BIO-UWO-0195
Hammond, James

Modification Form for Permit BIO-UWO-0195

Permit Holder: James Hammond

Approved Personnel
(Please stroke out any personnel to be removed)

Jamie Park

Derek Bone

Additional Personnel
(Please list additional personnel here)

LANCE FREIBURGER (UNDERGRAD)
DIANA QUINONEZ (TECH)
SCOTT HUGHES (GRAD STUDENT)
FRANCES CUNNINGHAM (GRAD STUDENT)

	Please stroke out any approved Biohazards to be removed below	Write additional Biohazards for approval below. *
Approved Microorganisms	E. coli, DH5 alpha, XL-1 Blue	
Approved Cells	Human (primary), heart endothelial cells, Rodent (primary), skeletal muscle, cardiac, Human (established), HEK 293, U20S, Rodent (established), UMR108, c2c12, Pig (established), PK15, Dog (established).	HUMAN (ESTABLISHED) HMEC-1 *
Approved Use of Human Source Material		
Approved GMO	pcDNA 3.1, p3x FLAG	
Approved use of Animals		
Approved Toxin(s)		

* MTA ALREADY SENT TO ~~OHAS~~ Research Services
- CONTAINS ALL REQUESTED ADDITIONAL INFO

* *PLEASE ATTACH A MATERIAL SAFETY DATA SHEET OR EQUIVALENT FOR NEW BIOHAZARDS.*
** *PLEASE ATTACH A BRIEF DESCRIPTION OF THE WORK THAT EXPLAINS THE BIOHAZARDS USED AND HOW THEY WILL BE USED.*

As the principal investigator, I have ensured that all of the personnel named on the form have been trained. I will ensure that this project will follow the Western Biosafety Guidelines and Procedures Manual for Containment Level 1 2 Laboratories (and the Level 3 Facilities Manual for Level 3 projects). I will ensure that UWO faculty, staff and students working in my laboratory have an up-to-date Hazard Communication Form, found at http://www.wph.uwo.ca.

Signature of Permit Holder: _____

Classification: 2

Date of Last Biohazardous Agents Registry Form: Dec 14, 2007

Date of Last Modification (if applicable): _____

BioSafety Officer(s): _____

Chair, Biohazards Subcommittee: _____

University (hereinafter "Emory"). Emory and CDC have filed a patent application which claims the cell line and uses thereof. Emory has authorized the CDC to distribute HMEC-1 in accordance with this Agreement.

Recipient's Research Project:

Role of purine nucleoside and nucleobase transport and metabolism in the microvascular endothelial cell regulation of vascular function.
Adenosine is well established as a vasodilator acting via extracellular adenosine receptors located in the vasculature. Adenosine is released from cells under conditions of cellular stress and is taken back up into cells via a family of 'nucleoside transporters'. We are interested in how manipulation of purine metabolism in microvascular endothelial cells, including transport activity, impacts on the vasodilatory properties of adenosine as well as the production of deleterious oxygen and nitrogen free radical species. We wish to test whether the HMEC-1 cell line can be used as a model cell for these studies. We have conducted studies to date using primary microvascular endothelial cells, which are difficult and expensive to maintain. If the HMEC-1 cell line has similar nucleoside/nucleobase metabolism/transport characteristics to the primary cell lines, then we intend to extend these studies using the HMEC-1 cell line. These studies are directly relevant to therapeutic interventions for diabetes and for ischemia/reperfusion injury in heart failure and stroke.

For purposes of this Agreement, "Material" shall mean the above described Original Material plus any "Progeny" and "Unmodified Derivatives".

"Progeny" shall mean unmodified descendants from the Material, such as virus from virus, cell from cell, or organisms from organisms.

"Unmodified Derivatives" shall mean substances created by Recipient which constitute an important unmodified functional sub-unit or an expression product of the Original Material. Some examples include: subclones of unmodified cell lines; purified or fractionated sub-sets of the Original Material such as novel plasmids or vectors; proteins expressed by the Original Material; and DNA/RNA sequences for such expressed proteins.

"Modifications" shall mean substances created by Recipient which contain or incorporate the Material.

Article 1. Use of Material by Recipient

1.1 The Material is the property of CDC and Emory University and is to be used by Recipient solely for Recipient's Research Project at Recipient's institutional facilities only and only under the direction of Recipient's Scientist. Use for any commercial purpose, such as for screening, or production for sale is prohibited under this Agreement. Recipient is specifically prohibited from using the Material during

Material: Human Microvascular Endothelial Cells (HMEC-1) HMEC-1 refers to a cell line resulting from the transfection of human dermal microvascular endothelial cells with a PBR-322 based plasmid containing the coding region for the simian virus 40 large T antigen.

------- Original Message --------

Subject:[Fwd: Re: Modification Form (Hammond)]
Date: Fri, 18 Sep 2009 12:15:23 -0400
From: James Hammond <James.Hammond@schulich.uwo.ca>
To: Jennifer Stanley <jstanle2@uwo.ca>
References:<4AB3B079.1060409@uwo.ca>

Hi,

There is no MSDS - it's a cell line. All the information available on the cell line is in the MTA...

James

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Canada

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B10-UWO-0195

THE UNIVERSITY OF WESTERN ONTARIO
BIOHAZARDOUS AGENTS REGISTRY FORM
Revised Biohazards Subcommittee: January, 2007

This form must be completed by each Principal Investigator holding a grant administered by the University of Western Ontario where the use of biohazardous infectious agents are described in the experimental work proposed. The form must also be completed if animal work is proposed involving the use of biohazardous agents or animal carrying zoonotic agents infectious to humans. Containment Levels will be required in accordance with Laboratory Biosafety Guidelines, 3rd edition, 2004, Health Canada (HC) or Containment Standards for Veterinary Facilities, 1st edition 1996, Canadian Food Inspection Agency (CFIA).

Completed forms are to be returned to Occupational Health and Safety (Stevenson-Lawson Building, Room 60) for forward to the Biohazard Subcommittee. For questions regarding this form, please contact the Biosafety Coordinator at extension 81135. If there are changes to the information on this form (excluding grant title and funding agencies) modifications must be completed and sent to Occupational Health and Safety. See website: www.uwo.ca/humanresources

PRINCIPAL INVESTIGATOR JAMES HAMMOND
SIGNATURE JHammond
DEPARTMENT PHYSIOL & PHARMACOL.
ADDRESS M266 MSB
PHONE NUMBER 83780
EMAIL JHAMMO@UWO.CA

Location of experimental work to be carried out: Building(s) MSB Room(s) 271
*For work being performed at Institutions affiliated with the University of Western Ontario, the Safety Officer for the Institution where experiments will take place must sign the form prior to it being sent to Occupational Health and Safety (See Section 12.0, Approvals). For research being done at Lawson Health Research Institute, London Regional Cancer Centre, Child and Parent Research Institute or Robarts Research Institute, University Biosafety Committee members can also sign as the Safety Officer.

TITLE OF GRANT(S):
1) ALTERNATIVE SPLICE VARIANTS OF NUCLEOSIDE TRANSPORTERS (NSERC)
2) ADENOSINE TRANSPORTERS OF MICROVASCULAR ENDOTHELIAL CELLS (HSFO)

PLEASE ATTACH A BRIEF DESCRIPTION OF YOUR WORK, SUCH A THE RESEARCH GRANT SUMMARY(S) THAT EXPLAINS THE BIOHAZARDS USED. PROJECTS SUBMITTED WITHOUT A SUMMARY WILL NOT BE REVIEWED.

FUNDING AGENCY/AGENCIES NSERC, HSFO

Names of all personnel working under Principal Investigators supervision in this location:
i) DEREK BONE
ii) JAMIE PARK
iii) MATT DURK
iv) JEFF BRUCE
v)

* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED*

1.0 Microorganisms

1.1 Does your work involve the use of microorganisms or biological agents of plant or animal origin (including but not limited to viruses, prions, parasites, bacteria)? ف YES ف NO
If no, please proceed to Section 2.0

1.2 Please complete the table below:

Name of Biological agent(s)	Is it known to be a human pathogen? YES/NO	Is it known to be an animal pathogen? YES/NO	Is it known to be a zoonotic agent? YES/NO	Maximum quantity to be cultured at one time?
E.coli DH5α	ف Yes ف No	ف Yes ف No	ف Yes ف No	500mL
E.coli XL-1 Blue	ف Yes ف No	ف Yes ف No	ف Yes ف No	500mL
	ف Yes ف No	ف Yes ف No	ف Yes ف No	
	ف Yes ف No	ف Yes ف No	ف Yes ف No	

1.3 For above named organism(s) or biological agent(s) circle HC or CFIA Containment Level required. (1) 2 3

1.4 Source of microrganism(s) or biological agent(s)? Invitrogen, Stratagene

2.0 Cell Culture

2.1 Does your work involve the use of cell cultures? ف YES ف NO
If no, please proceed to Section 3.0

2.2 Please indicate the type of primary cells (ie. derived from fresh tissue) that will be grown in culture in the table below

Cell Type	Is this cell type used in your work?	Source of Primary Cell Culture Tissue
Human	ف Yes ف No	CAMOR
Rodent	ف Yes ف No	- SKELET - CARDIAC
Non-human primate	ف Yes ف No	
Other (specify)		

human (primary) heart endothelial cells

2.3 Please indicate the type of established cells that will be grown in culture in the table below.

Cell Type	Is this cell type used in your work?	Specific cell line(s)	Supplier / Source
Human	ف Yes ف No	HEK293 U2OS	ATCC
Rodent	ف Yes ف No	UMR108 (rat) CLC12 (mouse)	ATCC
Non-human primate	ف Yes ف No		
Other (specify)	ف Yes ف No	PK15 (pig) MDCK (dog)	ATCC

