

**The University of Western Ontario**  
**BIOLOGICAL AGENTS REGISTRY FORM**  
 Approved Biohazards Subcommittee: August 12, 2011  
 Biosafety Website: [www.uwo.ca/humanresources/biosafety/](http://www.uwo.ca/humanresources/biosafety/)

This form must be completed by each Principal Investigator holding a grant administered by the University of Western Ontario (UWO) or in charge of a laboratory/facility where the use of Level 1, 2 or 3 biological agents is described in the laboratory or animal work proposed. The form must also be completed if any work is proposed involving animals carrying zoonotic agents infectious to humans or involving plants, fungi, or insects that require Public Health Agency of Canada (PHAC) or Canadian Food Inspection Agency (CFIA) permits.

This form must be updated at least every 3 years or when there are changes to the biological agents being used.

Containment Levels will be established in accordance with Laboratory Biosafety Guidelines, 3rd edition, 2004, Public Health Agency of Canada (PHAC) or Containment Standards for Veterinary Facilities, 1<sup>st</sup> edition 1996, Canadian Food Inspection Agency (CFIA).

Electronically completed forms are to be submitted to Occupational Health and Safety, (OHS), (Support Services Building, Room 4190 or to [jstanle2@uwo.ca](mailto:jstanle2@uwo.ca)) for distribution to the Biohazards Subcommittee. For questions regarding this form, please contact the Biosafety Officer at extension 81135 or [biosafety@uwo.ca](mailto:biosafety@uwo.ca). If there are changes to the information on this form (excluding grant title and funding agencies), contact Occupational Health and Safety for a modification form. See website: [www.uwo.ca/humanresources/biosafety/](http://www.uwo.ca/humanresources/biosafety/).

Please ensure that all questions are fully and clearly answered. Failure to do so will lead to the form being returned, which will cause delays in your approval and frustration for you and your colleagues on the Committee.

**If you are re-submitting this form as requested by the Biohazards Subcommittee, please make modifications to the form in bold print, highlighted in yellow. Please re-submit forms electronically.**

PRINCIPAL INVESTIGATOR:	<b>David Rodenhiser</b>
DEPARTMENT:	<b>Paediatrics, Biochemistry</b>
ADDRESS:	<b>A4-134 VRL, LHSC</b>
PHONE NUMBER:	<b>X52198</b>
EMERGENCY PHONE NUMBER(S):	<b>519-851-1525</b>
EMAIL:	<b><a href="mailto:drodenhi@uwo.ca">drodenhi@uwo.ca</a></b>

Location of experimental work to be carried out :

Building : <b>LRCP</b>	Room(s): <b>A4-114</b>
Building : <b>LRCP</b>	Room(s): _____
Building : _____	Room(s): _____

**\*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 its being sent to the University of Western Ontario Biosafety Officer (See Section 15.0, Approvals).**

FUNDING AGENCY/AGENCIES: **LRCP small grants and UWO Academic Development Fund**

GRANT TITLE(S): **Epigenetic modifications in a translational breast cancer model (LRCP) and Initiative in Environmental Epigenetics using Xenopus (UWO ADF)**

UNDERGRADUATE COURSE NAME(IF APPLICABLE): \_\_\_\_\_

List all personnel working under Principal Investigators supervision in this location:

Name	UWO E-mail Address	Date of Biosafety Training
<b>Joseph Andrews</b>	<b><a href="mailto:Joseph.Andrews@lhsc.on.ca">Joseph.Andrews@lhsc.on.ca</a></b>	<b>10.13.11</b>

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Please explain how the biological agents are used in your project and how they are stored and disposed of. The BARF without this description will not be reviewed.**

**Biological Agent: Human Cancer Cell Lines (list attached)**

**Usage – live cells maintained in cell culture incubator, and handled in laminar flow BSC**

- **Cells may also be inoculated into mice, which will be undertaken in a BSC in a dedicated Level II animal-handling facility in the VRL vivarium.**

**Storage - Stored in freezer bank (-80 and -150 freezers)**

**Disposal – liquids that contain cells are bleached and flushed down drain**

- **Plasticware that has been in contact with cells is disposed into biohazard waste boxes (lined with a yellow bag) and disposed by licensed waste carrier, SteriCycle (autoclaved and/or incinerated before disposing in land-fill)**

**Possible Biological Agent: Mycoplasma**

**Many cultured cell lines carry mycoplasma, and so it is assumed that any cell line could be carrying this bacteria. The methodology described above for handling of cultured cell lines provides the appropriate methodology for usage, storage, and disposal of this organism should a cell line happen to be contaminated.**

