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 Alison Allan
DEPARTMENT	Oncology
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EMERGENCY PHONE NUMBER(S)	(519) 852-9176
EMAIL	Alison.allan@lhsc.on.ca

Location of experimental work to be carried out: Building(s): LRCP, VRL 4th floor; Room(s) A4-114 & A4-909

*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: OICR, CIHR, CFI, Province of Ontario (ERA)
GRANT TITLE(S):
1. Role of ALDH+/CD44+ stem-like cells in breast cancer progression and treatment
2. Circulating tumor cell (CTC) analysis and characterization using novel microfiltration technology and FISH: A correlative biology companion study to the NCIC-CTG Phase II clinical trial IND.205
3. Understanding breast cancer metastasis
4. A laboratory for the investigation of cellular and molecular mechanisms of breast cancer metastasis

List all personnel working under Principal Investigator's supervision in this location:

Name	E-mail Address	Date of Biosafety Training
David Goodale	david.goodale@lhsc.on.ca	May 2006
Alysha Croker	acroker@uwo.ca	September 2006
Lori Lowes	llowes@uwo.ca	September 2008
Jenny Chu	jchu87@uwo.ca	September 2010
Irene Ma	ima@uwo.ca	September 2009
Ying Xia	ying.xia@lhsc.on.ca	September 2007

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

We will be using established, immortalized human cancer cell lines. When the cells are not in culture they will be frozen and stored at either -80°C or -140°C/liquid nitrogen. After the cells are frozen and if any are still growing, they will be bleached out if no longer needed.

We will also be injecting the cells in to mice for experiments as outlined in our approved animal protocols 2008-028, 2009-062 and 2009-064. We also use chemotherapy agents (paclitaxel, doxirubicin and/or cyclophosphamide). All mice will be handled with PPE by animal staff and laboratory staff that will be working with them. Cages will be labeled with cytotoxic stickers to ID them. After the mouse experiments are done the carcasses will be incinerated.

We will need to use cholera toxin to grow one cell line (MCF-10A – see cell info sheet) This cell line requires this toxin in order to grow. We will only order cholera toxin when these cells are growing and keep a limited supply of this item within the lab. It will be disposed of in 10% bleach as it is only in the media required by the cells.

We will be receiving human blood (from cancer patients and normal donors) from the phlebotomy and core labs at LRCP/LHSC Victoria campus to analyze on an instrument called the CellSearch for various clinical and translational research projects. The blood with be handled with PPE and once we are finished with it any remainder will be bleached. The CellSearch instrument has a built-in system to remove and dispose of human blood after it has been used and this instrument has been approved by Health Canada and the US FDA.

Please include a one page research summary or teaching protocol.

Solid cancers such as breast and prostate cancer are leading causes of death in Canada, due mainly to the propensity of these tumors to metastasize to distant organs. To understand and study how these cancer cells behave within the body, we use in vitro and in vivo pre-clinical model systems encompassing cultured human cancer cells, patient blood samples, and mouse models of metastasis.

We currently have several projects that are studying different aspects of human cancer metastasis. These projects involve the study of cellular and molecular determinants of metastasis, including circulating tumor cells (CTCs) and cancer stem cells (CSCs).

For the CSC studies, we trying to understand how these cells behave within the body to contribute to metastasis, as well as how to best treat and/or prevent metastasis by targeting these cells. For the CTC studies, we are working with several clinicians at the LRCP to look for CTCs in patient blood samples. We have a specialized instrument called the CellSearch System that is able to capture and characterize these rare CTCs. These projects include studies in breast cancer, prostate cancer, colorectal cancer, esophageal cancer, and head & neck cancer.

1.0 Microorganisms

1.1 Does your work involve the use of biological agents? YES **X 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 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, 1.1 Yes						O 1 O 2 O 2+ O 3
						O 1 O 2 O 2+ O 3
	O No	O No	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

*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? **XYES** 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 **X No**		Not applicable
Rodent	O Yes **X No**		
Non-human primate	O Yes **X No**		
Other (specify)	O Yes **X 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	**X Yes** O No	See attached sheet	1	ATCC, Asterand
Rodent	**X Yes** O No	4T1	1	ATCC
Non-human primate	O Yes **X No**			
Other (specify)	O Yes **X 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 **X 1** O 2 O 2+ O 3

3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials? **X 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	LRCP/LHSC Labs	O Yes **X Unknown**		O 1 **X 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)		Not Applicable		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? **X YES** O NO If no, please proceed to Section 5.0

4.2 Will genetic modification(s) involving plasmids be done? O 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
NEB 5a competent E.coli	*pcDNA 3.1(+)*	*Invitrogen*	*Human ALDH1a1*	*Increased metastatic capacity of cells in vitro*
NEB 5a competent E.coli	*pcDNA 3.1(+)*	*Invitrogen*	*Human OPN*	*Increased metastatic capacity of cells in vitro and in vivo*

* Please attach a Material Data Sheet or equivalent if available.
** Please attach a plasmid map.

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

4.4 Will genetic sequences from the following be involved?

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

4.5 Will virus be replication defective? O YES O NO

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

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

5.0 Human Gene Therapy Trials

5.1 Will human clinical trials be conducted involving a biological agent? YES **X 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? **X YES** NO If no, pl

See E-mail

6.2 Name of animal species to be used: Mouse

6.3 AUS protocol #s: 2008-028, 2009-062, 2009-064

6.4 Will any of the agents listed in section 4.0 be used in live animals **XYES**, specify: both listed

6.5 Will the agent(s) be shed by the animal: O YES **X NO**, please justify:
Once the transfected cancer cells are placed in the animal, the cells are not shed outside the animal due to the fact the cells cannot survive outside the animal.

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 **X 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 YES** O NO If no, please proceed to Section 9.0

8.2 If YES, please name the toxin(s): Chlorea Toxin

8.3 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: 250ul/kg

8.4 How much of the toxin is handled at one time*? 50 ug

8.5 How much of the toxin is stored*? 0.5 mg

8.6 Will any biological toxins be used in live animals? O YES, Please provide details: **X 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 **X 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 **X 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? O YES, please give country of origin_____ **X NO**
If no, please proceed to Section 12.0

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

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

11.4 Has the import permit been sent to OHS? O YES, please provide permit # _____ O 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 **X 2** O 2+ O 3

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

13.3 Please indicate permit number (not applicable for first time applicants): R-06-000599
(see attached)
Bio-LRCC-0021

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.
PPE will be used for staff such as gloves, labcoat, safety glasses, and a biological hood.

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:

Area will be washed with warm water and soap ASAP and if needed the person will seek medical attention through Occupational Health & Safety, their family doctor, or the ER.

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: 17 August 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: Jane Ryder
Date: Aug. 24, 2011

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

Special Conditions of Approval:

MSDS'

MATERIAL SAFETY DATA SHEET (MSDS)

NEW ENGLAND BioLabs Inc.
New England Biolabs
240 County Road
Ipswich, MA 01938

Telephone: (978) 927-5054
Toll free: (800) 632-5227
Fax: (978) 921-1350
Email: info@neb.com
Revision Date: 9/10

NEB #C2523

SECTION 1–CHEMICAL INFORMATION

Product Name: NEB Express Competent *E. coli* (High Efficiency) Cas.# None

SECTION 2–COMPOSITION/INFORMATION ON INGREDIENT

1.	Glycerol	1–10%	Cas.# 56-81-5
2.	Dimethyl Sulfoxide	1–10%	Cas.# 67-68-5

The ingredients listed in this section include only those items that have more than 1% of a component classified as hazardous and 0.1% of a component classified as carcinogenic. If you have any questions, please contact info@neb.com.

