THE UNIVERSITY OF WESTERN ONTARIO

BIOLOGICAL AGENTS REGISTRY FORM

Approved Biohazards Subcommittee: October 14, 2010

Biosafety Website: 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, 1st edition 1996, Canadian Food Inspection Agency (CFIA).

Completed forms are to be returned to Occupational Health and Safety, (OHS), (Support Services Building, Room 4190) for distribution to the Biohazards Subcommittee. For questions regarding this form, please contact the Biosafety Officer at extension 81135 or 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

PRINCIPAL INVESTIGATOR	Dr. Moshmi Bhattacharya
DEPARTMENT	Physiology & Pharmacology
ADDRESS	1151 Richmond St., Western University N6A 5C1
PHONE NUMBER	X82970
EMERGENCY PHONE NUMBER(S)	519-679-3135
EMAIL	Moshmi.Bhattacharya@schulich.uwo.ca

Location of experimental work to be carried out: Building(sMedical Science (MSB)_____
Room(s)__224, 231, 235____

*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:___CIHR_____
GRANT TITLE(S): _____

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

Name	UWO E-mail Address	Date of Biosafety Training
Cynthia Pape	Cynthia.pape@schulich.uwo.ca	11 Oct.2009
Mistre Alemayehu	malemay@uwo.ca	19 Sept 2009
Jeff Law	jlaw@uwo.ca	26 May 2008
Donna Cvetkovic	dcvetco@uwo.ca	10 Feb 2011
Josh Burley		03 July 2010

Please explain (A) the biological agents and/or biohazardous substances used and (B) how they will be stored, used and disposed of. Projects without this description will not be reviewed.

A) The cell lines will be used to conduct various assays, that are routinely conducted in this laboratory. These include cell migration assays using transwell chambers, immunofluorescence assays to look at the localization of proteins in cells using confocal microscopy, biochemical assays to study protein expression, and motility assays to study the role of specific proteins in cell motility.

B) We have on hand biohazard agents rated Biosafety level 1 and 2, therefore all of our products will be maintained and handled at Biosafety 2 Level requirements. All students/personnel will be properly trained and supervised when handling biohazardous materials. Laboratory space/storage vessels (LN2 tank) containing biohazardous substances will be locked. All cell lines and biohazard substances will be used for research purposes alone and will be handled within a certified biological safety cabinet. All waste products will be disinfected with bleach solution or contained and autoclaved appropriately prior to disposal. Cholera toxin will be inactivated by strong acid solution (2N.HCl) or autoclaved, as recommended by the manufacturer. Pertussis toxin will be autoclaved to inactivate the compound.

Please include a one page research summary or teaching protocol.

My research program focuses on identifying and studying molecules that can be targeted in the treatment of breast cancer metastasis, the leading cause of cancer deaths . Breast cancer is the second leading cause of cancer mortality among Canadian women and it is estimated that 23,200 cases will be diagnosed and 5,300 deaths will occur in Ontario this year as a result of this devastating disease . This translates to 63 new breast cancer diagnoses and 14 breast cancer deaths each day in Ontario. ***Identifying appropriate targets for anti-metastatic intervention is therefore essential.***

We have found that G protein-coupled receptors (GPCRs), targets for 60% of all pharmaceuticals, have emerged as crucial players in tumor growth and metastasis . We found that the receptors for bio-active, blood-borne lipid lysophosphatidic acid (LPA) LPA_1 is overexpressed in breast cancer and promote metastatic spread. A key molecule in GPCR function and regulation is the GPCR adaptor protein beta-arrestin. We have recently discovered that beta-arrestins critically regulate LPA_1 receptor mediated breast cancer cell migration and invasion via the small GTPase Ral . Depletion of beta-arrestin or Ral blocks breast cancer invasiveness. ***The proposed work will investigate how beta-arrestin regulates cell migration and invasion, and the molecular determinants by which this occurs.*** Thus we ***hypothesize*** that beta-arrestins promote breast cancer cell invasiveness signaling via small GTPases Ral. The ***objectives*** of the proposed research are as follows: **(I)** To establish a role of beta-arrestin signaling in breast cancer metastasis *in vivo* and **(II)** To determine whether the expression of beta-arrestins and Ral proteins are altered in human tumor samples, and to determine their oncogenic potential.