**Please include a ONE page research summary or teaching protocol in lay terms.  
Forms with summaries more than one page will not be reviewed.**

**Summary: My research focuses on the epigenetic regulation of gene expression during tumourigenesis and development. Errors in DNA methylation patterns and histone modifications can alter gene expression, cause aberrant developmental programs and lead to inappropriate gene expression. Ongoing research in my lab focuses on (a) methylation profiling in a variety of cancer-related genes, (b) defining the functional consequences of DNA methylation changes in breast and colon tumourigenesis in general and metastasis in particular, (c) determining how environmental carcinogens alter epigenetic patterns and contribute to tumour formation and compromise embryonic development. At present, collaborative studies are underway in the following areas:**

**1. Models of Metastasis. Metastasis is the main cause of death in breast cancer. It continues to be a challenge to determine which patients are at highest risk of metastasis, to obtain early clinical detection of metastases, and to manage these patients appropriately. Advances in gene profiling and proteomics have yielded "signature" patterns that appear to be associated with invasiveness and metastasis. Model systems are thus needed to assess metastasis-related genes as targets for new therapeutic approaches. I am identifying and characterizing epigenetic changes in target genes relevant to breast cancer progression and metastasis by developing a precise map of promoter hypermethylation and inactivation of these genes in the context of progression. We have assessed promoter methylation profiles in the context of survival/growth/invasion of these cells in the lymph node environment.**

**2. Epigenetic Mechanisms of Environmental Exposures. A wide variety of chemicals pollute and threaten natural environments and pose a risk to the health of humans and other animal species by contaminating our air and water. Embryonic development is exquisitely sensitive to such exposures, whether it be via the in utero environment (in the case of mammals) or the natural aquatic environment, in the case of amphibians. As a consequence, the exquisitely choreographed process of developmental gene expression can be affected and lead to infertility, abnormal offspring, or even death. Long term, chronic exposures can alter the epigenetic programming in cells that provides 'extra' layers of control that regulate how (and where) genes are expressed. Systematic gaps remain in understanding the chemically-induced developmental changes in epigenetically regulated gene expression. I am addressing environmentally-induced epigenetic changes during embryonic development by: (a) mapping epigenome-wide profiles during embryonic development and (b) identifying how changes in these epigenetic profiles target specific biological pathways and lead to physical and developmental errors. This will allow me to explore the involvement of gene-specific epigenetic alterations in mediating the environmental effects of aquatic pollutants on developmental processes so I can translate these data into functional biomarkers with real-world relevance.**

## 1.0 Microorganisms

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

Do you use microorganisms that require a permit from the CFIA?  YES  NO

If YES, please give the name of the species \_\_\_\_\_

What is the origin of the microorganism(s)? \_\_\_\_\_

Please describe the risk (if any) of escape and how this will be mitigated:

*Please attach the CFIA permit.*

Please describe any CFIA permit conditions:

1.2 Please complete the table below:

Full Scientific Name of Biological Agent(s)* (Be specific)	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? (in Litres)	Source/ Supplier	PHAC or CFIA Containment Level
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<b>E. coli</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No			<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3

\*Please attach a Material Safety Data Sheet or equivalent from the supplier if the bacterium used is not on this link:  
[http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA\\_Ecoli\\_list.pdf](http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA_Ecoli_list.pdf)

Additional Comments: \_\_\_\_\_



Office of Biohazard Containment and Safety  
Science Branch, CFIA  
59 Camelot Drive, Ottawa, Ontario K1A 0Y9  
Tel: (613) 221-7068 Fax: (613) 228-6129  
Email: ImportZoopath@inspection.gc.ca

Bureau du confinement des bio risques et sécurité  
Direction générale des sciences, ACIA  
59 promenade Camelot, Ottawa, Ontario K1A 0Y9  
Tél: (613) 221-7068 Téléc: (613) 228-6129  
Courriel: ImportZoopath@inspection.gc.ca

October 20<sup>th</sup>, 2009

Ms. Shamila Survery / Mr. Michael Decosimo  
Cedarlane Laboratories Ltd  
4410 Paletta Court  
Burlington, Ontario L7L 5R2

By Facsimile: (289) 288-0020

**SUBJECT: Importation of *Escherichia coli* strains**

Dear Ms. Survery / Mr. Decosimo:

Our office received your query about the importation of *Escherichia coli* from the American Type Culture Collection (ATCC) located in Manassas, Virginia, United States. The following *Escherichia coli* strains are considered to be level 1 animal pathogens:

- |               |                    |           |                   |                |
|---------------|--------------------|-----------|-------------------|----------------|
| • 5K          | • CIE85            | • J52     | • MC4100 (MuLac)  | • U5/41        |
| • 58          | • DH1              | • J53     | • MG1655          | • W208         |
| • 58-161      | • DH10 GOLD        | • JC3272  | • MM294           | • W945         |
| • 679         | • <b>DH10B</b>     | • JC7661  | • MS101           | • W1485        |
| • 1532        | • DH5              | • JC9387  | • NC-7            | • W3104        |
| • AB284       | • <b>DH5-alpha</b> | • JF1504  | • Nissle 1917     | • W3110        |
| • AB311       | • DP50             | • JF1508  | • One Shot STBL3  | • WA704        |
| • AB1157      | • DY145            | • JF1509  | • OP50            | • WP2          |
| • AB1206      | • DY380            | • JJ055   | • P678            | • X1854        |
| • AG1         | • E11              | • JM83    | • PA309           | • X2160T       |
| • B           | • EJ183            | • JM101   | • PK-5            | • X2541        |
| • BB4         | • EL250            | • JM109   | • PMC103          | • X2547T       |
| • BD792       | • EMG2             | • K12     | • PR13            | • XL1-BLUE     |
| • BL21        | • EPI 300          | • KC8     | • Rri             | • XL1-BLUE-MRF |
| • BL21 (DE3)  | • EZ10             | • KA802   | • RV308           | • XL0LR        |
| • BM25.8      | • FDA Seattle 1946 | • KAM32   | • S17-1λ -PIR     | • Y10          |
| • C           | • Fusion-Blue      | • KAM33   | • SCS1            | • Y1090 (1090) |
| • C-1a        | • H1443            | • KAM43   | • SMR10           | • YN2980       |
| • C-3000      | • HF4714           | • LE450   | • SOLR            | • W3110        |
| • C25         | • HB101            | • LE451   | • SuperchargeEZ10 | • WG1          |
| • C41 (DE3)   | • HS(PFAMP)R       | • LE452   | • SURE            | • WG439        |
| • C43 (DE3)   | • Hfr3000          | • MB408   | • <b>TOP10</b>    | • WG443        |
| • C600        | • Hfr3000 X74      | • MBX1928 | • TG1             | • WG445        |
| • Cavalli Hfr | • HMS174           | • MC1061  |                   |                |

The Office of Biohazard Containment and Safety (BCS) of the Canadian Food Inspection Agency (CFIA) only issues import permits for microorganisms that are pathogenic to animals, or parts of microorganisms that are pathogenic to animals. As the products listed above are not considered pathogenic to animals, the Office of BCS does not have any regulatory requirements for their importation.

Please note that other legislation may apply. You may wish to contact the Public Health Agency of Canada's (PHAC) Office of Laboratory Security at (613) 957-1779.

**Note:** Microorganisms pathogenic to animals and veterinary biologics require an import permit from the CFIA.

Sincerely,

Cynthia Labrie  
Head, Animal Pathogen Importation Program  
Office of Biohazard Containment & Safety

**2.0 Cell Culture**

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

2.2 Please indicate the type of primary cells (i.e. derived from fresh tissue) that will be grown in culture:

Cell Type	Is this cell type used in your work?	Source of Primary Cell Culture Tissue	AUS Protocol Number
Human	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Not applicable
Rodent	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Non-human primate	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Other (specify)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

2.3 Please indicate the type of established cells that will be grown in culture in:

Cell Type	Is this cell type used in your work?	Specific cell line(s)*	Containment Level of each cell line	Supplier / Source of cell line(s)
Human	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>listed below</b>		
Rodent	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Non-human primate	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Other (specify)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

\*Please attach a Material Safety Data Sheet or equivalent from the supplier. (For more information, see [www.atcc.org](http://www.atcc.org))

2.4 For above named cell types(s) indicate PHAC or CFIA containment level required  1  2  2+  3

Additional Comments: Breast cell lines: MCF-7, MDA-MB-435, MDA-MB-231, MDA-MB-468, T47D, 21-PT/ 21-NT/ 21MT-1 (level 1 lines)

**3.0 Use of Human Source Materials**

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

3.2 Indicate in the table below the Human Source Material to be used.

Human Source Material	Source/Supplier /Company Name	Is Human Source Material Infected With An Infectious Agent? YES/UNKNOWN	Name of Infectious Agent (If applicable)	PHAC or CFIA Containment Level (Select one)
Human Blood (whole) or other Body Fluid		<input type="checkbox"/> Yes <input type="checkbox"/> Unknown		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
Human Blood (fraction) or other Body Fluid		<input type="checkbox"/> Yes <input type="checkbox"/> Unknown		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
Human Organs or Tissues (unpreserved)		<input type="checkbox"/> Yes <input type="checkbox"/> Unknown		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
Human Organs or Tissues (preserved)		Not Applicable		Not Applicable