2.4 For above named cell types(s) circle HC or CFIA containment level required 1 (2) 3

* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED*

3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials? ف YES ف NO
If no, please proceed to Section 4.0

3.2 Indicate if the following will be used in the laboratory

- Human blood (whole) or other bodily fluids ف YES ف NO If YES, Specify _____
- Human blood (fraction) or other bodily fluids ف YES ف NO If YES, Specify _____
- Human organs (unpreserved) ف YES ف NO If YES, Specify _____
- Human tissues (unpreserved) ف YES ف NO If YES, Specify _____

3.3 Is human source known to be infected with and infectious agent ف YES ف NO
If YES , please name infectious agent _____

3.4 For above named materials circle HC or CFIA containment level required. 1 2 3

4.0 Genetically Modified Organisms and Cell lines

4.1 Will genetic modifications be made to the microorganisms, biological agents or cells described in Sections 1.0 and 2.0 ? ف YES ف NO
If no, please proceed to Section 5.0

4.2 Will genetic sequences from the following be involved:

- HIV
if YES specify_____ ف YES ف NO
- HTLV 1 or 2 or genes from any CDC class 1 pathogens
if YES specify_____ ف YES ف NO
- Other human or animal pathogen and or their toxins
if YES specify_____ ف YES ف NO

4.3 Will intact genetic sequences be used from

- SV 40 Large T antigen ف YES ف NO If YES specify_____
- Known oncogenes ف YES ف NO If YES specify_____

4.4 Will a live vector(s) (viral or bacterial) be used for gene transduction ف YES ف NO
If YES name virus_____.

4.5 List specific vector(s) to be used: pcDNA3.1, p3x FLAG

4.6 Will virus be replication defective ف YES ف NO

4.7 Will virus be infectious to humans or animals ف YES ف NO

4.8 Will this be expected to increase the Containment Level required ف YES ف NO

5.0 Human Gene Therapy Trials

5.1 Will human clinical trials using the viral vector in 4.0 be conducted? ☐ YES ☒ NO
If no, please proceed to Section 6.0
If YES attach a full description of the make-up of the virus.

5.2 Will virus be able to replicate in the host? ☐ YES ☐ NO

5.3 How will the virus be administered? _____

5.4 Please give the Health Care Facility where the clinical trial will be conducted:_____

5.5 Has human ethics approval been obtained? ☐ YES ☐ NO

6.0 Animal Experiments

6.1 Will any of the agents listed be used in live animals? ☐ YES ☒ NO
If no, please proceed to section 7.0

6.2 Name of animal species to be used_____

→ 2005-023-06 Al.

6.3 AUS protocol # _____

6.4 If using murine cell lines, have they been tested for murine pathogens? ☐ YES ☐ NO

7.0 Use of Animal species with Zoonotic Hazards

7.1 Will any of the following animals or their organs, tissues, lavages or other bodily fluids including blood be used:

- Pound source dogs ☐ YES ☒ NO
- Pound source cats ☐ YES ☒ NO
- Sheep or goats ☐ YES ☒ NO
- Non- Human Primates ☐ YES ☒ NO If YES specify species _____
- Wild caught animals ☐ YES ☒ NO If YES specify species _____
  colony # _____

8.0 Biological Toxins

8.1 Will toxins of biological origin be used? ☐ YES ☒ NO
If no, please proceed to Section 9.0

8.2 If YES, please name the toxin_____

8.3 What is the LD_{50} (specify species) of the toxin_____

* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED*

9.0 Import Requirements

9.1 Will the agent be imported? ☐ YES ☐ NO
If no, please proceed to Section 10.0
If yes, country of origin_____

9.2 Has an Import Permit been obtained from HC for human pathogens? ☐ YES ☐ NO

9.3 Has an import permit been obtained from CFIA for animal pathogens? ☐ YES ☐ NO

9.4 Has the import permit been sent to OHS? ☐ YES ☐ NO
If yes, Permit # _____

10.0 Training Requirements for Personnel named on Form

All personnel named on the above form who will be using any of the above named agents are required to attend the following training courses given by OHS

- Biosafety
- Laboratory and Environmental/Waste Management Safety
- WHMIS

As the Principal Investigator, I have ensured that all of the personnel named on the form who will be using any of the biohazardous agents in Sections 1.0 to 9.0 have been trained.

SIGNATURE _____

11.0 Containment Levels

11.1 For the work described in sections 1.0 to 9.0, please circle the highest HC or CFIA Containment Level required. 1 2 3

11.2 Has the facility been certified by OHS for this level of containment? ☐ YES ☐ NO

11.3 If yes, please give the date and permit number: September 14, 2007 16678 (CULTURE HOOD)
To be done December, 2007

12.0 Approvals

UWO Biohazard Subcommittee

Signature G.M Kidder Date 14 Dec. '07

Safety Officer for Institution where experiments will take place

Signature Stanley Date Dec. 13/07.

Safety Officer for University of Western Ontario (if different than above)

Signature_____ Date_____

* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED*