents, and the OHS Act/ACDP group classification (1-4) where relevant:

- Blood and tissue samples and cell lines may contain Biological Agents. What are the possible agents (e.g. latent retroviruses)?
- If the Agent is disabled, the classification may be altered from that given by the OHS Act/ACDP.

(ii) What are the possible hazards of the use of, or exposure to, these Biological Agents?

- Consider all possible hazards e.g. possible allergic responses.
- Consider infection from potential transmissible pathogens, e.g. HIV, Hepatitis B, latent retroviruses.

(iii) What hazard minimisation or control procedures will be implemented?

- Are vaccinations required, e.g. against Hepatitis B?

2. Waste Inactivation and Disposal, Disinfection and Spillage.

(i) How will you dispose of waste materials (both solid and liquid laboratory waste and waste from animal experiments)?

For example

- All solid waste generated is autoclaved using a program of 15 minutes pulsed free steaming and 30 minutes at 132°C



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

- Liquid-based waste material is treated by soaking in 1% final concentration of Biocide for a minimum of 12 hours before disposal via the drains.
- Solid biological material is securely packaged and disposed of by incineration *via* a registered contractor.

(ii) How has each method for inactivation of waste been validated, what is the 'Degree of Kill' and what monitoring is carried out to ensure this?

For example

- Autoclaving: Effectively 100% kill at this programme as shown by microbiological testing. Certificated testing of all autoclaves is carried out annually and records are held by the Department. Printed readouts from each run are retained to ensure temperatures within the autoclave were maintained during the cycle.
- Incineration: Effectively 100% kill
- Liquid waste: Biocide is a total spectrum disinfectant prepared and used as per the manufacturer's instructions. Effectively 100% kill as shown by the results of validation experiments carried out in-house using microbiological testing. (Results attached).

(iii) What procedures will be used to deal with spills? Consider all likely cases of accidental spillage: e.g. spills in a safety cabinet, spills on the floor, spills in an orbital shaker (or an incubator) and spills in a centrifuge due to bottles breaking or leaking. Name the disinfectants to be used in each case. It is strongly recommended that the SOP for spillages be displayed in the laboratory.

Routine Disinfection

Spillage

(iv) How has the effectiveness of each disinfectant used for routine disinfection and spillage control been validated?

(v) What monitoring procedures are used on a routine basis to confirm inactivation of waste and effectiveness of disinfection procedures?

For example

- Regular swab testing of bench areas.



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

This work will be carried out at Containment Level 1 / 2 / 3 / 4 (delete as appropriate) with the additional hazard minimisation procedures detailed above.

Signature of Applicant: _____

Date_____



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

Risk Assessment of a Project Involving Animals

An1:

University of Cape Town, Faculty / Institutional Biosafety Committee

Name of Applicant:

Group:

Faculty Project Number (assigned by relevant Faculty committee):

Project Title:

NB. This assessment must be carried out for all work involving animals unless genetic modification is involved and form GMO1 has been completed.

(i) Give details of **all** organisms involved in the project (*e.g.* vertebrates, flies, amphibia, worms):

(ii) What are the possible hazards of the use of these organisms?

- Consider all possible hazards *e.g.* possible allergic responses, bites, transmissible pathogens.

(iii) What hazard minimisation procedures will be implemented?

Waste Inactivation and Disposal, Disinfection and Spillage.

(i) How will you dispose of waste materials (both solid and liquid laboratory waste and waste from animal experiments)?

For example

- All solid waste generated is autoclaved using a program of 15 minutes pulsed free steaming and 30 minutes at 132°C



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- Liquid-based waste material is treated by soaking in 1% final concentration of Biocide for a minimum of 12 hours before disposal via the drains.
- Solid biological material is securely packaged and disposed of by incineration *via* a registered contractor.

(ii) How has each method for inactivation of waste been validated, what is the 'Degree of Kill' and what monitoring is carried out to ensure this?

For example

- Autoclaving: Effectively 100% kill at this programme as shown by microbiological testing. Certificated testing of all autoclaves is carried out annually and records are held by the Department. Printed readouts from each run are retained to ensure temperatures within the autoclave were maintained during the cycle.
- Incineration: Effectively 100% kill
- Liquid waste: Biocide is a total spectrum disinfectant prepared and used as per the manufacturer's instructions. Effectively 100% kill as shown by the results of validation experiments carried out in-house using microbiological testing. (Results attached).

This work will be carried out with the additional hazard minimisation procedures detailed above.

Signature of Applicant: _____

Date _____



Faculty & Institutional Biosafety Committee(s) (FBC/IBC)

Registration of Research Workers using Biological Material

University of Cape Town, Faculty / Institutional Biosafety Committee

Name:

Group:

Status (Undergraduate/Scientific Officer/Postgrad/Postdoc *etc.*):

Faculty Project Number:

Project Title (As defined in the assessments):

Do any of these projects involve the use of genetically modified micro-organisms, plants or animals?

Yes / No

If yes, what are your qualifications and previous experience of using GM material?

Do any of these projects involve the use of animals?

Yes / No

If yes, what are your qualifications and previous experience of working on animals?

I understand that all work with Biological Material must be assessed for safety before work commences. I have read and understood assessments of the above projects. I will follow appropriate use and disposal procedures. I will keep a copy of this registration document, and when I stop work on an existing project or start work on a new project, I will amend it and send a copy to the Faculty Biological Safety Committee.

Research Worker signature: _____ Date_____

I will ensure sufficient training and supervision is given to ensure safe working practices.

Signature: _____ Date_____