Additional Comments: \_\_\_\_\_

**Cell Culture - Rodenhiser Laboratory –**

London Regional Cancer Program, Cancer Research Laboratories - VRL

Last updated October 13, 2011

Cell Lines Used relevant to this BARF

**Human cell lines:**

Breast MCF-7, MDA-MB-435, MDA-MB-231, MDA-MB-468, T47D, 21-PT, 21-NT, 21MT-1

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**Bacteria for cloning experiments:**

Escherichia coli DH5-alpha and DH10-beta, TOP10, TOP10F'

**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?  YES  NO If **NO**, please proceed to Section 5.0

4.2 Will genetic modification(s) involving plasmids be done?  YES, complete table below  NO

Bacteria Used for Cloning *	Plasmid(s) **	Source of Plasmid	Gene Transformed or Transfected	Will there be a change due to transformation of the bacteria?	Will there be a change in the pathogenicity of the bacteria after the genetic modification?	What are the consequences due to the transformation of the bacteria?

E. coli ?

alent if available.  
following strains of E. coli:  
[/ohs/CFIA Ecoli list.pdf](#)

4.3 Will genetic modification(s) of bacteria and/or cells involving viral vectors be made?  YES, complete table below  NO

Virus Used for Vector Construction	Vector(s) *	Source of Vector	Gene(s) Transduced	Describe the change that results from transduction

\* Please attach a Material Safety Data Sheet or equivalent.

- 4.3.1 Will virus be replication defective?  YES  NO
- 4.3.2 Will virus be infectious to humans or animals?  YES  NO
- 4.3.3 Will this be expected to increase the containment level required?  YES  NO

**5.0 Will genetic sequences from the following be involved?**

- ◆ HIV  NO  YES, specify
- ◆ HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens  NO  YES, specify
- ◆ SV 40 Large T antigen  NO  YES
- ◆ E1A oncogene  NO  YES
- ◆ Known oncogenes  NO  YES, specify
- ◆ Other human or animal pathogen and or their toxins  NO  YES, specify

5.1 Is any work being conducted with prions or prion sequences?  NO  YES

Additional Comments: \_\_\_\_\_

## 6.0 Human Gene Therapy Trials

6.1 Will human clinical trials be conducted involving a biological agent?  YES  NO  
(including but not limited to microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)  
If no, please proceed to Section 6.0

6.2 If YES, please specify which biological agent will be used:  
Please attach a full description of the biological agent.

6.3 Will the biological agent be able to replicate in the host?  YES  NO

6.4 How will the biological agent be administered?

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

6.6 Has human ethics approval been obtained?  YES, number:  NO  PENDING

## 7.0 Animal Experiments

7.1 Will live animals be used?  YES  NO If **NO**, please proceed to section 8.0

7.2 Name of animal species to be used **Xenopus**

7.3 AUS protocol # **2011-070 (now under review)**

7.4 Will any of the agents listed in section 4.0 be used in live animals  
 NO  YES, specify:

7.5 Will the agent(s) be shed by the animal:  
 YES  NO, please justify:

## 8.0 Use of Animal species with Zoonotic Hazards

8.1 Will any animals with zoonotic hazards or their organs, tissues, lavages or other body fluids including blood be used (see list below)?  YES  NO - If **NO**, please proceed to section 9.0

8.2 Will live animals be used?  YES  NO

8.3 If **YES**, please specify the animal(s) used:

- |                             |  |                             |
|-----------------------------|--|-----------------------------|
| ◆ Pound source dogs         | <input type="checkbox"/> YES                     | <input type="checkbox"/> NO |
| ◆ Pound source cats         | <input type="checkbox"/> YES                     | <input type="checkbox"/> NO |
| ◆ Cattle, sheep or goats    | <input type="checkbox"/> YES, species            | <input type="checkbox"/> NO |
| ◆ Non-human primates        | <input type="checkbox"/> YES, species            | <input type="checkbox"/> NO |
| ◆ Wild caught animals       | <input type="checkbox"/> YES, species & colony # | <input type="checkbox"/> NO |
| ◆ Birds                     | <input type="checkbox"/> YES, species            | <input type="checkbox"/> NO |
| ◆ Others (wild or domestic) | <input type="checkbox"/> YES, specify            | <input type="checkbox"/> NO |

8.4 If no live animals are used, please specify the source of the specimens:

## 9.0 Biological Toxins and Hormones

9.1 Will toxins or hormones of biological origin be used?  YES  NO If **NO**, please proceed to Section 10.0

9.2 If YES, please name the toxin(s) or hormones(s) **human chorionic gonadotropin**  
Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

9.3 What is the LD<sub>50</sub> (specify species) of the toxin or hormone **not known**

9.4 How much of the toxin or hormone is handled at one time\*? **700-800 IU**

9.5 How much of the toxin or hormone is stored\*? **10 g**

9.6 Will any biological toxins or hormones be used in live animals?  YES  NO  
If **YES**, Please provide details: **used to superovulate female frogs so eggs can be collected**

\*For information on biosecurity requirements, please see:

[http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity\\_Requirements.pdf](http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity_Requirements.pdf)

Additional Comments: \_\_\_\_\_

## 10.0 Insects

10.1 Do you use insects?  YES  NO - If **NO**, please proceed to Section 11.0

10.2 If YES, please give the name of the species.

10.3 What is the origin of the insect?

10.4 What is the life stage of the insect?

10.5 What is your intention?  Initiate and maintain colony, give location:  
 "One-time" use, give location:

10.6 Please describe the risk (if any) of escape and how this will be mitigated:

10.7 Do you use insects that require a permit from the CFIA permit?  YES  NO  
If **YES**, Please attach the CFIA permit & describe any CFIA permit conditions:

## 11.0 Plants

- 11.1 Do you use plants?  YES  NO - If **NO**, please proceed to Section 12.0
- 11.2 If YES, please give the name of the species.
- 11.3 What is the origin of the plant?
- 11.4 What is the form of the plant (seed, seedling, plant, tree...)?
- 11.5 What is your intention?  Grow and maintain a crop  "One-time" use
- 11.6 Do you do any modifications to the plant?  YES  NO  
If yes, please describe:
- 11.7 Please describe the risk (if any) of loss of the material from the lab and how this will be mitigated:
- 11.8 Is the CFIA permit attached?  YES  NO  
If **YES**, Please attach the CFIA permit & describe any CFIA permit conditions:

## 12.0 Import Requirements

- 12.1 Will any of the above agents be imported?  YES, country of origin  NO  
If **NO**, please proceed to Section 13.0
- 12.2 Has an Import Permit been obtained from HC for human pathogens?  YES  NO
- 12.3 Has an import permit been obtained from CFIA for animal or plant pathogens?  YES  NO
- 12.4 Has the import permit been sent to OHS?  YES, please provide permit #  NO

## 13.0 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 (Western or equivalent)
- ◆ Employee Health and Safety Orientation

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

***An X in the check box indicates you agree with the above statement...***   
***Enter Your Name David Rodenhiser Date: October 5, 2011***

**14.0 Containment Levels**

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

14.2 Has the facility been certified by OHS for this level of containment?  
 YES, location and date of most recent biosafety inspection: **December 10, 2010**  
 NO, please certify  
 NOT REQUIRED for Level 1 containment

14.3 Please indicate permit number (not applicable for first time applicants): **BIO-LHRI-0074**

**15.0 Procedures to be Followed**

15.1 Are additional risk reduction measures necessary beyond containment level 1, 2, 2+ or 3 measures that are unique to these agents?  YES  NO  
If YES please describe:

15.2 Please outline what will be done if there is an exposure to the biological agents listed such as a needlestick injury or an accidental splash:  
**Staff have been trained to do the following: get immediate medical attention at either LHSC Occupational Health and Safety or Victoria Emergency, visit Occ Health as soon as possible, and file an LHSC incident report. UWO employees are asked to visit UWO Occ Health to file an incident report.**

15.3 As the Principal Investigator, 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.shs.uwo.ca/workplace/newposition.htm>

*An X in the check box indicates you agree with the above statement...*   
Enter Your Name David Rodenhiser Date: October 5, 2011

15.4 Additional Comments: \_\_\_\_\_

**16.0 Approvals**

1) UWO Biohazards Subcommittee: SIGNATURE: \_\_\_\_\_  
Date: \_\_\_\_\_

2) Safety Officer for the University of Western Ontario SIGNATURE: \_\_\_\_\_  
Date: \_\_\_\_\_

3) Safety Officer for Institution where experiments will take place (if not UWO):  
SIGNATURE: Maire Ryan  
Date: January 3, 2012

Approval Number: \_\_\_\_\_ Expiry Date (3 years from Approval): \_\_\_\_\_

Special Conditions of Approval:



# MATERIAL SAFETY DATA SHEET

MSDS FOR ANIMAL CELL CULTURES (Biosafety Level 1 or 2)

## MATERIAL SAFETY DATA SHEET

### SECTION 1 - SUBSTANCE IDENTITY AND COMPANY INFORMATION

Product Name: Various Animal Cell Cultures at Biosafety Level 1 or 2  
ATCC Catalog #: Various

COMPANY INFORMATION: AMERICAN TYPE CULTURE COLLECTION  
PO BOX 1549  
MANASSAS, VA 20108

FOR INFORMATION CALL: 800-638-6597 or 703-365-2700  
AFTER-HOURS CONTACT: 703-365-2710  
CHEMTREC EMERGENCY: 800-424-9300 or 703-527-3887

### SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Either frozen or growing cells shipped in liquid cell culture medium (a mixture of components that may include, but is not limited to: inorganic salts, vitamins, amino acids, carbohydrates and other nutrients dissolved in water). Frozen Cultures may also contain a 5%-10% solution of Dimethyl sulfoxide as a cryoprotectant.

### SECTION 3 - HAZARD IDENTIFICATION

HMIS Rating: Health: 0 Flammability: 0 Reactivity: 0  
NFPA Rating: Health: 0 Flammability: 0 Reactivity: 0

This substance is not hazardous as defined by OSHA 29CFR 1910.1200 however this product should be handled according to good lab practices, with proper personal protective equipment, proper engineering controls and within the parameters of the purchaser's safety program.

#### Health Hazards

##### For Biosafety Level 1 Cell Cultures

Handle as a potentially biohazardous material under at least Biosafety Level 1 containment. This cell line is not known to cause disease in healthy adult humans. These cells have **NOT** been screened for Hepatitis B, human immunodeficiency viruses or other adventitious agents, unless otherwise reported on the Certificate of Analysis. Regardless of results reported on the Certificate of Analysis Universal Precautions according to 29 CFR 1910.1030 should be followed at all times when manipulating these cell lines.

See next page for Biosafety Level 2 cell cultures.



## MATERIAL SAFETY DATA SHEET

### For Biosafety Level 2 Cell Cultures

Handle as a potentially biohazardous material under at least Biosafety Level 2 containment.

These cell lines are associated with human disease, hazards include: percutaneous injury, ingestion, mucous membrane exposure (U.S. Government Publication **Biosafety in Microbiological and Biomedical Laboratories**). These cells have **NOT** been screened for Hepatitis B, human immunodeficiency viruses or other adventitious agents, unless otherwise reported on the Certificate of Analysis. Regardless of results reported on the Certificate of Analysis Universal Precautions according to 29 CFR 1910.1030 should be followed at all times when manipulating these cell lines.

### SECTION 4 - FIRST AID MEASURES

#### Report to your Safety Office and Seek Medical Attention as Soon as Possible

**Ingestion:** If person is unconscious seek emergency medical attention; never give anything by mouth to an unconscious person. If the person is conscious wash mouth out with copious amounts of water and call a physician then administer three cupfuls of water. Do not induce vomiting unless directed to do so by a physician.

**Inhalation:** If person is unconscious seek emergency medical attention, if person is conscious remove to fresh air and call a physician.

**Dermal exposure:** Immediately wash skin with copious amounts of water followed by washing with soap and copious amounts of water. Remove all contaminated clothing.

**Eye exposures:** Flush eyes with copious amounts of water for at least 15 minutes with eyelids separated and call a physician.

### SECTION 5 - FIRE FIGHTING MEASURES

**Flammability:** Data not available

**Suitable Extinguishing Media:** Water spray, carbon dioxide, dry chemical powder, Halon (where regulations permit), or appropriate foam.

**Protective Equipment:** Wear self-contained breathing apparatus and protective clothing to prevent inhalation, ingestion, skin and eye contact.

**Specific Hazard(s):** Responders should take into consideration the biohazard risk associated with responding to a fire in the area where the material may be stored or handled.



## MATERIAL SAFETY DATA SHEET

### SECTION 6 - ACCIDENTAL RELEASE MEASURES

**Procedure(s) of Personal Precaution(s):** At a minimum use PPE listed in Section 8. Wear laboratory coat, gloves and eye protection. Avoid all contact.

#### Methods for Cleaning Up

**Patient/Victim:** Wash with soap and water. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Do not take clothing home.

**Equipment/Environment:** Allow aerosols to settle; wearing protective clothing, gently cover spill with paper towel and apply 1% sodium hypochlorite, starting at perimeter and working towards the center; allow sufficient contact time before clean up (30 min).

**Note:** The use of additional PPE may be necessary for cleaning solutions.

### SECTION 7 - HANDLING AND STORAGE

Handle and store according to instructions on product information sheet and label.

Special Requirements:

Follow established laboratory procedures when handling material.

### SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

**Use Personal Protective Equipment:** Including Eye Protection, Chemical Resistant Gloves, and appropriate clothing to prevent skin exposure. In addition, a Respiratory protection program that complies with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

**Engineering Controls:** The use and storage of this material requires user to maintain and make available appropriate eyewash and safety shower facilities. Use fume hood or other appropriate ventilation method to keep airborne concentrations a low as possible.

**Exposure Limits:** No exposure limits for this material have been established by ACGIH, NIOSH, or OSHA.

### SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Data Not Available

### SECTION 10 - STABILITY AND REACTIVITY

Hazardous polymerization will not occur.

### SECTION 11 - TOXICOLOGICAL INFORMATION

#### Route of Exposure

American Type Culture Collection  
P.O. Box 1549  
Manassas, VA 20108  
July 2010

Emergency Telephone: (703) 365-2710 (24 hours)  
Information Telephone: (703) 365-2700 Ext.2303



## MATERIAL SAFETY DATA SHEET

**Eye Contact:** Data not available. Avoid eye contact.  
**Skin Contact:** Data not available. Avoid skin contact.  
**Skin Absorption:** Data not available. Avoid skin absorption.  
**Inhalation:** Data not available. Avoid inhalation.  
**Ingestion:** Data not available. Avoid ingestion.  
**Parenteral Exposure:** Data not available. Avoid parenteral exposure.

### Sensitization

**Skin:** Data not available  
**Respiratory:** Data not available

**Target Organ(s) or System(s):** Data not available

### Signs and Symptoms of Exposure

**Skin and Mucous Membranes:** Data not available  
**Respiratory:** Data not available  
**Gastrointestinal:** Data not available

**Toxicity Data:** Data not available  
**Effects of Long Term or Repeated Exposure:** Data not available  
**Chronic Exposure–Teratogen:** Data not available  
**Chronic Exposure–Mutagen:** Data not available  
**Chronic Exposure–Reproductive Hazard:** Data not available

### SECTION 12 - ECOLOGICAL INFORMATION

No ecological information available.

### SECTION 13 - DISPOSAL CONSIDERATIONS

Decontaminate all wastes before disposal (steam sterilization, chemical disinfection, and/or incineration).  
Dispose of in accordance with applicable regulations.

### SECTION 14 - TRANSPORT INFORMATION

Contact ATCC for transport information.

### SECTION 15 - REGULATORY INFORMATION

Contact ATCC for regulatory information.

### SECTION 16 - OTHER INFORMATION



## MATERIAL SAFETY DATA SHEET

THE INFORMATION PRESENTED IN THIS DOCUMENT IS BELIEVED TO BE CORRECT BASED UPON DATA AVAILABLE TO ATCC. USERS SHOULD MAKE AN INDEPENDENT DECISION REGARDING THE ACCURACY OF THIS INFORMATION BASED ON THEIR NEEDS AND DATA AVAILABLE TO THEM. ALL SUBSTANCES AND MIXTURES MAY PRESENT UNKNOWN HAZARDS AND ALL NECESSARY SAFETY PRECAUTIONS SHOULD BE TAKEN. ATCC ASSUMES NO LIABILITY RESULTING FROM USING OR COMING IN CONTACT WITH THIS SUBSTANCE.

## Cell Biology

ATCC® Number: **HTB-22™** [Order this Item](#) Price: **\$279.00**

Designations: MCF7

Depositors: CM McGrath

[Biosafety Level:](#) 1

Shipped: frozen

Medium & Serum: [See Propagation](#)

Growth Properties: adherent

Organism: *Homo sapiens*

epithelial

Morphology:



**Organ:** mammary gland; breast

**Disease:** adenocarcinoma

Source:

**Derived from metastatic site:** pleural effusion

**Cell Type:** epithelial

Cellular Products:

insulin-like growth factor binding proteins (IGFBP) BP-2; BP-4; BP-5

In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

Permits/Forms:

Applications: transfection host

Receptors: estrogen receptor, expressed

Antigen Expression: Blood Type O; Rh+

Amelogenin: X

CSF1PO: 10

D13S317: 11

D16S539: 11,12

DNA Profile (STR): D5S818: 11,12

D7S820: 8,9

THO1: 6

TPOX: 9,12

vWA: 14,15

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modal number = 82; range = 66 to 87.



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## Product Description

Before submitting an order you will be asked to read and accept the terms and conditions of ATCC's [Material Transfer Agreement](#) or, in certain cases, an MTA specified by the depositing institution.

Customers in Europe, Australia, Canada, China, Hong Kong, India, Israel, Japan, Korea, Macau, Mexico, New Zealand, Singapore, and Taiwan, R.O.C. must contact a [local distributor](#) for pricing information and to place an order for ATCC cultures and products.

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## Cell Biology

ATCC® Number: HTB-129™ [Order this Item](#) Price: \$279.00

Designations: MDA-MB-435S

Biosafety Level: 1

Shipped: frozen

Medium & Serum: [See Propagation](#)

Growth Properties: adherent

Organism: *Homo sapiens*

Morphology: spindle shaped



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Source: **Organ:** previously described as: mammary gland; breast  
**Disease:** previously described as ductal carcinoma  
**Derived from metastatic site:** pleural effusion

Cellular Products: tubulin; actin

Permits/Forms: In addition to the [MTA](#) mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

Isolation: **Isolation date:** 1976

Tumorigenic: No

DNA Profile (STR):

Amelogenin: X  
CSF1PO: 11  
D13S317: 12  
D16S539: 13  
D5S818: 12  
D7S820: 8,10  
THO1: 6,7  
TPOX: 8,11

Cytogenetic Analysis:

modal number = 56; range = 55 to 62  
The cell line is aneuploid human female (XX), with most chromosome counts in the 55 to 60 range. Normal chromosomes N6, N11, and N22 were absent, while chromosomes N7, N13, N18 and N21 were single. Most of the remainder of normal chromosomes were usually paired, but chromosome N2 was triple. Nineteen marker chromosomes were identified, with most of them formed from structural alterations of the missing copies of the normal chromosomes. Six of these markers involve regions of chromosome N7, while three are recognized as derivatives of chromosome N6. Regions of a third copy of the normal and



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## Cell Biology

ATCC® Number: HTB-26™ [Order this Item](#)

Price: \$279.00

**Designations:** MDA-MB-231  
**Depositors:** R Cailleau  
**Biosafety Level:** 1  
**Shipped:** frozen  
**Medium & Serum:** [See Propagation](#)  
**Growth Properties:** adherent  
**Organism:** *Homo sapiens*  
**Morphology:** epithelial



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**Source:** **Organ:** mammary gland; breast  
**Disease:** adenocarcinoma  
**Derived from metastatic site:** pleural effusion  
**Cell Type:** epithelial

**Permits/Forms:** In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

**Applications:** transfection host

**Receptors:** epidermal growth factor (EGF), expressed  
transforming growth factor alpha (TGF alpha), expressed

**Tumorigenic:** Yes

**DNA Profile (STR):** Amelogenin: X  
CSF1PO: 12,13  
D13S317: 13  
D16S539: 12  
D5S818: 12

## Cell Biology

ATCC® Number: **HTB-132™** [Order this Item](#) Price: **\$279.00**

Designations: MDA-MB-468

Depositors: R Cailleau

[Biosafety Level:](#) 1

Shipped: frozen

Medium & Serum: [See Propagation](#)

Growth Properties: adherent

Organism: *Homo sapiens*

Morphology: epithelial

Source: **Organ:** mammary gland; breast

**Disease:** adenocarcinoma

Permits/Forms: In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

Isolation: **Isolation date:** 1977

Applications: transfection host

Receptors: epidermal growth factor (EGF)  
transforming growth factor alpha (TGF alpha)

Tumorigenic: Yes

Antigen Expression: Blood Type AB; HLA Aw23, Aw30, B27, Bw35, Cw2, Cw4 (patient)

Amelogenin: X

CSF1PO: 12

D13S317: 12

D16S539: 9

DNA Profile (STR): D5S818: 12

D7S820: 8

THO1: 7

TPOX: 8,9

vWA: 18

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modal number = 64; range = 60 to 67.

## Cell Biology

ATCC® Number: **HTB-133™** [Order this Item](#) Price: **\$279.00**

Designations: T-47D

Depositors: I Keydar

[Biosafety Level:](#) 1

Shipped: frozen

Medium & Serum: [See Propagation](#)

Growth Properties: adherent

Organism: *Homo sapiens*  
epithelial

Morphology:



**Organ:** mammary gland; breast

**Tissue:** duct

Source:

**Disease:** ductal carcinoma

**Derived from metastatic site:** pleural effusion

In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

Permits/Forms:

Applications:

transfection host  
calcitonin, expressed  
androgen receptor, expressed  
estrogen receptor, expressed  
progesterone receptor, expressed

Receptors:

glucocorticoid receptor, positive, expressed  
prolactin, expressed  
calcitonin; androgen receptor, positive; progesterone receptor, positive; glucocorticoid; prolactin; estrogen receptor, positive

Amelogenin: X  
CSF1PO: 11,13  
D13S317: 12  
D16S539: 10

DNA Profile (STR): D5S818: 12  
D7S820: 11  
THO1: 6  
TPOX: 11  
vWA: 14

This is a hypotriploid human cell line. The modal chromosome

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