1.0 Microorganisms

1.1 Does your work involve the use of biological agents? X YES O 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? O YES X 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:

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
E.coli (DH5alpha cells)	O Yes O No	O Yes O No	O Yes O No	3L (max 500ml/flask)	Invitrogen	O 1 O 2 O 2+ O 3
	O Yes O No	O Yes O No	O Yes O No			O 1 O 2 O 2+ O 3
	O Yes O No	O Yes O No	O Yes O No			O 1 O 2 O 2+ O 3
	O Yes O No	O Yes O No	O Yes O No			O 1 O 2 O 2+ O 3

May 24/11 Per conversation with C. Pape DS

*Please attach a Material Safety Data Sheet or equivalent from the supplier.

2.0 Cell Culture

2.1 Does your work involve the use of cell cultures? XO YES O 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	O Yes XO No		Not applicable
Rodent	O Yes XO No		
Non-human primate	O Yes XO No		
Other (specify)	O Yes X O 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	XO Yes O No	HEK 293	2	ATCC#CRL-1573
		MDA-MB-231	1	ATCC#HTB-26
		MDA-MB-231shBarr1/2	2	Stables fromHTB-26
		MDA-MB-435S	1	ATCC#HTB-129
		MDA-MB-468	1	ATCC#HTB-132
		MCF-7	1	ATCC#HTB-22
		MCF10A	1	ATCC#CRL-1-317
		MCF-12	1	
		SK-BR-3	1	ATCC#HTB-30
		Hs578T	1	ATCC#HTB-126
	Research collaborators	Hs578BST	1	ATCC#HTB-125
		OCVA429		(TSheppard)
		JEG-3	1	(LPostovit)atcc HTB-36
		JAR	1	(LPostovit)atcc HTB-144
		HTR8/SVneo		(LPostovit)
		MCF10aCA1 DCIS		(LPostovit)
		MCF10aCL1 METS		(LPostovit)
		C8161		(LPostovit)
		C81-61		(LPostovit)
		T47D	1	(LPostovit)atcc HTB-133
Rodent	O Yes XO No	RBL-1(not currently in use)	1	ATCC#CRL-1378
		GH3(proposed)	1	ATCC#CCL-82.1
Non-human primate	O Yes XO No	COS7(not currently in use)	2 (contain SV-40 viral dna sequences)	ATCC#CRL-1651
Other (specify)	O Yes XO No			

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

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

3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials? XO YES O 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		O Yes O Unknown		O 1 O 2 O 2+ O 3
Human Blood (fraction) or other Body Fluid		O Yes O Unknown		O 1 O 2 O 2+ O 3
Human Organs or Tissues (unpreserved)		O Yes O Unknown		O 1 O 2 O 2+ O 3
Human Organs or Tissues (preserved)	LLSG/UH	Not Applicable	none	Not Applicable

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? XO YES O NO If no, please proceed to Section 5.0

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

Bacteria Used for Cloning *	Plasmid(s) **	Source of Plasmid	Gene Transfected	Describe the change that results from transformation or tranfection
DH5alpha (E.coli)	*pcdna3* *pRS* *pEYFP* *pReceiver-M13*	*Invitrogen* *Origene* *Clonetech* *GeneCopoeia*	*Numerous genes will be transfected indiviually (eg Ral, arrestin, LPA1, LPA1, Rap1); please see papers published from lab (Li et al., Molecular Cancer research 2009; Aziziyeh et al., 2009 Cellular Signalling)*	*Plasmids commercially available – note websites below*

- Please attach a Material Data Sheet or equivalent if available.

** Please attach a plasmid map.

http://products.invitrogen.com/ivgn/product/V79520?ICID=search-product

http://www.origene.com/other/products/TR20003.aspx
http://www.origene.com/assets/Documents/msds/HuSHshRNAMaterialSafetyDataSheet.pdf

http://www.clontech.com/images/pt/dis_vectors/PT3175-5.pdf

http://www.genecopoeia.com/tech/omicslink/pReceiver-M13.pdf

http://www.ncbi.nlm.nih.gov/pubmed/19609003

http://www.ncbi.nlm.nih.gov/pubmed/19306925

4.3 Will genetic modification(s) of bacteria and/or cells involving viral vectors be made?
O YES, complete table below XO 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.