SECTION 3–HAZARDOUS IDENTIFICATION

Emergency Overview: Warning: May cause irritation to skin, eyes, and respiratory tract, may affect kidneys, blood and liver.
HMIS and NFPA Ratings: 0 – Minimal or None, 1 – Slight, 2 – Moderate, 3 – Serious, and 4 – Severe

Health: 1
Flammability: 1
Reactivity: 0

SECTION 4–FIRST AID MEASURES

Eyes: Flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eyelids. Call a physician.
Skin: Wash skin with soap and copious amount of water.
Ingestion: If the person is conscious, wash out mouth with water. Call a physician.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SECTION 5–FIRE FIGHTING MEASURES

Extinguishing Media: Water spray. Carbon dioxide, dry chemical powder or appropriate foam.
Special Fire Fighting Procedures: Wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Fire and Explosion Hazards: Combustible liquid. Emits toxic fumes under fire conditions.

SECTION 6–ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid breathing or contact with vapors, mist or gas.
Procedure of Personal Precaution: Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves and chemical safety goggles. Use non-sparking tools and equipment. Ventilate and evacuate area of leak or spill.
Environmental Precautions: Do not let product enter drains.
Methods For Cleaning Up: Cover with dry lime, sand, or soda ash. Sweep up and shovel. Place in covered container for disposal.

SECTION 7–HANDLING AND STORAGE

Handling: Provide appropriate exhaust ventilation.
User Exposure: Avoid inhalation. Avoid contact with DMSO solutions containing toxic materials or material with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body. Avoid prolonged or repeated exposure.
Storage: Keep tightly closed in a dry and well ventilated place. Store at -20°C .

SECTION 8–EXPOSURE CONTROLS/PPE

Engineering Controls: Safety shower and eye wash. Mechanical exhaust.

Personal Protective Equipment

Eye Protection: Safety goggles.

Hand Protection: Compatible resistant gloves.

Respiratory Protection: Government approved respirator.

Hygiene Measure: General practice, wash (hands and skin) thoroughly after handling. Remove and wash contaminated clothing.

SECTION 9–PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Form: Liquid Color: Clear or colorless Odor: No Data Available

Property	Value	Temperature or Pressure	
Boiling Point Range:		>189°C	
Melting Point Range:		>18.4°C	
Flash Point:		>87°C	Method: Closed cup
Auto Ignition Temp:		>215°C	
Vapor Pressure:	.42 mmHg	20°C	
Vapor Density:	2.7 g/l		
Specific Gravity:	1.1		
Solubility in Water:	Soluble		

SECTION 10–STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Conditions to Avoid: Moisture

Materials to Avoid: Acid chlorides, Phosphorus halides, strong oxidizing agents, strong acids, strong reducing agents.

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Sulfur dioxides.

Hazardous Polymerization: Will not occur.

Hazardous Exothermic Reactions: Hazardous Exothermic Reactions: Methyl sulfoxide (DMSO) undergoes a violent exothermicreaction on mixing with copper wool and trichloroacetic acid. On mixing with potassium permanganate it will flash instantaneously. It reacts violently with: acid halides, cyanuric chloride, silicon tetrachloride, phorphorus trichloride and trioxide, thionyl chloride, magnesium perchlorate, silver flioride, methyl bromide, iodine pentafluoride, nitrogen periodate, diborane, sodium hydride and perchloric and periodic acids. When heated above its boiling point methyl sulfoxide degrades giving off formaldehyde, methyl mercaptan and sulfur dioxide.

SECTION 11–TOXICOLOGICAL INFORMATION

Acute and Chronic Affects Based On Routes Of Exposure

Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific Developmental Abnormalities: Musculoskeletal System

Eye Contact: May cause irritation.

Skin Contact: May cause irritation.

Ingestion: May cause nausea, coughing, headache or diarrhea.

Inhalation: Unlikely at room temperature, inhalation of mist may cause irritation of respiratory tract.

Chronic Exposure

Target Organ(s): May cause kidney and liver damage.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorder or eye problems or impaired liver or kidneys may be more susceptible to the effects of the material.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.

IARC: No component of this product present at levels greater than or equal to 0.1 % is identified as probable, possible or confirmed human carcinogen.

ACGIH: No component of this product present at levels greater than or equal to 0.1 % is identified as a known or suspected human carcinogen or confirmed animal with unknown relevance humans.

Route of Exposure
Skin Absorption: May be harmful if absorbed.
Contact: May cause skin irritation.
Eye Contact: May cause eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.
Conditions Aggravated By Exposure: Avoid contact with DMSO solutions containing toxic materials or material with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body. Avoid prolonged or repeated exposure.

Target Organ (s) or System (s): Eyes and Skin

Toxicity Data

Inhalation
Rat
40,250 ppm
LC50

Oral
Rat
3,300 mg/kg
LD50

Oral
Rat
14,500 mg/kg
LD50

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear and Taste): Eye: Hemorrhage. Sense Organs and Special Senses (Nose, Eye, Ear and Taste): Eye: Conjunctive irritation.

Skin
Rat
40,000 mg/kg
LD50

Intraperitoneal
Rat
8,200 mg/kg
LD50

Subcutaneous
Rat
12 gg/kg
LD50

Remarks: Behavorial: Change in motor activity (specific assay), Lungs, Thorax, or Respiration: Dyspnea.

Intravenous
Rat
5,360 mg /kg
LD50

Remarks: Behavorial: Tremor, Muscle weakness. Lungs, Thorax or Respiration: Dyspnea.

Chronic Exposure - Carcinogen
Species: Rat
Route of Application: Oral
Dose: 59 gm/kg
Exposure Time: 81W
Frequency: I

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria, Skin and Appendages: Other: Tumors.

Species: Rat
Route of Application: Subcutaneous
Dose: 220 gm/kg
Exposure Time: 82W
Frequency I

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria, Skin and Appendages: Other: Tumors.

Chronic Exposure - Mutagen
Species: Rat
Route: Intraperitoneal
Dose: 25 gm/kg
Exposure Time: 5D
Mutation Test: Cytogenetic analysis.

Chronic Exposure - Reproductive Hazard
Species: Rat
Dose: 56 gm/kg
Route of Application: Intraperitoneal
Exposure Time: (6–12D PREG)
Result: Effects on Fertility: Abortion

Species: Rat
Dose: 6,600 mg/kg
Route of Application: Intraperitoneal
Exposure Time: (7–15D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species : Rat
Dose: 30,750 mg/kg
Route of Application: Subcutaneous
Exposure Time: (8–10D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

SECTION 12–ECOLOGICAL INFORMATION

Elimination Information (persistence and degradability): No data available.

Ecotoxicity Effects

Toxicity to fish	LC50-Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h
	LC50-Oncorhynycus mykiss (rainbow trout) - 35,000 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50-Daphnia pulex (water flea) - 27,500 mg/l
Toxicity to algae	EC50 - Lepomis macrochirus (Blue Gill) - > 400,000 mg/l - 96 h

Further Information On Ecology: No data available.

SECTION 13–DISPOSAL CONSIDERATIONS

Dispose of container, unused contents and contaminated packaging in accordance with federal, state and local requirement. Contract with a licensed Chemical Waste Disposal Service.

SECTION 14–TRANSPORT INFORMATION

This product is not dangerous and no special precautions are needed according to DOT, ADR/RID (cross border), IMDG and IATA/ICAO.

SECTION 15–REGULATORY INFORMATION

OSHA Hazards: None known.

US Classification and Label Test

US Statements: Combustible. Readily absorbed through skin. Target Organ (s): Eyes, skin, liver and kidneys. Caution. Avoid contact and inhalation.

United States Regulatory Information:
Sara Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

EU Additional Classification

S: 23 24/25
Safety Statements: Do not breath vapor. Avoid contact with skin and eyes.

SECTION 16–OTHER INFORMATION

DISCLAIMER

The information provided on the MSDS is furnished in good faith and based on our present knowledge. However, this MSDS shall not constitute a guarantee of any kind. Personnel handling this material must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of this material and the safety and health of employees and customers. NEB assumes no additional liability or responsibility resulting from the use of, or reliance on this information. This product is for R&D use only. Not for drug, household or other uses.

Questions about the information found on this MSDS should be directed to info@neb.com.

Allan Lab Human Cell lines

Cell Line Info

Human Breast Cancer lines:

21NT – Not commercial available (No MSDS)
21PT - Not commercial available (No MSDS)
MC7
MDA-MB-231
MDA-MB-435S
MDA-MB-468
SUM 149 PT
SUM 159PT
SUM 1315MO2
T47D
MCF 10a
SKBR3

Human Prostate Cancer lines:

VCap
LNCap

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 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
Cytogenetic Analysis:	modal number = 82; range = 66 to 87. The stemline chromosome numbers ranged from hypertriploidy to hypotetraploidy, with the 2S component occurring at 1%. There were 29 to 34 marker chromosomes per S metaphase; 24 to 28 markers occurred in at least 30% of cells, and generally one large submetacentric (M1) and 3 large subtelocentric (M2, M3, and M4) markers were recognizable in over 80% of metaphases. No DM were detected. Chromosome 20 was nullisomic and X was disomic.
Isoenzymes:	AK-1, 1 ES-D, 1-2 G6PD, B GLO-I, 1-2 PGM1, 1-2 PGM3, 1
Age:	69 years adult
Gender:	female
Ethnicity:	Caucasian
Comments:	The MCF7 line retains several characteristics of differentiated mammary epithelium including ability to process estradiol via cytoplasmic estrogen receptors and the capability of forming domes.The cells express the WNT7B oncogene (PubMed: 8166088). Growth of MCF7 cells is inhibited by tumor necrosis factor alpha (TNF alpha). Secretion of IGFBP's can be modulated by treatment with anti-estrogens.
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: 0.01 mg/ml bovine insulin; fetal bovine serum to a final concentration of 10%

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Product Information Sheet

Cell Biology

ATCC® Number:	**HTB-26™** Order this Item	Price:	**$256.00**
Designations:	MDA-MB-231	Depositors:	R Cailleau
Biosafety Level:	1	Shipped:	frozen
Medium & Serum:	See Propagation	Growth Properties:	adherent epithelial
Organism:	*Homo sapiens* (human)	Morphology:	

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.
	Related Cell Culture Products
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
Cytogenetic Analysis:	The cell line is aneuploid female (modal number = 64, range = 52 to 68), with chromosome counts in the near-triploid range. Normal chromosomes N8 and N15 were absent. Eleven stable rearranged marker chromosomes are noted as well as unassignable chromosomes in addition to the majority of autosomes that are trisomic. Many of the marker chromosomes are identical to those shown in the karyotype reported by K.L. Satya-Prakash, et al.
Isoenzymes:	AK-1, 1 ES-D, 1 G6PD, B GLO-I, 2 Me-2, 1-2 PGM1, 1-2 PGM3, 1

Cell Biology

ATCC® Number:	**HTB-129™** Order this Item	Price:	**$264.00**
Designations:	MDA-MB-435S		
Biosafety Level:	1	Shipped:	frozen
Medium & Serum:	See Propagation	Growth Properties:	adherent
			spindle shaped
Organism:	*Homo sapiens* (human)	Morphology:	PHOTO
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.		

Related Cell Culture Products

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
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 paired chromosomes N3, N15, N17, N20 are noted in markers M1, M2, M15, and M5, respectively.
Isoenzymes:	AK-1, 1 ES-D, 1 G6PD, B GLO-I, 2 PGM1, 2

Cell Biology

ATCC® Number:	HTB-132™ Order this Item	Price:	$264.00
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.

Related Cell Culture Products

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
Cytogenetic Analysis:	modal number = 64; range = 60 to 67. The cell line is aneuploid human, presumably female (X, abnormal X) with most chromosome counts in the hypotriploid range.; Normal chromosomes X, N2, N3, N7, N8, N10, and N22 are clearly under-represented due to their involvement in the formation of the many marker (19) chromosomes present in this cell line.; A normal chromosome N1 (or two) is identified in each karyotype, but, in addition, regions of chromosome N1 are also present in five different marker chromosomes.; Variation is evident in the normal and marker chromosome copy number from karyotype to karyotype.
Isoenzymes:	AK-1, 1 ES-D, 1 G6PD, A GLO-I, 1-2 Me-2, 1-2

SUM149
P78
3/12/2007
Vial 0
CSS
Breast Cancer Line

Sample Search Go

SUM-149PT

Cell Lines
Human Serum
Primary Cells
RNA
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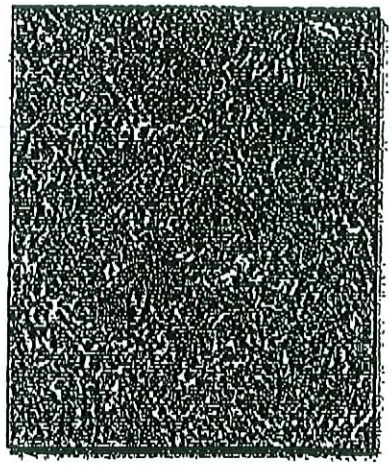

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All of the cell lines available from Asterand were developed in conjunction with different academic institutions. As a result of our agreements with these institutions, we offer academic and

governmental researchers discounted prices.

Description **Additional Information**

Cell Source	Invasive Ductal Carcinoma, Inflammatory
ER/PR Status	ER-/PR-
Culture Media	Ham's F-12 with 5% Fetal Bovine Serum, Insulin and Hydrocortisone added.
Oncogene amplification	None
TGF-beta response	Very sensitive
ERBB receptor status	EGFR ++ (activated) ERBB-2,3 +ve (not activated) ERBB-4 -ve

Browse for more products in the same category as this item:

Cell Lines > Human Breast Cancer
Cell Lines

Cell Line: SUM149PT

Product Description: The SUM149 cell line was developed from Invasive Ductal Carcinoma from a patient with ER negative and PR negative, inflammatory breast cancer. The cell line is immortal and expresses luminal cytokeratins 8, 18, and 19 consistent with their origin from luminal breast epithelial cells. SUM149 has been known to form tumors in nude mice.

Quality control: The cells are grown in antibiotics free medium and monitored for bacterial contamination. The cell cultures are also tested for mycoplasma contamination. One test vial from each lot is thawed and recultured to test for contamination and growth.

Contents and Storage: One vial of 1 x 10^6 cells in freezing media.

Handling: Upon receiving the frozen cells from Asterand, it is essential that the user consult the enclosed data CD for technical advice regarding cell culture and obtain the necessary growth media and supplements before propagating the cells.

Place frozen cells in liquid nitrogen until you are ready to thaw and propagate them. We strongly recommend that you propagate the cells, using the provided procedure, as soon as possible. This will ensure the best cell viability.

The cells are shipped frozen on dry ice. If you notice any damage to the package or the cells are not frozen, please contact us immediately and if possible send us images of the damage or thawed cells. In this case we will replace the cells free of charge.

If any help is needed to grow the cells please call Asterand's customer service at 313-263-0960 and our scientists will help you over the phone to insure the successful growth of your cells.

Required Cell Culture Media:

Component	Stock Concentrations	Final Concentrations	Amount added to 500ml Medium
Ham's F-12	-	-	500ml bottle
Insulin	1mg/ml	5ug/ml	2.5ml
Hydrocortisone	1mg/ml	1ug/ml	500ul
HEPES	1M	10mM	5ml
Fetal Bovine Serum	-	-	25mls

Maintaining the cells:

Reviving the Frozen Cells:

1. Bring the temperature of the culture medium to 37°C
2. Thaw the cells fast (until a small crystal of ice is left) using 37°C water bath, and transfer the cells to a sterile T-25 culture flask containing the above growth medium, and incubate at 37°C humidified tissue culture incubator with 5% CO2 gas supply.
3. Feed the cells three times per week.

Maintain the Cell Culture:

1. Completely change the culture medium the day after initiation and every Monday, Wednesday and Friday thereafter.
2. Subculture the cells when they are 90% confluent. (See Figure 2 below) -
3. Passage the SUM149 cells at a 1:3 split ratio for the first passage and 1:6 thereafter.

Freezing the cells:

1. Harvest the cells at about 90% confluent
2. Determine cell number and viability by using Trypan blue staining.
3. Centrifuge the cells at 1500 rpm for 5 mins at room temperature and resuspend in 1ml of freezing medium (recommend CryoStore CS 5 (Biolife Solutions) per 1x10^6 cells).
4. Using a Mr. Frosty or similar freezing device, the cell vials are placed into a 80°C freezer overnight and then stored long term in vapor phase liquid nitrogen.

Additional Information:

SUM149 cells should not be grown to 100% confluency, as they will start to die off and likely not recover.

breast cancer sell line derived at the univeristy fo Michigan, known as SUM-159PT

SUM159
P38
3/5/2007
Vial 10
CS5
Breast Cancer line

Sample Search

Go

SUM-159PT

Cell Lines
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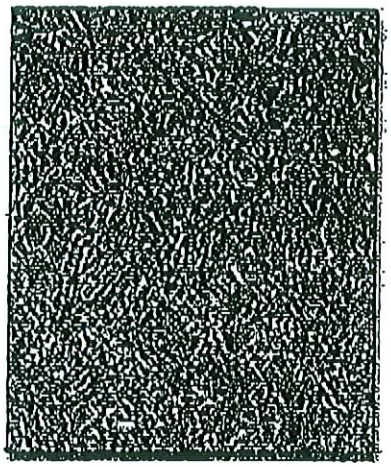

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governmental researchers discounted prices.

Description **Additional Information**

Cell Source	Anaplastic Carcinoma
ER/PR Status	ER-/PR-
Culture Media	Ham's F-12 with 5% Fetal Bovine Serum, Insulin & Hydrocortisone added
Oncogene amplification	C-MYC
TGF-beta response	Very sensitive
ERBB receptor status	EGFR +ve, ERBB-2 +ve

Browse for more products in the same category as this item:

Cell Lines > Human Breast Cancer
Cell Lines

Cell Line: SUM159PT

Product Description: The SUM159 cell line was developed from a primary tumor of a patient with ER negative and PR negative anaplastic carcinoma of the breast. The cell line is immortal and expresses luminal cytokeratins 8, 18, and 19 consistent with their origin from luminal breast epithelial cells. SUM159 has been known to form tumors in nude mice.

Quality control: The cells are grown in antibiotics free medium and monitored for bacterial contamination. The cell cultures are also tested for mycoplasma contamination. One test vial from each lot is thawed and recultured to test for contamination and growth.

Contents and Storage: One vial of 1×10^6 cells in freezing media.

Handling: Upon receiving the frozen cells from Asterand, it is essential that the user consult the enclosed data CD for technical advice regarding cell culture and obtain the necessary growth media and supplements before propagating the cells.

Place frozen cells in liquid nitrogen until you are ready to thaw and propagate them. We strongly recommend that you propagate the cells, using the provided procedure, as soon as possible. This will ensure the best cell viability.

The cells are shipped frozen on dry ice. If you notice any damage to the package or the cells are not frozen, please contact us immediately and if possible send us images of the damage or thawed cells. In this case we will replace the cells free of charge.

If any help is needed to grow the cells please call Asterand's customer service at 313-263-0960 and our scientists will help you over the phone to insure the successful growth of your cells.

Required Cell Culture Media:

Component	Stock Concentrations	Final Concentrations	Amount added to 500ml Medium
Ham's F-12	-	-	500ml bottle
Insulin	1mg/ml	5ug/ml	2.5ml
Hydrocortisone	1mg/ml	1ug/ml	500ul
HEPES	1M	10mM	5ml
Fetal Bovine Serum	-	-	25mls

Maintaining the cells:

Reviving the Frozen Cells:

1. Bring the temperature of the culture medium to 37°C
2. Thaw the cells fast (until a small crystal of ice is left) using 37°C water bath, and transfer the cells to a sterile T-25 culture flask containing the above growth medium, and incubate at 37°C humidified tissue culture incubator with 5% CO2 gas supply.
3. Feed the cells three times per week.

Maintain the Cell Culture:

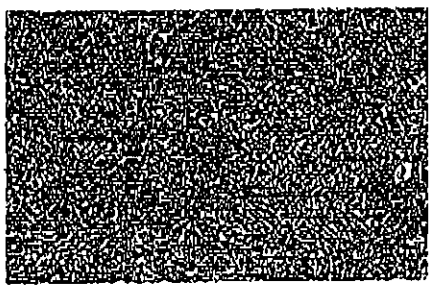
1. Completely change the culture medium the day after initiation and every Monday, Wednesday and Friday thereafter.
2. Subculture the cells when they are 95% confluent.
3. Passage the SUM159 cells at a 1:3 split ratio for the first passage and 1:10 thereafter.

Freezing the cells:

1. Harvest the cells at about 95% confluent
2. Determine cell number and viability by using Trypan blue staining.
3. Centrifuge the cells at 1500 rpm for 5 mins at room temperature and resuspend in 1ml of freezing medium (recommend CryoStore CS 5 (Biolife Solutions) per 1x10^6 cells).
4. Using a Mr. Frosty or similar freezing device, the cell vials are placed into a 80°C freezer overnight and then stored long term in vapor phase liquid nitrogen.

Additional Information:

The SUM159 lines recover easily from freeze/thaw process. They resemble fibroblasts, and tend to reach confluency in 3-5 days.



SUM159 cells in culture

SUM1315 P37 6/1/2006 Vial 6 Cryostor Breast Cancer 1st vial

SUM1315 6/13/2006 39 Vial 1S 2nd vial received 19 Aug 08

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SUM-1315MO2

Cell Lines
Human Serum
Primary Cells
RNA
How to Order
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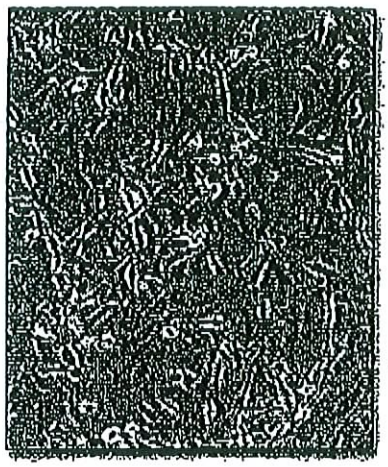

Price
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Your price:
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governmental researchers discounted prices.

Description **Additional Information**

Cell Source	Skin Metastasis ductal carcinoma
ER/PR Status	ER-/PR-
Culture Media	Ham's F-12 with 5% Fetal Bovine Serum, Insulin & Epidermal Growth Factor added
Oncogene amplification	None
TGF-beta response	Moderately sensitive
ERBB receptor status	EGFR +ve. Others not determined

Browse for more products in the same category as this item:

Cell Lines > Human Breast Cancer
Cell Lines

Cell Line: SUM1315MO2

Product Description: The SUM1315 cell line was developed from a xenografted metastatic nodule of a patient with invasive infiltrating ductal carcinoma. The cells are immortal and are negative for estrogen and progesterone receptors and express high levels of Her2 and EGF receptor. They have also been shown to form lung and bone metastases after injection into nude mice.

Quality control: The cells are grown in antibiotics free medium and monitored for bacterial contamination. The cell cultures are also tested for mycoplasma contamination. One test vial from each lot is thawed and recultured to test for contamination.

Contents and Storage: One vial of 1 x 10^6 cells in freezing media.

Handling: Upon receiving the frozen cells from Asterand, it is essential that the user consult the enclosed data CD for technical advice regarding cell culture before propagating the cells.

Place frozen cells in liquid nitrogen until you are ready to thaw and propagate them. We strongly recommend that you propagate the cells, using the provided procedure, as soon as possible. This will ensure the best cell viability.

The cells are shipped frozen on dry ice. If you notice any damage to the package or the cells are not frozen, please contact us immediately and if possible send us images of the damage or thawed cells. In this case we will replace the cells free of charge.

If any help is needed to grow the cells please call Asterand's customer service at 313-263-0960 and our scientists will help you over the phone to insure the successful growth of your cells.

Required Cell Culture Media:

Component	Stock Concentrations	Final Concentrations	Amount added to 500ml Medium
Ham's F-12	-	-	500ml bottle
Insulin	1mg/ml	5ug/ml	2.5ml
EGF	10ug/ml	10ng/ml	500ul
HEPES	1M	10mM	5ml
Fetal Bovine Serum	-	-	25mls

Maintaining the cells:

Reviving the Frozen Cells:

1. Bring the temperature of the culture medium to 37°C
2. Thaw the cells fast (until a small crystal of ice is left) using 37°C water bath, and transfer the cells to a sterile T-25 culture flask containing the above growth medium, and incubate at 37°C humidified tissue culture incubator with 5% CO2 gas supply.
3. Feed the cells three times per week.

Maintain the Cell Culture:

1. Completely change the culture medium the day after initiation and every Monday, Wednesday and Friday thereafter.
2. Subculture the cells when they are 90% confluent. (See Figure 2 below)
3. Passage the SUM1315 cells at a 1:3 split ratio.

Freezing the cells:

1. Harvest the cells at about 90% confluent
2. Determine cell number and viability by using Trypan blue staining.
3. Centrifuge the cells at 1500 rpm for 5 mins at room temperature and resuspend in 1ml of freezing medium (recommend CryoStore CS 5 (Biolife Solutions) per 1x10^6 cells).
4. Using a Mr. Frosty or similar freezing device, the cell vials are placed into a 80°C freezer overnight and then stored long term in vapor phase liquid nitrogen.

Additional Information: The **SUM1315** cells MUST BE grown in 5% FBS media with insulin and epidermal growth factor as described above. The cells may take two or more passages to recover from the thawing process. Because of the size of the cell, about 1.5x10^6 cells can be expected per 1 T-75 flask.

-------- Original Message --------
Subject: Re: Containment Level - SUM cell lines
Date: Wed, 21 Jan 2009 15:30:07 -0500
From: Geneviève Lacroix <genevieve_lacroix@phac-aspc.gc.ca>
To: Jennifer Stanley <jstanle2@uwo.ca>

Dear Ms. Stanley,

These cell lines do not seem to have been transformed with any viruses nor contaminated with risk group 2-4 pathogens. They would most probably be risk group 1. To give you a definite answer I would have to do a risk assessment. When you are ready to import, send your application with all the information you can find on these cell lines (origin, how it was immortalized, is it pathogen free, research articles...).

Regards

Genevieve Lacroix
A/Head, Importation and Biosafety Program/
Chef Intérimaire, Importation et Services de biosécurité
Office of Laboratory Security / Bureau de la 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>
2009-01-21 02:10 PM

To
genevieve_lacroix@phac-aspc.gc.ca
cc

Subject
Containment Level - SUM cell lines

Hello Genevieve:

Can you advise me on the containment level for these cells (ie if we decide to import them)?

Thanks
Jennifer

SUM 149PT:
http://www.asterand.com/Asterand/human_tissues/149PT.htm

SUM159:
http://www.asterand.com/Asterand/human_tissues/159PT.htm

SUM1315MO2:
http://www.asterand.com/Asterand/human_tissues/1315M02.htm

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 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
DNA Profile (STR):	Amelogenin: X CSF1PO: 11,13 D13S317: 12 D16S539: 10 D5S818: 12 D7S820: 11 THO1: 6 TPOX: 11 vWA: 14
Cytogenetic Analysis:	This is a hypotriploid human cell line. The modal chromosome number is 65 occurring at 50% and polyploidy at 0.8%. 18 marker chromosomes are common to most cells, of which 7 are paired and 11 are single-copied. The t(8q14q), t(9q17q), t(10q17p) are among 7 paired markers common to most cells. N7, N9, and N10 are absent and N11 is generally present in 4 copies. DM's occurred, but infrequently. Q-band examination did not show the presence of a Y chromosome.
Isoenzymes:	AK-1, 1 ES-D, 2 G6PD, B GLO-I, 1-2 PGM1, 1 PGM3, 1
Age:	54 years adult
Gender:	female
Comments:	The cells express the WNT7B oncogene [PubMed: 8168088]. The T-47 line was isolated by I. Keydar from a pleural effusion obtained from a 54 year old female patient with an infiltrating ductal carcinoma of the breast. This differentiated epithelial substrain (T-47D) was found to contain cytoplasmic junctions and receptors to 17 beta estradiol, other steroids and calcitonin.
Propagation:	ATCC complete growth medium: The base medium for this cell line is ATCC-formulated RPMI-1640 Medium, Catalog No. 30-2001. To make the complete growth medium, add the following components to the base medium: 0.2 Units/ml bovine insulin; fetal bovine serum to a final concentration of 10%

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Product Information Sheet

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 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:	38 years
Gender:	female
Ethnicity:	Caucasian
Comments:	The MCF 10A cell line is a non-tumorigenic epithelial cell line. [21966] The line was produced by long term culture in serum free medium with low Ca++ concentration. [21966] MCF 10A was derived from adherent cells in the population. [21966] Cells derived from a floating population are available (see MCF 10F, ATCC CRL-10318). [21966] The cells are positive for epithelial sialomucins, cytokeratins and milk fat globule antigen. [21966] They exhibit three dimensional growth in collagen, and form domes in confluent cultures. [21966] Thus far, the cells have shown no signs of terminal differentiation or senescence. The line is responsive to insulin, glucocorticoids, cholera enterotoxin, and epidermal growth factor (EGF). [21966] By electron microscopy the cells display characteristics of luminal ductal cells but not of myoepithelial cells. [23085] They also express breast specific antigens as detected by positive reaction with MFA-Breast and MC-5 monoclonal antibodies. [23085] The calcium content of the medium exerts a strong effect on the morphology of the cells. [22248]
Propagation:	ATCC complete growth medium: The base medium for this cell line (MEBM) along with the additives can be obtained from Lonza/Clonetics Corporation as a kit: MEGM, Kit Catalog No. CC-3150. ATCC does not use the GA-1000 (gentamycin-amphotericin B mix) provided with kit. To make the complete growth medium, you will need to add the following components to the kit (sold separately): - 100 ng/ml cholera toxin Note: Do not filter complete medium Temperature: 37.0°C

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Product Information Sheet

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 Transfection Reagents)
Tumorigenic:	Yes
Antigen Expression:	Blood Type A; Rh+; HLA A11, Bw22(+/-), B40, B18
DNA Profile (STR):	Amelogenin: X CSF1PO: 12 D13S317: 11,12 D16S539: 9 D5S818: 9,12 D7S820: 9,12 THO1: 8,9 TPOX: 8,11 vWA: 17
Cytogenetic Analysis:	This is a hypertriploid human cell line with the modal chromosome number of 84, occurring in 34% of cells. Cells having 80 chromosomes also occurred at a high rate (28%); the higher ploidy cells occurred at 7.3%. This cell line has a very complex chromosome composition. Thirty-five to 40% of chromosomes in a cell complement with a modal chromosome number of 84 consisted of structurally altered marker chromosomes. Several markers are longer than chromosome N1. The origins of most of these markers, however, are not clear. Some markers may have at least three individual chromosome segments. The markers [i.e., 7der(1)t(1;21) (p13;q21) [or 7t(1q21q)], 7del(2) (q13), and t(7ptor—con—?), present in some cells only] were the only ones in which portions of chromosome segments could be identified. Most cells had about three normal X chromosomes and five or more N7. The structurally normal N1, N14 and N17 were generally absent.
Isoenzymes:	AK-1, 1-2 ES-D, 1 G6PD, B GLO-I, 2 PGM1, 1-2 PGM3, 1
Age:	43 years
Gender:	female
Ethnicity:	Caucasian

Related Links

NCBI Entrez Search

Cell Micrograph

Make a Deposit

Frequently Asked Questions

Material Transfer Agreement

Technical Support

Related Cell Culture Products

Login Required

Product Information Sheet

Designations: VCaP

Depositors: KJ Pienta

Biosafety Level: 1

Shipped: frozen

Medium & Serum: Seq Propagation

Growth Properties: adherent

Organism: *Homo sapiens* (human)

Morphology: epithelial

Source: Organ: prostate
Tissue: vertebral metastasis
Disease: cancer
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: 1997

Tumorigenic: Yes

Antigen Expression: cytokeratin-18; Homo sapiens, expressed
p53 antigen; Homo sapiens, expressed
prostate specific antigen (PSA); Homo sapiens, expressed
prostatic acid phosphatase (PAP); Homo sapiens, expressed
Rb protein; Homo sapiens, expressed

DNA Profile (STR): Amelogenin: X,Y
CSF1PO: 10,12
D13S317: 11,12
D16S539: 9
D5S818: 12
D7S820: 9,12
THO1: 9.3
TPOX: 8,11
vWA: 18,19

Age: 59 years

Gender: male

Ethnicity: Caucasian

Comments: This line was established in 1997 from a vertebral bone metastasis from a patient with hormone refractory prostate cancer. It was passaged as xenografts in mice then cultured in vitro. It is androgen sensitive in vitro and in vivo.

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 (CO_2), 5%
Temperature: 37.0°C

Subculturing: Protocol:

1. Remove and discard culture medium.
2. Briefly rinse the cell layer with Hank's Balanced Salt Solution or 0.25% (w/v) Trypsin- 0.53 mM EDTA solution to remove all traces of serum that contains trypsin inhibitor.
3. Add 1.0 to 2.0 ml of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes).
   Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal.
4. Add 6.0 to 8.0 ml of complete growth medium and aspirate cells by gently pipetting.
5. Add appropriate aliquots of the cell suspension to new culture

Related Links

NCBI Entrez Search

Cell Micrograph

Make a Deposit

Frequently Asked Questions

Material Transfer Agreement

Technical Support

Related Cell Culture Products

Login Required

Product Information Sheet

Designations:	LNCaP clone FGC
Depositors:	JS Horoszewicz
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent, single cells and loosely attached clusters
Organism:	*Homo sapiens* (human)
Morphology:	epithelial

Source:	**Organ:** prostate **Disease:** carcinoma **Derived from metastatic site:** left supraclavicular lymph node
Cellular Products:	human prostatic acid phosphatase; prostate specific antigen [21889]
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:	Distribution of this material for commercial purposes will require execution of a Non-exclusive License Agreement. At the time of placing an order, customers must send a request to licensing@ATCC.org. Orders will be shipped when Customer Service receives confirmation from our Licensing officer.
Isolation:	Isolation date: 1977
Applications:	transfection host (Nucleofection technology from Lonza Roche Transfection Reagents)
Receptors:	androgen receptor, positive; estrogen receptor, positive [23045]
Tumorigenic:	Yes
DNA Profile (STR):	Amelogenin: X,Y CSF1PO: 10,11 D13S317: 10,12 D16S539: 11 D5S818: 11,12 D7S820: 9.1,10.3 THO1: 9 TPOX: 8,9 vWA: 16,18
Cytogenetic Analysis:	This is a hypotetraploid human cell line. The modal chromosome number was 84, occurring in 22% of cells. However, cells with chromosome counts of 88 (20%) and 87 (18%) also occurred at high frequencies. The rate of cells with higher ploidies was 6.0%.
Age:	50 years adult
Gender:	male
Ethnicity:	Caucasian
Comments:	LNCaP clone FGC was isolated in 1977 by J.S. Horoszewicz, et al., from a needle aspiration biopsy of the left supraclavicular lymph node of a 50-year-old Caucasian male (blood type B+) with confirmed diagnosis of metastatic prostate carcinoma. [21889] These cells are responsive to 5-alpha-dihydrotestosterone (growth modulation and acid phosphatase production). [23045] The cells do not produce a uniform monolayer, but grow in clusters which should be broken apart by repeated pipetting when subcultures are prepared. They attach only lightly to the substrate, do not become confluent and rapidly acidify the medium. Growth is very slow. The cells should be allowed to incubate undisturbed for the first 48 hours after subculture. When flask cultures are shipped, the majority of the cells become detached from the flask and float in the medium. Upon receipt, incubate the flask (in the usual position for monolayer

Related Links

NCBI Entrez Search

Cell Micrograph

Make a Deposit

Frequently Asked Questions

Material Transfer Agreement

Technical Support

Related Cell Culture Products

Login Required

Product Information Sheet

Cell Biology

ATCC® Number: **CRL-2539™** Order this Item Price: **$279.00**

Designations:	4T1
Depositors:	BA Pulaski
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Mus musculus* (mouse)
Morphology:	epithelial
Source:	**Organ:** mammary gland **Strain:** BALB/cfC3H **Disease:** tumor
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.
Tumorigenic:	Yes
Comments:	4T1 is a 6-thioguanine resistant cell line selected from the 410.4 tumor without mutagen treatment. [49690] When injected into BALB/c mice, 4T1 spontaneously produces highly metastatic tumors that can metastasize to the lung, liver, lymph nodes and brain while the primary tumor is growing in situ. [49688] [49690] The primary tumor does not have to be removed to induce metastatic growth. The tumor growth and metastatic spread of 4T1 cells in BALB/c mice very closely mimic human breast cancer. This tumor is an animal model for stage IV human breast cancer. [49688] [49689] 4T1-induced tumors can be used as a post-operative model as well as a non-surgical model because the 4T1-induced tumor metastasizes spontaneously in both models with similar kinetics. [49687] [49688] [49689] Because 4T1 is resistant to 6-thioquanine, micro-metastatic cells (as few as 1) can be detected in many distant site organs with better accuracy that most tumor models. There is no need to count nodules or weight target organs. [49687] [49688] [49689]
Propagation:	

Related Links
NCBI Entrez Search
Make a Deposit
Frequently Asked Questions
Material Transfer Agreement
Technical Support
Related Cell Culture Products

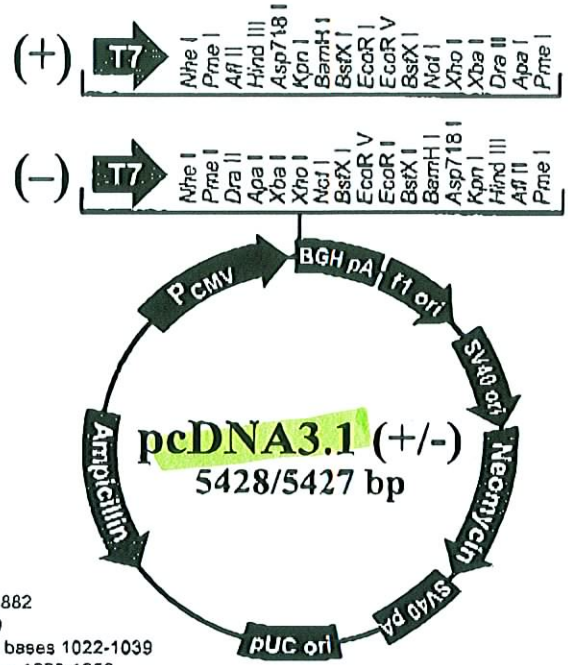
Login Required
Product Information Sheet

Section 4.0

Appendix
pcDNA™3.1 Vectors

Map

The figure below summarizes the features of the pcDNA™3.1(+) and pcDNA™3.1(–) vectors. **The complete sequences for pcDNA™3.1(+) and pcDNA™3.1(–) are available for down-loading from our World Wide Web site (www.invitrogen.com) or from Technical Support (see page 13).** Details of the multiple cloning sites are shown on page 3 for pcDNA™3.1(+) and page 4 for pcDNA™3.1(–).



Comments for pcDNA3.1 (+)
5428 nucleotides

CMV promoter: bases 232-819
T7 promoter/priming site: bases 863-882
Multiple cloning site: bases 895-1010
pcDNA3.1/BGH reverse priming site: bases 1022-1039
BGH polyadenylation sequence: bases 1028-1252
f1 origin: bases 1298-1726
SV40 early promoter and origin: bases 1731-2074
Neomycin resistance gene (ORF): bases 2136-2930
SV40 early polyadenylation signal: bases 3104-3234
pUC origin: bases 3617-4287 (complementary strand)
Ampicillin resistance gene (*bla*): bases 4432-5428 (complementary strand)
ORF: bases 4432-5292 (complementary strand)
Ribosome binding site: bases 5300-5304 (complementary strand)
bla promoter (P3): bases 5327-5333 (complementary strand)

continued on next page

invitrogen™ **Material Safety Data Sheet** **Revision Date:** 29-Apr-2010

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product code 350484
Product name pcDNA3.1/(+)

Company/Undertaking Identification

INVITROGEN CORPORATON
5791 VAN ALLEN WAY
PO BOX 6482
CARLSBAD, CA 92008
760-603-7200

INVITROGEN CORPORATION
5250 MAINWAY DRIVE
BURLINGTON, ONT
CANADA L7L 6A4
800-263-6236

GIBCO PRODUCTS
INVITROGEN CORPORATION
3175 STALEY ROAD P.O. BOX 68
GRAND ISLAND, NY 14072
716-774-6700

24 hour Emergency Response (Transport): 866-536-0631
301-431-8585
Outside of the U.S. ++1-301-431-8585

For research use only

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous/Non-hazardous Components
The product contains no substances which at their given concentration, are considered to be hazardous to health. We recommend handling all chemicals with caution.

3. HAZARDS IDENTIFICATION

Emergency Overview
The product contains no substances which at their given concentration, are considered to be hazardous to health

3. HAZARDS IDENTIFICATION

Form
Liquid

Principle Routes of Exposure/ Potential Health effects

Eyes	No information available
Skin	No information available
Inhalation	No information available
Ingestion	May be harmful if swallowed.

Specific effects

Carcinogenic effects	No information available
Mutagenic effects	No information available
Reproductive toxicity	No information available
Sensitization	No information available

Target Organ Effects No information available

HMIS

Health	0
Flammability	0
Reactivity	0

4. FIRST AID MEASURES

Skin contact	Wash off immediately with plenty of water. If symptoms persist, call a physician.
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.
Ingestion	Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
Inhalation	Move to fresh air. If symptoms persist, call a physician.
Notes to physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Dry chemical
Special protective equipment for firefighters	Wear self-contained breathing apparatus and protective suit

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Use personal protective equipment
Methods for cleaning up	Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Handling	No special handling advice required
Storage	Keep in properly labelled containers

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls

Exposure limits

Engineering measures Ensure adequate ventilation, especially in confined areas

Personal protective equipment

Respiratory Protection In case of insufficient ventilation wear suitable respiratory equipment

Hand protection	Protective gloves
Eye protection	Safety glasses with side-shields
Skin and body protection	Lightweight protective clothing.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice
Environmental exposure controls	Prevent product from entering drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Form Liquid

Important Health Safety and Environmental Information

Boiling point/range	°C No data available	°F No data available
Melting point/range	°C No data available	°F No data available
Flash point	°C No data available	°F No data available
Autoignition temperature	°C No data available	°F No data available
Oxidizing properties	No information available	
Water solubility	No data available	

10. STABILITY AND REACTIVITY

Stability	Stable.
Materials to avoid	No information available
Hazardous decomposition products	No information available
Polymerization	Hazardous polymerisation does not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Principle Routes of Exposure/ Potential Health effects

Eyes	No information available
Skin	No information available
Inhalation	No information available

Ingestion	May be harmful if swallowed.

Specific effects **(Long Term Effects)**

Carcinogenic effects	No information available
Mutagenic effects	No information available
Reproductive toxicity	No information available
Sensitization	No information available

Target Organ Effects No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity effects	No information available.
Mobility	No information available.
Biodegradation	Inherently biodegradable.
Bioaccumulation	Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations

14. TRANSPORT INFORMATION

IATA

Proper shipping name	Not classified as dangerous in the meaning of transport regulations
Hazard Class	No information available
Subsidiary Class	No information available
Packing group	No information available
UN-No	No information available

15. REGULATORY INFORMATION

International Inventories

U.S. Federal Regulations

SARA 313
This product is not regulated by SARA.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contains HAPs.

U.S. State Regulations

California Proposition 65
This product does not contain chemicals listed under Proposition 65

WHMIS hazard class:
Non-controlled

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

16. OTHER INFORMATION

For research use only

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS MSDS DOES NOT CONSTITUTE A WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

End of Safety Data Sheet

Info on Toxin(s)

SIGMA-ALDRICH

sigma-aldrich.com

Material Safety Data Sheet

Version 4.2
Revision Date 11/05/2010
Print Date 08/17/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Cholera Toxin Vibrio cholerae

Product Number : C8052
Brand : Sigma
Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

Telephone : +1 9058299500
Fax : +1 9058299292
Emergency Phone # (For both supplier and manufacturer) : 1-800-424-9300
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Bowel

WHMIS Classification

D2B Toxic Material Causing Other Toxic Effects — Moderate skin irritant; Moderate eye irritant

GHS Classification

Acute toxicity, Oral (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Warning

Hazard statement(s)

H303	May be harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard: 2

Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin Harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Cholera enterotoxin
Cholergen

CAS-No.	EC-No.	Index-No.	Concentration
Tris (hydroxymethyl) aminomethane			
77-86-1	201-064-4	-	>= 5.82 - <= 5.94 %
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride			
1185-53-1	214-684-5	-	>= 31.3 - <= 31.9 %
Sodium chloride			
7647-14-5	231-598-3	-	>= 57.6 - <= 58.8 %
Exotoxin, vibrio cholerae			
9012-63-9	-	-	>= 0.5 - <= 2.5 %
Edetate disodium dihydrate			
6381-92-6	205-358-3	-	>= 0.96 - <= 0.98 %

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

Explosion data - sensitivity to mechanical impact
no data available

Explosion data - sensitivity to static discharge
no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Specific engineering controls
Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid
Colour	no data available

Safety data

pH	no data available
Melting/freezing	no data available

point	
Boiling point	no data available
Flash point	no data available
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Dimethyl sulfate, Acid chlorides, Halogenated hydrocarbon, Metals, Acids

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

DSL Status
This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
Exotoxin, vibrio cholerae	9012-63-9

WHMIS Classification

D2B	Toxic Material Causing Other Toxic Effects	Moderate skin irritant Moderate eye irritant

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Western

TOXIN USE RISK ASSESSMENT

Name of Toxin:	Cholera
Proposed Use Dose:	50 µg
Proposed Storage Dose:	500 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:

Assume density of cholera is 1 g/mL.

Section 11 → Import + 13

Public Health Agency of Canada / Agence de la santé publique du Canada

Containment Level 2 Physical and Operational Requirements
Biosafety Guidelines, 3rd Edition, 2004

Facility Information

Office use only
File # :

Human Pathogens and Toxins Act (HPTA) Registration Number*:

R-06-000599

Facility Name:

Cancer Research Laboratory Program, London Health Sciences Centre

Room number(s) or name(s) where pathogen(s) will be manipulated and/or stored:

A4-114, A4-116, A4-128, A4-822, A4-824, A4-826, A4-903, A4-908, A4-910

Laboratory Physical Address (Not a Post Office Box):

London Regional Cancer Program
London Health Sciences Centre
790 Commissioners Road East

City:

London

Province:

Ontario

Postal Code:

N6A 4L6

Mailing Address: Same as Laboratory Physical Address ☒

City:

Province:

Postal Code:

Type of Facility

☐Government (Federal) ☒University ☐Private ☐Government (Provincial) ☒ Hospital ☐ Other

Program Intent – Brief description of the type of work and program objectives (research, diagnostic, production).

Basic research involving the following: use of cloning vectors and mammalian cell lines; ranslational cancer research using human tumour specimens; growth of human adenovirus in human tumour cell lines; transfection of human tumour cell lines using lentivirus system; growth of lentivirus-transfected cell lines.

Scale/Volume

☒Laboratory ☐Large Scale ☐ Other _____

Comments

The certified rooms are tissue culture rooms.

Pathogens used and/or stored

Affecting humans : ☒ Yes ☐ No Affecting animals/fish: ☐ Yes ☒ No

Comments

*Your Human Pathogens and Toxins Act (HPTA) Registration Number is available on your HPTA Registration Letter. Consult your Biosafety Officer for further information.

Containment Level 2 Checklist

Adenoviruses are ubiquitously found agents that can infect humans of all ages. The infection is generally of limited symptoms, but can be dangerous in immunocompromised patients. Lentivirus is used to transfect expression vectors into cell lines. The virus does incorporate into the genome of infected cells, requiring caution with its use. However, the transformed cells do not produce or shed virus. The use of lentivirus is confined to room A4-822, and use is limited to personnel trained in the use of this virus.

Public Health Agency of Canada / Agence de la santé publique du Canada

Canada

Containment Level 2 Checklist

List of pathogens: (species and subtypes where applicable)

mycoplasma pneumoniae; lentivirus; adenovirus

Use of Animals: ☐ Yes ☒ No

Species and Quantity:	

Contact Information

Facility Supervisor (main contact†)

Name: Dr. James Koropatnick

Title: Professor

Department: Physiol. & Pharmacol., Micro. & Immuno., Oncol.

Address: Room A4-107, LRCP-LHSC, 790 Commissioners Road E., London, N6A 4L6

Telephone: 519-685-8600 Ext 58654

Fax: 519-685-8616

Email: jkoropat@uwo.ca

Language Preference: ☒ English ☐ French

Other Comments:

Signature: J James Koropatnick Date: Dec. 10, 2010

Biosafety Officer (or equivalent)

Same as Facility Supervisor ☐

Name: Gail Ryder

Title: Biosafety Officer

Department: Lawson Health Research Institute - LHSC

Address: Room A210, NR, 375 South St., LHSC-SS, London, N6A 4G5

Telephone: 519-685-8600 Ext 75109

Fax: 519-432-7367

Email: Gail.Ryder@LawsonResearch.com

Language Preference: ☒ English ☐ French

Other Comments:

Signature: Gail Ryder Date: Dec 10, 2010

Compliance letters should be sent‡ to (select only one option): ☒ Main Contact; ☒ Biosafety Officer

† Note: compliance letters will be issued in the name of the Main Contact entered on this page.

‡ Note: compliance letters can be sent to either the Main Contact or the Biosafety Officer. If left blank or if both options are selected, the documents will be sent, by default, to the Main Contact.

------- Original Message --------
Subject: Re: Biological Agents Registry Form (Allan)
Date: Fri, 26 Aug 2011 15:19:43 -0400
From: Alison Allan <Alison.Allan@lhsc.on.ca>
To:jstanle2@uwo.ca

E-mail

Hi Jennifer--

Thanks for your email. I have indicated answers to your questions below. Let me know if you need any further information.

regards,
Alison

>>> Jennifer Stanley 08/26/11 3:07 PM >>>
Hi Dr. Allan

I received your form today. I have a couple of questions:

Table 4.2 - Do you have any information, such as an MSDS, on the NEB 5a competent E. coli? Where do you get it from?
Please see attached for the MSDS sheet. The E.coli were obtained from New England Biolabs (NEB)

Question 6.4 - what cell line(s) do you inject into mice (it says "both listed")
The two cell lines that were injected were the two transfected ones listed in the table (MDA-MB-468/pcDNA3.1 and MDA-MB-468/OPN)

I noticed that you had a PHAC checklist attached, dated December 2010. It was in Dr. Koropatnick's name so I guess it was included because you share a lab with him???
1. Was the compliance letter received?
2. I gather than the Koropatnick lab (not your lab) uses adenovirus and lentivirus?
3. Normally PHAC checklists are done to get an import permit . I gather that the Koropatnick lab (not your lab) was importing items - as Section 11.0 was NO on your form.
I work in the open concept lab space on the 4th floor of the Victoria Research Labs, along with 7 other scientists.
Dr. Koropatnick (as Director of the Cancer Research Laboratories) is responsible for the space, that is why the permit is in his name.
We do not work with adenovirus or lentivirus, although several other scientists in the space do.
You will have to check with Gail Ryder with regards to the compliance letter.

Have a great weekend.

Regards,
Jennifer