May 24/11 per conversation with C. Pepe JS.

4.4 Will genetic sequences from the following be involved?

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

4.5 Will virus be replication defective? O YES n/aO NO

4.6 Will virus be infectious to humans or animals? O YES n/aO NO

4.7 Will this be expected to increase the containment level required? O YES XO NO

5.0 Human Gene Therapy Trials

5.1 Will human clinical trials be conducted involving a biological agent? O YES XO 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

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

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

5.3 How will the biological agent 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? O YES, number: _____ O NO O PENDING

6.0 Animal Experiments

6.1 Will live animals be used? XO YES O NO If no, please proceed to section 7.0

6.2 Name of animal species to be used____mouse_____

6.3 AUS protocol # _____2008-086-06_____

6.4 Will any of the agents listed in section 4.0 be used in live animals XO YES, specify: MDA-MB-231shBarr1; 231 shBarr2; 231shBarr1&2_____ O NO

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

_____

Live cells (cell lines) will be injected into the bloodstream of live mice. The mouse body/environment is not optimal for these cells to grow, and it is expected that most of the cells will die. Those cells that do survive will form micro tumours and eventually visible tumours in lung tissue of the mice. Mice will be euthanized and lung tissues collected and fixed for further analysis.

7.0 Use of Animal species with Zoonotic Hazards

7.1 Will any animals with zoonotic hazards or their organs, tissues, lavages or other body fluids including blood be used (see list below)? O YES XO No If no, please proceed to section 8.0

7.2 Will live animals be used? O YES O No

7.3 If yes, please specify the animal(s) used:

- Pound source dogs O YES O NO
- Pound source cats O YES O NO
- Cattle, sheep or goats O YES, please specify species _____ O NO
- Non-human primates O YES, please specify species _____ O NO
- Wild caught animals O YES, please specify species & colony # _____ O NO
- Birds O YES, please specify species _____ O NO
- Others (wild or domestic) O YES, please specify _____ O NO

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

_____

8.0 Biological Toxins

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

8.2 If YES, please name the toxin(s)__Cholera Toxin (CTX Sigma #C8052)
http://www.sigmaaldrich.com/catalog/DisplayMSDSContent.do;
Pertussis Toxin (PTX Sigma #P7208)_
http://www.sigmaaldrich.com/catalog/DisplayMSDSContent.do_____
Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

8.3 What is the LD_{50} (specify species) of the toxin____CholeraToxin 250ug/kg mouse 260ug/kg i.v.; PertussisToxin - rat 114ug/kg i.v. ; mouse 127ug/kg i.v._____

8.4 How much of the toxin is handled at one time*? __CTX: 50ng ; PTX: 2ug_____

8.5 How much of the toxin is stored*? _____CTX: 1 mg ; PTX: 50ug_____

8.6 Will any biological toxins be used in live animals? O YES, Please provide details:_____ XO NO

*For information on biosecurity requirements, please see:
http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity_Requirements.pdf

9.0 Insects

9.1 Do you use insects? O YES XO NO If no, please proceed to Section 10.0

9.2 If YES, please give the name of the species. _____

9.3 What is the origin of the insect? _____

9.4 What is the life stage of the insect? _____

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

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

_____

_____

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

_____

_____

10.0 Plants

10.1 Do you use plants? O YES XO 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 plant? _____

10.4 What is the form of the plant (seed, seedling, plant, tree...)? _____

10.5 What is your intention? O Grow and maintain a crop O "One-time" use

10.6 Do you do any modifications to the plant? O YES O NO
If yes, please describe: _____

_____

10.7 Please describe the risk (if any) of loss of the material from the lab and how this will be mitigated:

_____

_____

_____

10.8 Is the CFIA permit attached? O YES O NO
If YES, Please attach the CFIA permit & describe any CFIA permit conditions:

_____

_____

11.0 Import Requirements

11.1 Will any of the above agents be imported? XO YES, please give country of origin_USA_; Sigma-Aldrich takes care of import/export licenses for CTX & PTX; Cedarlane Labs takes care of import/export requirements to obtain cell lines thru ATCC_; most recent PHAC acknowledgement of Biosafety level 2 containment 20 May 2010__HPTA #R-06-000598_____ O NO

If no, please proceed to Section 12.0

11.2 Has an Import Permit been obtained from HC for human pathogens? O YES XO NO

11.3 Has an import permit been obtained from CFIA for animal or plant pathogens? O YES XO NO

11.4 Has the import permit been sent to OHS? O YES, please provide permit # _____ XO NO

12.0 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.

SIGNATURE _____

13.0 Containment Levels

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

13.2 Has the facility been certified by OHS for this level of containment?

XO YES, date of most recent biosafety inspection: _22March2010_____

O NO, please certify

O NOT REQUIRED for Level 1 containment

13.3 Please indicate permit number (not applicable for first time applicants): BIO-0122 last inspection 22 March 2010

14.0 Procedures to be Followed

14.1 Please describe additional risk reduction measures will be taken beyond containment level 1, 2, 2+ or 3 measures, that are unique to this agent.
Cholera Toxin is inactivated by treatment with mild acid or heat, so will be inactivated by use of 1-2N HCl or by autoclaving. Pertussus toxin will be inactivated thru autoclaving

_____

_____

_____

14.2 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:

_First aid procedures would involve removal & containment of the product in question from skin/surfaces by washing with cold water to reduce absorption thru pores of the skin or use of eye wash as required: 15-20 minute wash recommended (1 eye wash is located in each of our laboratory spaces). Eye exposure would be followed up with appropriate medical/emergency room visit, as would other exposure if irritation persists. A safety shower is available and recommended for large spills. Animal experiments involving injection of cells into mice would be performed in a certified CL2 containment facility with prior ACVS approval by properly trained personnel on animals that are appropriately restrained for the procedure. Property/waste cloths would be decontaminated with bleach & or autoclaved prior to disposal after the individual affected has been tended to. _____

_____

14.3 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.wph.uwo.ca/

SIGNATURE _____ Date: May 24, 2011

15.0 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:_____

Date:_____

Approval Number: _____ Expiry Date (3 years from Approval): _____

Special Conditions of Approval:

Info on Cell Line(s)

Cell Biology

ATCC® Number: **HTB-129™** Order this Item

Designations:	MDA-MB-435S
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	spindle shaped 
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 vWA: 16,18

modal number = 56; range = 55 to 62

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BioProducts

Cell, microbial and molecular genomics products for the life sciences

BioServices

Bio-materials management; basic repository to complex partnership-level services

------- Original Message --------
Subject: Re: Containment Level request: modified MDA-MB-231 cell lines
Date: Tue, 22 Sep 2009 11:45:19 -0400
From: Jennifer Stanley <jstanle2@uwo.ca>
To:genevieve_lacroix@phac-aspc.gc.ca

Hi Genevieve
Thank you for your voicemail. We will use Level 2 containment for these cells
Jennifer

Jennifer Stanley wrote:
> Hi Genevieve:
>
> I left you a voicemail. We are planning on using these under Level 2
> containment.
> Regards,
> Jennifer
>
>
>
>
> -------- Original Message --------
> Subject: Re: Containment Level request: modified MDA-MB-231 cell
> lines
> Date: Wed, 16 Sep 2009 11:37:33 -0400
> From: Geneviève Lacroix <genevieve_lacroix@phac-aspc.gc.ca>
> To: Jennifer Stanley <jstanle2@uwo.ca>
>
>
>
> Dear Jennifer,
>
> I am sorry for the delayed answer. I believe it would be easier to
> discuss this case over the phone. Please call me at your convenience.
>
> Regards
>
> Genevieve Lacroix, M.Sc.
> Senior Biosafety Officer / Inspecteur principal, biosécurité Pathogen
> Regulation Directorate (formerly Office of Laboratory Security) /
> Direction de la réglementation des agents pathogènes (anciennement le
> Bureau de sécurité des laboratoires) Public Health Agency of Canada /
> Agence de la santé publique du Canada
> 100 ch. Colonnade Rd. AL: 6201A, Ottawa, Ontario, Canada, K1A 0K9
> Tel: (613) 946-6982
> Fax: (613)941-0596
> genevieve_lacroix@phac-aspc.gc.ca
> http://www.phac-aspc.gc.ca/ols-bsl/index.html
>

>
> Jennifer Stanley <jstanle2@uwo.ca> 2009-09-14 03:59 PM
>
> To
> Geneviève Lacroix <genevieve_lacroix@phac-aspc.gc.ca>
> cc
>
> Subject
> Containment Level request: modified MDA-MB-231 cell lines
>
>
>
>
>
> Hi Genevieve
> Please let me know what containment level you would recommend for
> these modified MDA-MB-231 cell lines (knock down shRNA) B-arrestin 1
> and/or B-arrestin 2 contructs.
> See details below.
> Jennifer
>
>
> Initial investigation in our lab showed elevated endogenous levels of
> B-arrestin2 mRNA in human breast carcinoma cell lines. Transient
> transfection with shRNA constructs (commercially available)
> to B-arrestin1 (shBarr1) and/or B-arrestin2 (shBarr2) to knock-down
> (k/d) but not eliminate B-arrestin signaling showed a marked decrease
in
> the motility of the cells in response to stimulation with either 10uM
> LPA (lysophosphatidic acid) or to serum, however the efficiency of
> transfection was very low. Stable cell lines were generated using
> MDA-MB-231 parent cells electroporated with shBarr1 and/or shBarr2.
A
> control 'scrambled' line was also generated. These cell lines require
> the use of antibiotic (puromycin) to provide selective pressure for
the
> cells to maintain the transfected shRNA construct (pRS vector). The
> stable cell lines also show significant reduction in cell motility
> (2D/migration assay) as well as a decrease in the formation of
stellate
> structures (3D/invasion assay) as compared to the parent MDA-MB-231
> cells.
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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* (human)
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 (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
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)
DNA Profile (STR):	Amelogenin: X CSF1PO: 12 D13S317: 12 D16S539: 9 D5S818: 12 D7S820: 8 THO1: 7 TPOX: 8,9 vWA: 18

Related Links

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Login Required

Product Information Sheet

modal number = 64; range = 60 to 67.

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* (human)
Morphology:	epithelial 
Source:	**Organ:** mammary gland; breast **Disease:** adenocarcinoma **Derived from metastatic site:** pleural effusion **Cell Type:** epithelial
Cellular Products:	insulin-like growth factor binding proteins (IGFBP) BP-2; BP-4; BP-5
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 (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Receptors:	estrogen receptor, expressed
Antigen Expression:	Blood Type O; Rh+
DNA Profile (STR):	Amelogenin: X CSF1PO: 10 D13S317: 11 D16S539: 11,12 D5S818: 11,12 D7S820: 8,9 THO1: 6 TPOX: 9,12 vWA: 14,15

modal number = 82; range = 66 to 87.

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Product Information Sheet

Cell Biology

ATCC® Number:	**CRL-10317™** Order this Item	Price:	**$279.00**

Designations:	MCF 10A
Depositors:	Michigan Cancer Foundation
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial
Source:	**Organ:** mammary gland; breast **Disease:** fibrocystic disease **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.
Isolation:	**Isolation date:** August 22, 1984
Applications:	transfection host (Roche FuGENE® Transfection Reagents)
Tumorigenic:	No
DNA Profile (STR):	Amelogenin: X CSF1PO: 10,12 D13S317: 8,9 D16S539: 11,12 D5S818: 10,13 D7S820: 10,11 THO1: 8,9.3 TPOX: 9,11 vWA: 15,17
Isoenzymes:	AK-1, 1 [23084] ES-D, 1 [23084] G6PD, B [23084] GLO-I, 1-2 [23084] PGM1, 1-2 [23084] PGM3, 1 [23084]
Age:	36 years
Gender:	female
Ethnicity:	Caucasian

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Cell Biology

ATCC® Number:	**HTB-30™**	Order this Item	Price:	**$279.00**

Designations:	SK-BR-3
Depositors:	G Trempe, LJ Old
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial 
Source:	**Organ:** mammary gland; breast **Disease:** adenocarcinoma **Derived from metastatic site:** pleural effusion
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.
Restrictions:	The cells are distributed for research purposes only. The Memorial Sloan-Kettering Cancer Center releases the line subject to the following: 1.) The cells or their products must not be distributed to third parties. Commercial interests are the exclusive property of Memorial Sloan-Kettering Cancer Center. 2.) Any proposed commercial use of these cells must first be negotiated with The Director, Office of Industrial Affairs, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021; phone (212) 639-6181; FAX (212) 717-3439.
Isolation:	**Isolation date:** 1970
Applications:	transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Tumorigenic:	Yes
Antigen Expression:	Blood Type A; Rh+; HLA A11, Bw22(+/-), B40, B18

Amelogenin: X

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Cell Biology

ATCC® Number:	**HTB-36™**	Order this Item	Price:	**$279.00**

Designations:	JEG-3
Depositors:	G Kohler
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial 
Source:	**Organ:** placenta **Disease:** choriocarcinoma
Cellular Products:	human chorionic gonadotropin (hCG), human chorionic somatomammotropin (placental lactogen); progesterone
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 (Roche FuGENE® Transfection Reagents)
Tumorigenic:	Yes
DNA Profile (STR):	Amelogenin: X,Y CSF1PO: 11,12 D13S317: 9,11 D16S539: 13,14 D5S818: 10,11 D7S820: 10,12 THO1: 9,9.3 TPOX: 8 vWA: 16

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Cytogenetic Analysis: This is a hypertriploid human cell line. The modal chromosome

Cell Biology

ATCC® Number:	**HTB-144™** Order this Item	Price:	**$279.00**

Designations:	JAR
Depositors:	RA Pattillo
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial
Source:	**Organ:** placenta **Disease:** choriocarcinoma
Cellular Products:	estrogen; progesterone; human chorionic gonadotropin (hCG); human chorionic somatomammotropin (placental lactogen); hCG production averages 22.5 ng/ml after reculturing
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.
DNA Profile (STR):	Amelogenin: X,Y CSF1PO: 7,10 D13S317: 11 D16S539: 9,10 D5S818: 10,11 D7S820: 10,11 THO1: 6,7 TPOX: 8,11 vWA: 16,18

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This is probably a pseudotriploid human cell line with the modal

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* (human)
Morphology:	epithelial 
Source:	**Organ:** mammary gland; breast **Tissue:** duct **Disease:** ductal carcinoma **Derived from metastatic site:** pleural effusion
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 (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Receptors:	calcitonin, expressed androgen receptor, expressed estrogen receptor, expressed progesterone receptor, expressed glucocorticoid receptor, positive, expressed prolactin, expressed calcitonin; androgen receptor, positive; progesterone receptor, positive; glucocorticoid; prolactin; estrogen receptor, positive

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DNA Profile (STR): Amelogenin: X

Cell Biology

ATCC® Number:	**CRL-1378™**	Order this Item	Price:	**$329.00**

Designations:	RBL-1
Depositors:	H Metzger, C Isersky
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	suspension
Organism:	Rattus norvegicus (rat)
Morphology:	lymphoblast
Source:	**Organ:** peripheral blood **Strain:** Wistar **Disease:** leukemia **Cell Type:** basophil; chemically induced
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 (Nucleofection technology from Lonza)
Receptors:	FcERI (Fc of IgE)
Comments:	The line exhibits various characteristics of basophil differentiation including surface receptors for IgE. It was shown to not release histamine by an IgE mediated system. PubMed: 6166481
Propagation:	**ATCC complete growth medium:** The base medium for this cell line is ATCC-formulated Eagle's Minimum Essential Medium, Catalog No. 30-2003. To make the complete growth medium, add the following components to the base medium: fetal bovine serum to a final concentration of 10%. **Temperature:** 37.0°C
Subculturing:	**Protocol:** Cultures can be maintained by the addition or replacement of fresh medium. Start cultures at 2 X 10 exp5 viable cells/ml and maintain between 1 X 10 exp5 cells/ml and 1 X 10 exp6 /ml.. **Medium Renewal:** Add medium as cell density increases
Preservation:	**Freeze medium:** Complete growth medium 95%; DMSO, 5% **Storage temperature:** liquid nitrogen vapor phase
Related Products:	Recommended medium (without the additional supplements or

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ATCC® Number:	**CCL-82.1™** Order this Item	Price:	**$329.00**

Designations:	GH3
Depositors:	AH Tashjian
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	loosely adherent with floating clusters
Organism:	Rattus norvegicus (rat)
Morphology:	epithelial
Source:	**Organ:** pituitary **Strain:** Wistar-Furth **Disease:** tumor
Cellular Products:	prolactin; growth hormone (somatotrophin)
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:** July, 1965
Applications:	transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Virus Susceptibility:	Herpes simplex virus Vesicular stomatitis virus Human poliovirus 1
Cytogenetic Analysis:	modal number = 67; range = 47 to 71. Stemline karyotype is stable with a few structural alterations. Two dicentric marker chromosomes were observed in 100% of the cells examined.
Age:	7 months
Gender:	female

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Clone GH3 was established in July, 1965 by A.H. Tashjian, Jr., et

Cell Biology

ATCC® Number:	**CRL-1651™** Order this Item	Price:	**$279.00**

Designations:	COS-7
Depositors:	Y Gluzman
Biosafety Level:	2 [Cells Contain SV-40 viral DNA sequences]
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Cercopithecus aethiops*
Morphology:	fibroblast 
Source:	**Organ:** kidney **Cell Type:** SV40 transformed
Cellular Products:	T antigen
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 (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Comments:	This is an African green monkey kidney fibroblast-like cell line suitable for transfection by vectors requiring expression of SV40 T antigen. This line contains T antigen, retains complete permissiveness for lytic growth of SV40, supports the replication of ts A209 virus at 40C, and supports the replication of pure populations of SV40 mutants with deletions in the early region.The line was derived from the CV-1 cell line (ATCC ® CCL-70?) by transformation with an origin defective mutant of SV40 which codes for wild type T antigen.
Propagation:	**ATCC complete growth medium:** The base medium for this cell line is ATCC-formulated Dulbecco's Modified Eagle's Medium, Catalog No. 30-2002. To make the complete growth medium, add the following components to the base medium: fetal bovine serum to a final concentration of 10%. **Atmosphere:** air, 95%; carbon dioxide (CO2), 5% **Temperature:** 37.0°C

Protocol:

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Cell Biology

ATCC® Number:	**CRL-1573™** Order this Item	Price:	**$279.00**

Designations:	293 [HEK-293]
Depositors:	FL Graham
Biosafety Level:	2 [CELLS CONTAIN ADENOVIRUS]
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial 
Source:	**Organ:** embryonic kidney **Cell Type:** transformed with adenovirus 5 DNA
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.
Restrictions:	These cells are distributed for research purposes only. 293 cells, their products, or their derivatives may not be distributed to third parties.
Applications:	efficacy testing [92587] transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents) viruscide testing [92579]
Receptors:	vitronectin, expressed
Tumorigenic:	YES
DNA Profile (STR):	Amelogenin: X CSF1PO: 11,12 D13S317: 12,14 D16S539: 9,13 D5S818: 8,9 D7S820: 11,12 THO1: 7,9.3 TPOX: 11 vWA: 16,19

This is a hypotriploid human cell line. The modal chromosome

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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* (human)
Morphology:	epithelial 
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 (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
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 D7S820: 8,9 THO1: 7,9.3 TPOX: 8,9 vWA: 15,18

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The cell line is aneuploid female (modal number = 64, range = 52 to

Toxin Info

Western

TOXIN USE RISK ASSESSMENT

Name of Toxin:	Cholera toxin
Proposed Use Dose:	0.05 µg
Proposed Storage Dose:	1000 µg
LD_{50} (species):	250 µg

Calculation:

250 µg/kg x 50 kg/person

Dose per person based on LD_{50} in µg = 12500

LD_{50} per person with safety factor of 10 based on LD_{50} in µg = 1250

Comments/Recommendations:

Western

TOXIN USE RISK ASSESSMENT

Name of Toxin:	Pertussis toxin
Proposed Use Dose:	2 µg
Proposed Storage Dose:	50 µg
LD_{50} (species):	114 µg

Calculation:

114 µg/kg x 50 kg/person

Dose per person based on LD_{50} in µg = 5700

LD_{50} per person with safety factor of 10 based on LD_{50} in µg = 570

Comments/Recommendations: