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	Kim, Sung Ouk
DEPARTMENT	Microbiology and Immunology
ADDRESS	Siebens-Drake Research Institute, Rm119, 1400 Western Road, London, ON
PHONE NUMBER	519-850-2961
EMERGENCY PHONE NUMBER(S)	519-520-9546
EMAIL	sung.kim@schulich.uwo.ca

Location of experimental work to be carried out: Building(s) Siebens-Drake Research Institute, Room(s): 119

*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 and NSERC

GRANT TITLE(S): Investigating the mechanisms of Nod-like receptor-induced cytokine release and cell death in macrophages (CIHR) and Investigating immunomodulating mechanism of probiotics (NSERC)

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

Name	UWO E-mail Address	Date of Biosafety Training
Soon-Duck Ha	Sha3@uwo.ca	2005
SangWook Park	Spark367@uwo.ca	April, 2009
Shahab Meshkibaf	smeshkib@uwo.ca	May, 2011
Chaeyoung Han	Chan45@uwo.ca	May, 2011
Macon Coleman	mcolem4@uwo.ca	July, 2011

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.

1) Microbes
List of microbes: *Salmonella Typhimurium* SL1344 and *Salmonella* Pahtogenicity Island (PSI) I and/or II deleted mutants (obtained form Dr. Coombes, McMaster University), *Pseudomona aeruginosa* PA103 wild-type and ExoU mutant strain (obtained from Dr. Kazmierczak, Yale University), Bacteria expressing PA (E. coli-BL21) and LF (Bacillus megaterium), *E. coli* and *Lactobacillus rhamnosus* and retroviruses (prepared by infecting packaging cells with retroviral expression vectors; all viruses prepared are incompetent viruses)

Use of microbes: All the microbes will be stored as frozen stocks in a -80 °C ultra-freezer which is located in lock-secured Room 119, SDRI. Microbes will be thawed out and prepared in liquid media or plates in the least amount required for a specific experiments. Unused or left-over microbes in liquid will be killed by bleach before being disposed as regular liquid waste. Plates will be autoclaved and disposed by regular solid waste. Live or heat-killed microbes will be exposed to cells such as primary or immortalized macrophages, dendritic cells or other cell lines to activate cells. All the cells exposed to bacterial will be autoclaved. Live or heat killed bacteria will be injected or orally administered to mice. Mice will be euthanized by CO2 and incinerated. All beddings will be autoclaved before being disposed as regular waste.

2) Substances
List of substances: Lethal toxin (Protective antigen and Lethal factor; purified in our lab), purified/synthetic bacterial components including LPS (lipopolysaccharide), lipoproteins, peptidoglycans and flagelin (purchased commercially).
Use of substances: All the substances will be stored as frozen stocks in a -80 °C ultra-freezer which is located in lock-secured Room 119, SDRI. Substances will be thawed out and diluted into proper doses to treat cells. Unused or left-over substances will be inactivated by bleach before being disposed as regular liquid waste. The substances will be exposed to various primary or immortalized cell lines. All the cells exposed to the substances will be exposed to bleach before be disposed as regular liquid waste. The substances will be injected or orally administered to mice. Mice will be euthanized by CO2 and incinerated. All beddings will be autoclaved before being disposed as regular waste.

3) Plasmids:
List of plasmids: retrovial expression vectors (pBaBe, pFLX, pLNCX2, pWHJ2, pCI-VSVG, pCPREnv), mammalian expression vectors (including pRK5-HA-Ubiquitin-K48R and pRK-HA-Ubiquitin-K48, from Addgene, Cambridge, MA; pEGFP, pcDNA3)
Use of plasmid: All plasmids will be stored in -20 or -80°C freezers. Plasmids will be used to transfect mammalian cells or cell lines to express or examine their localization, interaction and function. All cells exposed to plasmid will be disposed as described above and all the plasmids left-over will be bleach inactivated if not being used.

Changes to this page

Please include a one page research summ

Macrophages are key cells of the innate immune system that engulf and kill invading pathogens. In addition, macrophages respond to infection by releasing inflammatory cytokines and act as antigen-presenting cells to T lymphocytes to initiate adaptive immune responses. Thus, it is not surprising that many bacterial pathogens actively secrete toxins and other effectors that target macrophages. A family of intracellular innate immune receptors termed the nucleotide-binding domain and leucine-rich repeats (NLRs) plays a pivotal role in the detection of microbial components in the cytoplasm of host cells. Activation of NLRs leads to secretion of key proinflammatory cytokines (e.g. interleukin (IL)-1β and IL-18), but at the same time NLR activation can also induce macrophage cell death. Macrophage cell death mediated by NLR signaling upon engagement of NLRs with diverse bacterial pathogens is emerging as a common theme in bacterial pathogenesis. However, the mechanism and signaling events leading to NLR-induced macrophage death and the pathophysiological role of this process in infection remain largely unknown.

Understanding how macrophages respond to bacterial infection and/or bacterial products is a major area of focus in our laboratory. We have discovered that the lysosome-associated proteins, Laptm5 (lysosomal-associated multi-membrane spanning protein) and cathepsin B, and the mitochondria-associated proteins Bnip3 (mitochondrial proteins Bcl-2/adenovirus E1B 19 kDa-interacting protein 3) and Bnip3L (Bnip3-like) are involved in NLR-induced IL-1β release and cell death. Based on the above and also on a body of strong preliminary data, we hypothesize that (i) NLR-mediated cell death targets lysosomal and mitochondrial membrane proteins, which are critical to maintain macrophage cell homeostasis and prevent cell death; and (ii) NLR-dependent pathogen-mediated macrophage cell death is relevant for pathogenesis in vivo. To address these hypotheses, we propose three specific objectives:

1) To elucidate the role of lysosomal membrane destabilization, cathepsin B, and Laptm5 in IL-1ß release and cell death.
2) To assess the role of mitochondrial dysfunction mediated by Bnip3 and Bnip3L in cell death.
3) To investigate the role of NLR-induced cytokine release and macrophage death in the pathogenesis of Salmonella enterocolitis
We believe this research will help elucidate key processes taking place after a pathogen engages host cells of the innate immune system, and may uncover alternative targets for the design of novel therapeutic tools to treat infectious and inflammatory diseases.

Probiotics are 'living micro-organisms that when administered in adequate amounts confer a health benefit to the host'. An increasing number of studies provide scientific evidence for the efficacy and efficiency of probiotics in alleviating several inflammatory diseases. However, the specific mechanisms by which probiotic bacteria contribute to health, and, especially, their anti-inflammatory properties remain poorly understood. This research program is to investigate the signaling and molecular immunomodulatory mechanisms of probiotics. We have shown that probiotic strains of Lactobacillus rhamnosus are potent inducers of G-CSF production, which suppresses production of the pro-inflammatory cytokine tumor necrosis factor (TNF) in activated macrophages. We hypothesize that L. rhamnosus preferentially induces G-CSF in monocytes/macrophages, which is a key anti-inflammatory cytokine mediating immunomodulatory effects on macrophages and dendritic cells. To address the hypothesis, we propose the following four specific research objectives: 1) Investigating the signaling mechanism of G-CSF production in L. rhamnosus-activated macrophages, 2) Investigating the effect of G-CSF on macrophages, 3) Investigating the mechanism of G-CSF in regulating macrophage activation and 4) Investigating the role of G-CSF on dendritic cells.
This research program will provide information about the ill-defined mechanisms of the immunomodulatory effects elicited by probiotics. The immunomodulatory role of G-CSF in dendritic cells and T cells is an emerging concept and its detailed mechanism remains to be delineated. This research program will also reveal the signaling mechanism by which G-CSF induces immunomodulation in both macrophages and dendritic cells. Within five years, we will have not only significantly advanced an important immunological field, but also revealed key mechanisms involved in probiotic function. Our research will also help designing new probiotic products to better induce anti-inflammatory effects, which ultimately may benefit the growing number of people with inflammatory diseases.

Changes to Summary

1.0 Microorganisms

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

Do you use microorganisms that require a permit from the CFIA? Yes
If YES, please give the name of the species. Bacillus anthracis sterne strains, Salmonella typhimurium, Pseudomonas aaeruogenosa, E. coli

What is the origin of the microorganism(s)? soil or human

Please describe the risk (if any) of escape and how this will be mitigated:
_____None_____
_____
_____
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
Bacillus anthracis sterne	O Yes	O Yes	O Yes	10 ml	Dr. S. Stibitz, FDA, USA	2
Salmonella typhimurium	O Yes	O Yes	O Yes	10 ml	Dr. Brian Coombs, McMaster University	2
Pseudomonas aeurogenosa	O Yes	O Yes	O Yes	10 ml	Dr. Kazmeirczak, Yale University	2
Escherichia coli (GR-12, DH5 alpha, HB101, 1212, 1214, AD110, J96, Nissle 1917)	O Yes	O Yes	O Yes	4 L	Dr. Gregor Reid, John McCormicks, David Heinrichs at UWO	1
Lactobacillus rhamnosus	No	No	No	10 ml	Dr. Gregor Reid; UWO	1

*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? YES
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	Yes	Peripheral blood	Not applicable
Rodent	Yes	Intestine, peritoneum, peripheral blood, bone marrow, spleen	2008-023 2010-222 2009-015
Non-human primate	No		
Other (specify)	No		

Changes to table 1.2

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	O Yes	THP-1, HEK293, HepG2, Caco2, U937, NPC-1, fibroblast	II	ATCC
Rodent	O Yes	RAW264.7 CHO, L929	II	ATCC
Non-human primate	O No			
Other (specify)	O 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 O 2

3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials? O YES
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	volunteers	O Unknown		O 2
Human Blood (fraction) or other Body Fluid	volunteer	O Unknown		O 2
Human Organs or Tissues (unpreserved)	N/A	O Yes O Unknown		O 1 O 2 O 2+ O 3
Human Organs or Tissues (preserved)	N/A	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? Yes 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
E. coli DH5a	*pcDNA3, pEGFP,*	*In vitrogen, clonetech*	*Many genes*	*Over-expression of proteins, fusion proteins or truncated gene products.*

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

Changes to 4.1 and 4.2

4.3 Will genetic modification(s) of bacteria and/or cells involving vi
Yes, complete table below

Virus Used for Vector Construction	Vector(s) *	Source of Vector	Gene(s) Transduced	Describe the change that results from transduction
Retrovirus	*pDisrupt (pBabe viral vector backbone)*	*Dr. J. Han, Scripps Research Inst. La Jolla, CA, USA*	*Random gene disruption.*	*Unknown; random disruption for phenotype screening*

* Please attach a Material Safety Data Sheet or equivalent.

4.4 Will genetic sequences from the following be involved?

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

4.5 Will virus be replication defective? YES

4.6 Will virus be infectious to humans or animals? NO

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

5.0 Human Gene Therapy Trials

5.1 Will human clinical trials be conducted involving a biological agent? NO
(including but not limited to microorganisms, viruses, prions, parasites or pathogens of plant o n)
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? YES If no, please proceed to section 7.0

6.2 Name of animal species to be used_____mouse_____

6.3 AUS protocol # _____2009-015, 2010-266_____

6.4 Will any of the agents listed in section 4.0 be used in live animals YES, specify: S. typhimurium; E. coli; L. rhamnosus

6.5 Will the agent(s) be shed by the animal: O YES _____

_____

Changes to 4.3

C1A

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 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? YES If no, please proceed to Section 9.0

8.2 If YES, please name the toxin(s): protective antigen factor, lethal factor

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: unknown; estimated 100 µg per 20 g mouse

8.4 How much of the toxin is handled at one time*? ~ 5 µg of each

8.5 How much of the toxin is stored*? Up to 1 mg at a time (of each)

8.6 Will any biological toxins be used in live animals? O 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 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 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? Yes

If no, please proceed to Section 12.0

11.2 Has an Import Permit been obtained from HC for human pathogens? YES

11.3 Has an import permit been obtained from CFIA for animal or plant pathogens? YES # A-2006-03171-4, 2007-00733-4, A-2006-00856-4,

11.4 Has the import permit been sent to 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 2

13.2 Has the facility been certified by OHS for this level of containment?
O YES, date of most recent biosafety inspection: 2010

13.3 Please indicate permit number (not applicable for first time applicants): BIO-UWO-0147

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.
_____None_____
_____
_____

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:

i) Wash or decontaminate if possible. ii) take him/her to hospital
_____

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:

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:

-------- Original Message --------
Subject: Re: Biological Agents Registry Form: Dr. S.O. Kim
Date: Tue, 13 Mar 2012 11:48:40 -0400
From: Sung Kim <Sung.Kim@schulich.uwo.ca>
To: Jennifer Stanley <jstanle2@uwo.ca>

Hi Jennifer,
Below was your request to address and my responses. **By the way, it was not identical. I will further correct it as you reqested on Nov 4th. 2011. Let me know if I need to address other issues than those below. Please bear in mind that many details on the experimental protocols will vary from time to time. I will give you more extensive details. When do you want it done by? I will be busy this week and will be away for the following 2 weeks.**

SK

>>> Jennifer Stanley <jstanle2@uwo.ca> 11/4/2011 7:26 pm >>>

Hi there -

Please address the following questions:

The personnel list needs to be updated as there are inaccuracies. **Is it inaccurate? Let me know, please...**

The explanation of the use of biological agents is too brief. **I am not sure how much details are required. I will expand further.** The location (SDRI) needs to be spelled correctly. **Do you mean by "SDIR" instead of "SDRI". I will correct it. Let me know if you meant something else.**

The Committee is unsure whether a CFIA permit is required for *Pseudomonas aeruginosa* and *Salmonella* (Section 11)??? **It was not required to import P. aeruginosa from US. I am not sure about Salmonella, since I got them from McMaster Univ. Should I find it out?**

In Section 1.2 the names should be spelled correctly and *E. coli* should be marked as Level 1. **Do you mean by P. aeruginosa? I will correct it. Please, let me know if you meant something else. E. coli was marked as Level 1 before...**

In Section 3.2 the containment level should be Level 2. **It was labelled as Level 2.**

In Section 4.4 E1A use should be marked yes. **As far as I know, we do not use E1A. However, I added other oncogenes: c-ras and c-raf in the revised one.**

The toxin subunits used are not consistent throughout the form and should be clarified. **Lethal toxin (LeTx) comprises with lethal factor (LF) and protective antigen (PA). Sometimes "LF" is appropriate rather than "LeTx". Do you want me to spell out the toxins? I will do that for the next revision.....**

FOR THE MTA - PLEASE ALSO ADD THE PLASMIDS TO TABLE 4.1

Regards
Jennifer

------- Original Message --------
Subject: Re: Containment Level request
Date: Mon, 08 Aug 2011 10:04:01 -0400
From: Permit-Permis <permitpermis@phac-aspc.gc.ca>
To: Jennifer Stanley <jstanle2@uwo.ca>

Good morning Jennifer Stanley,

Bacillus anthracis sterne strain is a Risk Group 2 organism. Please note that a detailed Risk Assessment should be conducted to determine the Containment Level under which work must be performed as well as the operational practices to be followed. The Containment Level required for work with a particular agent is based on the manipulations generally associated with laboratory scale research and clinical procedures. The recommended Risk Group of the organism can be used as a starting point for determining the appropriate Containment Level, after which the following factors associated with laboratory operations should be examined: potential for aerosol generation, quantity, concentration, agent stability in the environment, type of work proposed, and use of recombinant organisms. Please refer to Chapter 2.3 of the *Laboratory Biosafety Guidelines, 3rd Edition (2004)* for more information.

Should you require additional information, please do not hesitate to contact our office directly at (613) 957-1779 or by email at permitpermis@phac-aspc.gc.ca

Regards,

Maria Lymberopoulos
Biosafety Inspector
Pathogen Regulation Directorate / Direction de la réglementation des agents pathogènes
Public Health Agency of Canada/ Agence de santé publique du Canada
100 ch. Colonnade Rd. AL: 6201A Ottawa, Ontario, Canada, K1A 0K9
Tel: (613) 957-1779/ Fax: (613)941-0596
http://www.phac-aspc.gc.ca/lab-bio/index-eng.php

The Pathogen Regulation Directorate turnaround time from receipt of a complete application or checklist to permit or compliance letter is on the order of 20 business days.

Canadian Food Inspection Agency
Government of Canada

Agence canadienne d'inspection des aliments
Gouvernement du Canada

Permit No./N° de permis:
A-2007-00733-4
ORIGINAL
2007/03/08
year/mo/day
année/mois/jour

IMPORT PERMIT PERMIS D'IMPORTATION

THIS PERMIT IS ISSUED PURSUANT TO:/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE HEALTH OF ANIMALS ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA SANTÉ DES ANIMAUX

Importer/Importateur	Exporter/Exportateur
UNIVERSITY OF WESTERN ONTARIO SIBENS-DRAKE RESEARCH INSTITUTE (SDRI) 1400 WESTERN ROAD, ROOM 119 LONDON, ONTARIO N6G2V4 Contact: Dr. Sung O. Kim Applicant Name: DR. SUNG O. KIM Phone: (519) 850-2961 Fax: (519) 661-2046	FOOD AND DRUG ADMINSTRATION 880 ROCKVILLE PIKE BETHESDA MARYLAND UNITED STATES 20892 Contact: Dr. Scott Stibitz Phone: (301) 827-5156 Fax. (301) 402-2776
Quarantine/Destination/Quarantaine	**Producer/Producteur**
Valid/Valide from/du 2007/03/08 year/month/day année/mois/jour **to/au** 2008/03/31 year/month/day année/mois/jour	**Country of Origin/ Pays d'Origine** UNITED STATES

For the entry of/ Pour l'entrée de: ____ Single shipment/Chargement simple XX Multiple shipments/Chargements multiples

Place of entry into Canada/Lieu d'entrée au Canada:
Toronto

FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:
(Description of things(s)/Description de la ou des choses)
1. Product Description: BACILLUS ANTHRACIS STERNE STRAIN 7702 AND MUTANT STERNE STRAINS BA690, BA695 & BA723

(TO BE USED IN ROOM 119, SDRI, UNIVERSITY OF WESTERN ONTARIO, LONDON, ON.) Proposed End Use: "In Vitro" Scientific Name:
Biocontainment Level: 2

A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS

Selected Conditions / Conditions Choisies

BACILLUS ANTHRACIS STERNE STRAIN 7702 AND MUTANT STERNE STRAINS BA690, BA695 & BA723.

(TO BE USED IN ROOM 119, SDRI, UNIVERSITY OF WESTERN ONTARIO, LONDON, ON.)

1. The original or a copy of the signed original of this permit and any other necessary import / export documentation pertaining to the shipment of animal(s) or thing(s) must be provided for inspection at the first port of entry or to a Canadian Food Inspection Agency Import Service Center.

2. The conditions in this permit can only be changed or amended by a CFIA inspector. Any change to the permit by an unauthorized person will render the permit invalid.

3. The imported material must be packaged in appropriate shipping containers to prevent accidental spillage of contents during shipping. Importers should be aware of their obligations under Transport Canada's regulations concerning transportation of dangerous goods.

Canada

Canadian Food Inspection Agency
Government of Canada

Agence canadienne d'inspection des aliments
Gouvernement du Canada

Permit No./N° de permis:
A-2006-03171-4
ORIGINAL
2006/12/07
year/mo/day
année/mois/jour

IMPORT PERMIT PERMIS D'IMPORTATION

THIS PERMIT IS ISSUED PURSUANT TO:/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE HEALTH OF ANIMALS ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA SANTÉ DES ANIMAUX

Importer/Importateur	**Exporter/Exportateur**
UNIVERSITY OF WESTERN ONTARIO - SDRI 1400 WESTERN ROAD, ROOM 119 LONDON, ONTARIO N6G2V4 Contact: Dr. Sung O. Kim Applicant Name: DR. SUNG O. KIM Phone: (519) 850-2961 Fax: (519) 661-2046	DREXEL UNIVERSITY 2900 QUEEN LANE PHILADELPHIA PENNSYLVANIA UNITED STATES 19129 Contact: Dr. Richard F. Rest Phone: (215) 991-8382 Fax: (215) 991-8909
Quarantine/Destination/Quarantaine	**Producer/Producteur**
Valid/Valide from/du 2006/12/07 year/month/day année/mois/jour **to/au** 2007/12/31 year/month/day année/mois/jour	**Country of Origin/ Pays d'Origine** UNITED STATES

For the entry of/ Pour l'entrée de: _____ Single shipment/Chargement simple XX Multiple shipments/Chargements multiples

Place of entry into Canada/Lieu d'entrée au Canada:
Toronto

FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:
(Description of things(s)/Description de la ou des choses)
1. Product Description: BACILLUS ANTHRACIS STERNE STRAINS: 7702, UT231 AND UT23-PUTE544.

(TO BE USED IN ROOM 119, SDRI, UNIVERSITY OF WESTERN ONTARIO, LONDON, ON.) Proposed End Use: "In Vitro" Scientific Name: Biocontainment Level: 2

A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS

Selected Conditions / Conditions Choisies

BACILLUS ANTHRACIS STERNE STRAINS: 7702, UT231 AND UT23-PUTE544.

(TO BE USED IN ROOM 119, SDRI, UNIVERSITY OF WESTERN ONTARIO, LONDON, ON.)

1. The original or a copy of the signed original of this permit and any other necessary import / export documentation pertaining to the shipment of animal(s) or thing(s) must be provided for inspection at the first port of entry or to a Canadian Food Inspection Agency Import Service Center.

2. The conditions in this permit can only be changed or amended by a CFIA inspector. Any change to the permit by an unauthorized person will render the permit invalid.

3. The imported material must be packaged in appropriate shipping containers to prevent accidental spillage of contents during shipping. Importers should be aware of their obligations under Transport Canada's regulations concerning transportation of dangerous goods.

MSDS'

Pseudomonas spp. (excluding B. mallei, B. pseudomallei) - Material Safety Data Sheets (MSDS)

MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: ***Pseudomonas*** **spp. (excluding** ***B. mallei, B. pseudomallei*****)**

SYNONYM OR CROSS REFERENCE: *P. aeruginosa, P. cepacia*

CHARACTERISTICS: Family Pseudomonadaceae, gram negative bacillus, aerobic, non-spore forming, some pigmented (pyocyanin, fluorescein), motile by polar flagella, variety of toxins produced

SECTION II - HEALTH HAZARD

PATHOGENICITY: Opportunistic pathogen, greatest risk of disease in the immunocompromised; most medical conditions arise from colonization of pathogen in the respiratory and urinary tracts or due to deep disseminated infections leading to pneumonia and bacteremia; chronic respiratory infections among cystic fibrosis patients; eye infections (especially in contact lens wearers); nosocomial infections causing severe and often fatal infections (case fatality in susceptible populations is 30%), increasingly associated with bacterial meningitis, abscesses, endocarditis

EPIDEMIOLOGY: Worldwide; increasing in frequency in recent years; commonly a nosocomial infection associated with contaminated instruments; 16% of nosocomial pneumonia, 12% of hospital acquired urinary-tract infections; rarely causes community acquired infections in immunocompetent patients

HOST RANGE: Humans, animals, plants

INFECTIOUS DOSE: Not known

MODE OF TRANSMISSION: Direct contact with contaminated water, aerosols or aspirations, by contact of mucous membranes with discharges from infected conjunctivae or upper respiratory tract of infected persons through contaminated objects (improperly sterilized medical equipment, contaminated IV fluids) or fingers;

INCUBATION PERIOD: Variable depending on infection; eye infection - 24 to 72 hours

COMMUNICABILITY: Can be transmitted during course of active infection

SECTION III - DISSEMINATION

RESERVOIR: Saprophyte - soil, water, decomposing matter; infected animals and humans; infected solutions - I.V., soaps, eye drops, humidifiers; organism thrives in moist conditions

ZOONOSIS: None

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Sensitive to extended spectrum penicillins, aminoglycosides, cephalosporins, fluroquinolones, polymixins and monobactams; aminoglycoside with a beta-lactam penicillin is the first line of treatment

DRUG RESISTANCE: Multidrug resistant strains are on the rise

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, 2% glutaraldehyde, formaldehyde; few reports of this bacteria growing in disinfectant solutions; alcohol-containing disinfectants recommended for resistant strains

PHYSICAL INACTIVATION: Inactivated by moist heat (121° C for at least 15 min) and dry heat (160-170° C for at least 1 hour)

SURVIVAL OUTSIDE HOST: Survives for several months in water with minimal nutrients

SECTION V - MEDICAL

SURVEILLANCE: Bacteriological identification of infection

FIRST AID/TREATMENT: Antibiotic therapy - aggressive treatment is necessary to avoid chronic infections; drainage of wounds; local application of antibiotic ointment or drops

IMMUNIZATION: None

PROPHYLAXIS: Antibiotic prophylaxis, not usually administered

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: No reported infections to date

SOURCES/SPECIMENS: Clinical specimens - respiratory secretions, wound exudates, blood, urine; environmental specimens - water, infected solutions (IV, disinfectants, soap)

PRIMARY HAZARDS: Accidental parenteral inoculation; direct contact of mucous membranes with infected materials; inhalation of infectious aerosols and ingestion also present a hazard

SPECIAL HAZARDS: None

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety level 2 practices, containment equipment and facilities for activities involving suspected or known infectious specimens and cultures

PROTECTIVE CLOTHING: Laboratory coat, gloves when direct contact with infectious materials is unavoidable

OTHER PRECAUTIONS: Good personal hygiene, frequent hand washing and the avoidance of rubbing eyes as a precautionary measure against eye infections

SECTION VIII - HANDLING INFORMATION

SPILLS: Allow aerosols to settle; wearing protective clothing, gently cover spill with paper towels and apply 1% sodium hypochlorite, starting at perimeter and working towards the centre; allow sufficient contact time before clean up and disposal (30 min)

DISPOSAL: Decontaminate before disposal - steam sterilization, chemical disinfection, incineration

STORAGE: In sealed containers that are appropriately labelled

SECTION IX - MISCELLANEOUS INFORMATION

Date prepared: March, 2001

Prepared by: Office of Laboratory Security, PHAC

Although the information, opinions and recommendations contained in this Material Safety Data Sheet are compiled from sources believed to be reliable, we accept no responsibility for the accuracy, sufficiency, or reliability or for any loss or injury resulting from the use of the information. Newly discovered hazards are frequent and this information may not be completely up to date.

Date Modified: 2011-02-18

Bacteria

ATCC® Number: **97™** Order this Item Price: **$205.00**

Organism:	*Pseudomonas aeruginosa* (Schroeter) Migula
Designations:	[NRRL B-247, NRRL B-800, RH 803]
Depositor:	AMC - Walter Reed Army Medical Center
Biosafety Level:	2
Shipped:	freeze-dried
Growth Conditions:	ATCC medium3: Nutrient agar or nutrient broth **Temperature:** 37.0°C
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.
Comments:	characterization [18424]
References:	18424: Haynes WC. Pseudomonas aeruginosa--its characterization and identification. J. Gen. Microbiol. 5: 939-950, 1951. PubMed: 14908032

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97.pdf

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

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- Biological Reference Material and Consensus Standards for the life science community

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Public Health Agency of Canada

Centre for Emergency Preparedness and Response

Agence de santé publique du Canada
Centre de mesures et d'interventions d'urgence

Permit no.-Permis no.

P- 15115

Permit to import human pathogen(s)

Under the authority of the Human Pathogens Importation Regulations.

Permis d'importation d'agent(s) anthropopathogène(s)

Sous le régime du Règlement sur l'importation des agents anthropopathogènes.

Importer-Name, address and postal code - **Importateur**-Nom, adresse et code postal

Facsimile-Télécopieur

Telephone no.- No. de téléphone

University of Western Ontario
Siebens-Drake Research Institute, Rm. 119
1400 Western Rd.,
London, ON N6G 2V4 Attn.: Dr. Kim Sung O

(519) 661-2046

(519) 850-2961

Supplier-Name and address - **Fournisseur**-Nom et adresse

Yale University
Medicine & Microbial Pathogenesis
333 Cedar Street, New Haven, LT USA

Name(s) of Port(s) of Entry- To Clear Customs at Port(s) of entry
Nom(s) de(s) point(s) d'entrée -Dédouanement au(x) point(s) d'entrée

Various ports

Description of Pathogen(s)-For the importation of- **Description de(s) agent(s) anthropopathogène(s)**-Pour l'importation de

Pseudomonas aeruginosa* strains.

***Pathogen(s) indicated on this permit also require an accompanying valid CFIA permit for importation -**
***Les agents anthropopathogènes indiqués sur ce permis doivent aussi être accompagnés d'un permis d'importation de l'ACIA.**

On the following terms and conditions as marked:-Selon les conditions indiquées:

1.	Work involving any of the imported material shall be limited to *in vitro* laboratory studies.	■ Les travaux auxquels la matière importée est destinée doivent se limiter à des études de laboratoire *in vitro*.
2.	Domestic animals, including poultry, cattle, sheep, swine and horses, shall not be directly or indirectly exposed to infection by any of the imported material.	■ Les animaux domestiques, y compris les volailles, bovins, ovins, porcins et chevaux, ne doivent pas être exposés, directement ou indirectement, à l'infection par la matière importée.
3.	All animals exposed to infection by any of the imported material shall be so exposed and held only in isolated insect-and rodent-proof facilities.	☐ Les animaux exposés à l'infection par la matière importée doivent y être exposés et être gardés uniquement dans des installations isolées à l'abri des insectes et des rongeurs.
4.	All equipment, animal pens, cages, bedding, waste and other articles under the importer's control, that come in direct or indirect contact with any of the imported material, shall be sterilized by autoclaving or incinerated.	■ L'équipement, les enclos pour animaux, les cages, les litières, les déchets et tout autre article sous la responsabilité de l'importateur qui viennent en contact direct ou indirect avec la matière importée doivent être stérilisés par autoclavage ou incinérés.
5.	Packaging materials, containers and all unused portions of the imported material shall be sterilized by autoclaving or incinerated.	☐ Le matériel d'emballage, les récipients et toute partie inutilisée de la matière importée doivent être stérilisés par autoclavage ou incinérés.
6.	No work on the imported material shall be done, except work conducted or directed by the importer in the facilities described in the application for this permit. NO HUMAN PATHOGEN BELONGING TO RISK GROUP 3 OR 4 MAY BE REMOVED TO ANOTHER LOCATION, OR TRANSFERRED INTO THE POSSESSION OF A PERSON OTHER THAN THE IMPORTER, WITHOUT THE PERMISSION OF THE DIRECTOR.	■ La matière importée ne peut servir qu'aux travaux effectués ou dirigés par l'importateur dans les installations décrites dans la demande de permis. AUCUNE AGENT ANTHROPOPATHOGÈNE DU GROUPE DE RISQUE 3 OU 4 NE PEUT ÊTRE TRANSPORTÉ, SANS LA PERMISSION DU DIRECTEUR, VERS UN AUTRE LIEU OU ÊTRE MIS EN LA POSSESSION D'UNE AUTRE PERSONNE QUE L'IMPORTATEUR.
7.	On completion of the importer's work involving the imported human pathogen, the pathogen and all its derivatives shall be destroyed.	☐ Au terme des travaux de l'importateur auxquels a servi l'agent anthropopathogène importé, celui-ci et tous ses dérivés doivent être détruits.
8.	Primary isolation, identification and/or manipulation may be done in level 2 containment (physical requirements) using containment level 3 operational requirements.	☐ On peut accomplir l'isolation, l'identification primaire, et/ou la manipulation au niveau de confinement 2 (exigences physiques) en utilisant les exigences opérationnelles de niveau de confinement 3.
9.	NO IMPORTED MATERIAL MAY BE REMOVED TO ANOTHER LOCATION, OR TRANSFERRED INTO THE POSSESSION OF A PERSON OTHER THAN THE IMPORTER, WITHOUT THE PERMISSION OF THE DIRECTOR.	☐ AUCUNE MATIÈRE IMPORTÉE NE PEUT ÊTRE TRANSPORTÉE, SANS LA PERMISSION DU DIRECTEUR, VERS UN AUTRE LIEU OU ÊTRE MISE EN LA POSSESSION D'UNE AUTRE PERSONNE QUE L'IMPORTATEUR.
10.	The Director must approve all new work with the imported material involving construction of recombinants that requires an increase of containment from level 2.	☐ Tous nouveaux travaux de manipulation génétique (recombiné) avec la matière importée qui demandera que le niveau 2 de confinement soit augmenté exigera l'approbation du Directeur.
11.	No culturing of Risk Group 3 or 4 pathogens shall be done.	☐ Aucune culture d'agent anthropopathogène du Groupe de risque 3 ou 4 ne sera entreprise.

12. **This permit is valid only for:** / **Le présent permis n'est valide que pour:**

☐ a) a single entry into Canada **or** / une seule entrée au Canada **ou**

■ b) importations at intervals of / les importations effectuées à intervalles de MARCH 1 4, 2008 during the period beginning on / au cours de la période commençant le and ending on / et se terminant le MARCH 3 1, 2009

Authorization-Signature of Director
Autorisation-Signature du Directeur

for Marianne Heisz

Date MARCH 1 4, 2008

Note: Transporting and otherwise dealing with imported material are subject to federal, provincial and municipal laws (if any), to the extent that, those laws apply in respect of that material.

Nota : Les opérations relatives à la matière importée, y compris le transport, sont assujetties aux lois fédérales, provinciales et aux règlements municipaux applicables.

Canada

Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

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

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

October 20th, 2009

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

By Facsimile: (289) 288-0020

SUBJECT: Importation of *Escherichia coli* strains

Dear Ms. Survery / Mr. Decosimo:

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

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

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

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

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

Sincerely,

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

Canada

Bacteria

ATCC® Number: **8530™** Order this Item Price: **$255.00**

Organism:	*Lactobacillus rhamnosus* (Hansen) Collins et al. deposited as *Lactobacillus casei* subsp. *rhamnosus* Hansen
Designations:	K
Depositor:	CP Hegarty
History:	ATCC <<--CP Hegarty<<--C.N. Stark
Biosafety Level:	1
Shipped:	freeze-dried
Growth Conditions:	ATCC medium416: Lactobacilli MRS broth **Temperature:** 37.0°C
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.

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BioStandards

- Biological Reference Material and Consensus Standards for the life science community

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-------- Original Message --------
Subject: Re: Lactobacillus question - containment (KIM)
Date: Thu, 13 Mar 2008 14:17:28 -0400
From: Jean-Nicolas Gagnon <jean-nicolas_gagnon@phac-aspc.gc.ca>
To: Jennifer Stanley <jstanle2@uwo.ca>

Hello Jennifer:

L. rhamnosus is a RG1

L. ractis: is this a typo for L. lactis (I had 0 hits for L. ractis even when doing a Google search)? If so, L. lactis is a RG1

I hope this helps.

Cheers!
Jean-Nic

Jean-Nicolas Gagnon
A/Head, Importation and Biosafety Programs / Chef intérimaire Importation et Services de biosécurité
Office of Laboratory Security / Bureau de la Sécurité des laboratoires
Center for Emergency Preparedness and Response / Centre de mesures et d'interventions d'urgence
Tel: (613) 946-6982
Fax: (613) 941-0596

Public Health Agency of Canada / Agence de la santé publique du Canada
100 Colonnade Road
Ottawa, ON
K1A 0K9
A/L: 6201A

Info on Cell Line(s)

Cell Biology

ATCC® Number:	**TIB-202™**	Order this Item	Price:	**$279.00**

Designations:	THP-1
Depositors:	S Tsuchiya
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	suspension
Organism:	*Homo sapiens* (human)
Morphology:	monocyte 
Source:	**Organ:** peripheral blood **Disease:** acute monocytic leukemia **Cell Type:** monocyte;
Cellular Products:	lysozyme [58053]
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:	complement (C3), expressed [58053] Fc, expressed
Antigen Expression:	HLA A2, A9, B5, DRw1, DRw2 [58053]
DNA Profile (STR):	Amelogenin: X,Y CSF1PO: 11,13 D13S317: 13 D16S539: 11,12 D5S818: 11,12 D7S820: 10 THO1: 8,9.3 TPOX: 8,11 vWA: 16
Age:	1 year infant
Gender:	male
Comments:	The cells are phagocytic (for both latex beads and sensitized erythrocytes) and lack surface and cytoplasmic immunoglobulin. [58053] Monocytic differentiation can be induced with the phorbol ester 12-O-tetradecanoylphorbol-13-acetate (TPA). [22193]

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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
Cytogenetic Analysis:	

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ATCC® Number:	**HB-8065™**	Order this Item	Price:	**$279.00**

Designations:	Hep G2
Depositors:	Wistar Institute
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial 
Source:	**Organ:** liver **Disease:** hepatocellular carcinoma
Cellular Products:	alpha-fetoprotein (alpha fetoprotein); albumin; alpha2 macroglobulin (alpha-2-macroglobulin); alpha1 antitrypsin (alpha-1-antitrypsin); transferrin; alpha1 antichymotrypsin; (alpha-1-antichymotrypsin); haptoglobin; ceruloplasmin; plasminogen; [3525] complement (C4); C3 activator; fibrinogen; alpha1 acid glycoprotein (alpha-1 acid glycoprotein); alpha2 HS glycoprotein (alpha-2-HS-glycoprotein); beta lipoprotein (beta-lipoprotein); retinol binding protein (retinol-binding protein) [3525]
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:	insulin; insulin-like growth factor II (IGF II) [22446]
Tumorigenic:	No
DNA Profile (STR):	Amelogenin: X,Y CSF1PO: 10,11 D13S317: 9,13 D16S539: 12,13 D5S818: 11,12 D7S820: 10 F13A01: 5,7 F13B: 6,10 FESFPS: 11 LPL: 10,11 THO1: 9 TPOX: 8,9 vWA: 17

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Cell Biology

ATCC® Number:	**HTB-37™**	Order this Item	Price:	**$279.00**

Designations:	Caco-2
Depositors:	J Fogh
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial 
Source:	**Organ:** colon **Disease:** colorectal adenocarcinoma
Cellular Products:	keratin retinoic acid binding protein 1 retinol binding protein 2
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:	NaviCyte Scientific holds the exclusive commercial distribution rights to the Caco-2 cell line as deposited by the Memorial Sloan-Kettering Cancer Center (SK) with the American Type Culture Collection (ATCC). **Note:** All uses of ATCC ® HTB-37™, other than for research by a non-commercial or academic entity, require a license and use authorization from NaviCyte Scientific under its exclusive arrangement with Memorial Sloan-Kettering.
Applications:	transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Receptors:	heat stable enterotoxin (Sta, E. coli), expressed epidermal growth factor (EGF), expressed
Virus Susceptibility:	Human immunodeficiency virus 1
Tumorigenic:	Yes
DNA Profile (STR):	Amelogenin: X CSF1PO: 11 D13S317: 11,13,14 D16S539: 12,13 D5S818: 12,13 D7S820: 11,12 THO1: 6 TPOX: 9,11 vWA: 16,18

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Cell Biology

ATCC® Number:	**CRL-1593.2™**	Order this Item	Price:	**$279.00**

Designations:	U-937
Depositors:	H Koren
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	suspension
Organism:	*Homo sapiens* (human)
Morphology:	monocyte
Source:	**Disease:** histiocytic lymphoma
Cellular Products:	lysozyme; beta-2-microglobulin (beta 2 microglobulin); tumor necrosis factor (TNF), also known as tumor necrosis factor alpha (TNF-alpha, TNF alpha), after stimulation with phorbol myristic acid (PMA)
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 original U-937 cell line was established by Dr. K. Nilsson's laboratory in 1974 and he has requested the following: (1) In all papers reporting any use of this cell line or any derivatives thereof a direct reference should be made to Sundstrom and Nilsson (Int. J. Cancer 17: 565-577, 1976). (2) Any proposed commercial use of the cells should be negotiated with Professor Kenneth Nilsson, Rudbeck Laboratory, SE-751 85 Uppsala, Sweden. (3) No distribution of any of the cells or sublines derived therefrom should be made to third parties; (4) The cells should be used for non-clinical, non-commercial research only.
Isolation:	**Isolation date:** 1974
Applications:	transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Receptors:	complement (C3)
DNA Profile (STR):	Amelogenin: X CSF1PO: 12 D13S317: 10,12 D16S539: 12 D5S818: 12 D7S820: 9,11 THO1: 6, 9.3 TPOX: 8,11 vWA: 14, 15
Age:	37 years
Gender:	male

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Product Information Sheet

Cell Biology

ATCC® Number:	**TIB-71™**	Order this Item	Price:	**$279.00**

Designations:	RAW 264.7
Depositors:	WC Raschke
Biosafety Level:	2
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Mus musculus* (mouse)
Morphology:	monocyte/macrophage 
Source:	**Tissue:** ascites **Strain:** BALB/c **Disease:** Abelson murine leukemia virus-induced tumor **Cell Type:** macrophage; Abelson murine leukemia virus transformed
Cellular Products:	lysozyme [1207]
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:	Biological response [92560] transfection host (Roche FuGENE® Transfection Reagents)
Receptors:	complement (C3) [1207]
Antigen Expression:	H-2d
Age:	adult
Gender:	male
Comments:	This line was established from a tumor induced by Abelson murine leukemia virus. They are negative for surface immunoglobulin (sIg-), Ia (Ia-) and Thy-1.2 (Thy-1.2)This line does not secrete detectable virus particles and is negative in the XC plaque formation assay. The cells will pinocytose neutral red and will phagocytose latex beads and zymosan. They are capable of antibody dependent lysis of sheep erythrocytes and tumor cell targets. LPS or PPD treatment for 2 days stimulates lysis of erythrocytes but not tumor cell targets.Data communicated in Feb. 2007 by Dr Janet W. Hartley, indicates the expression of infectious ecotropic MuLV closely related, if not identical, to the Moloney MuLV helper virus used in the original virus inoculum. The cells also express polytropic MuLV, unsurprisingly based on the mouse passage history of the virus stocks [PubMed 18177500].

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Product Information Sheet

Cell Biology

ATCC® Number:	**CCL-61™**	Order this Item	Price:	**$279.00**

Designations:	CHO-K1
Depositors:	TT Puck
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	Cricetulus griseus (hamster, Chinese)
Morphology:	epithelial-like 
Source:	**Organ:** ovary
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:** 1957
Applications:	transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Virus Resistance:	poliovirus 2; modoc virus; Button Willow virus
Cytogenetic Analysis:	Chromosome Frequency Distribution 50 Cells: 2n = 22. Stemline number is hypodiploid.
Gender:	female
Comments:	The CHO-K1 cell line was derived as a subclone from the parental CHO cell line initiated from a biopsy of an ovary of an adult Chinese hamster by T. T. Puck in 1957. [22224] The cells require proline in the medium for growth. [25976]
Propagation:	**ATCC complete growth medium:** The base medium for this cell line is ATCC-formulated F-12K Medium, Catalog No. 30-2004. 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

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Product Information Sheet

Cell Biology

ATCC® Number:	**CCL-1™** Order this Item	Price:	**$279.00**

Designations:	NCTC clone 929 [L cell, L-929, derivative of Strain L]
Depositors:	WR Earle
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Mus musculus* (mouse)
Morphology:	fibroblast 
Source:	**Tissue:** subcutaneous connective tissue; areolar and adipose **Strain:** C3H/An
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:** March, 1948
Applications:	testing [92346] [92380] [92382] [92389] [92404] toxicity testing [21469] [21470] [21606] transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Virus Resistance:	poliovirus 1, 2, 3; coxsackievirus B5; polyomavirus
Tumorigenic:	Yes
Antigen Expression:	H-2k
Cytogenetic Analysis:	modal chromosome number = 66; range = 65 to 68. There were approximately 20 to 30 marker chromosomes present in each metaphase spread. A high percentage of those markers were common to most analyzed cells. A long metacentric chromosome with secondary constriction was noted in 77/100 cells.
Age:	100 days
Gender:	male
Comments:	

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Product Information Sheet

BioProducts

- Cell, microbial and molecular genomics products for the life sciences

BioServices

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

BioStandards

- Biological Reference Material and Consensus Standards for the life science community

LIST BIOLOGICAL LABORATORIES, INC.

540 DIVISION STREET ▪ CAMPBELL ▪ CALIFORNIA 95008-6906 ▪ USA
408-866-6363 ▪ 800-726-3213 ▪ FAX 408-866-6364 ▪ EMAIL info@listlabs.com
WEBSITE www.listlabs.com

Products 169,171,172,173,174, 175,176,177,178, 9171,9172

MATERIAL SAFETY DATA SHEET
Anthrax Products

Ingredients

Anthrax proteins LF, PA and EF are produced by plasmids licensed from the NIH. Plasmids are introduced into a non-sporulating avirulent strain of *Bacillus anthracis* which lacks both of the wild type plasmids, pX01 and pX02. The host makes none of the anthrax toxin components and does not produce a polyglutamate capsule. Thus, the anthrax toxin components produced at List Biological Laboratories, Inc. are single, pure proteins lacking all other virulence factors.

Physical Properties

These products are provided as white lyophilized powders.

Fire and Explosion Hazard

Contents of the vials are simple salts, sugars and protein powder. These materials do not present a fire or explosion hazard.

Health and Toxicity Hazard

Individually, each protein is non-toxic and presents no hazard during normal laboratory use.

Spill or Leak Procedures

Wear protective equipment such as gloves, lab coat, safety glasses and a particle mask when cleaning up spills. These products may be destroyed by autoclaving or treating with 10% Clorox bleach (≥0.05% hypochlorite).

Special Protection Information

These products are to be used by skilled personnel only in laboratory settings. Good laboratory practices should be employed at all times. Wear safety glasses, a lab coat and gloves. Avoid inadvertent injection when handling with hypodermic needles. Do not mouth pipette. Avoid inhalation of the products. Wear a particle mask when working with dry protein powder.

(continued)

Info on Toxin(s)

These products are for research purposes only. They are not for use in humans or as diagnostic agents.

References

Dixon, T.C., Meselson, M., Guillemin, J., & Hanna, P.C. (1999) Medical Progress: Anthrax. *N. England J. Med.* **341**, 815-826.

Duesbery, N.S. & Vance Woude, G.F. (1999) Anthrax toxins. *Cellular and Molecular Life Sciences* **55**, 1599-1609.

Leppla, S.H. (1999) The bifactorial *Bacillus anthracis* lethal and oedema toxins in *Comprehensive Sourcebook of Bacterial Protein Toxins* 243-263. Academic Press, London.

Little, S.F. & Ivins, B.E. (1999) Molecular pathogenesis of *Bacillus anthracis* infection. *Microbes and Infection* **1**, 131-139.

Young, J.A.T. & Collier, R.J. (2007) Anthrax Toxin: Receptor Binding, Internalization, Pore Formation and Translocation, *Ann. Rev. Biochem.* **76**, 1-17, 23.

Canadian Food Inspection Agency
Goverment of Canada

Agence canadienne d'inspection des aliments
Gouvernement du Canada

Permit No./N° de permis:
A-2006-00856-4
ORIGINAL
2006/03/22
year/mo/day
année/mois/jour

IMPORT PERMIT PERMIS D'IMPORTATION

THIS PERMIT IS ISSUED PURSUANT TO:/CE PERMIS EST DÉLIVRÉ CONFORMÉMENT A:

THE HEALTH OF ANIMALS ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA SANTÉ DES ANIMAUX

Importer/Importateur	**Exporter/Exportateur**
UNIVERSITY OF WESTERN ONTARIO - SDRI 1400 WESTERN ROAD, ROOM 119 LONDON, ONTARIO N6G2V4 Contact: Dr. Sung O. Kim Applicant Name: DR. SUNG O. KIM Phone: (519) 850-2961 Fax: (519) 661-2046	LIST BIOLOGICAL LABORATORIES INC. 540 DIVISION STREET CAMPELL CALIFORNIA UNITED STATES 95008 Contact: Nancy Ferguson Phone: (408) 866-6363 Fax: (408) 866-6364
Quarantine/Destination/Quarantaine	**Producer/Producteur**
Valid/Valide from/du 2006/03/22 year/month/day année/mois/jour **to/au** 2007/03/31 year/month/day année/mois/jour	**Country of Origin/ Pays d'Origine** UNITED STATES

For the entry of/ Pour l'entrée de: _____ Single shipment/Chargement simple XX Multiple shipments/Chargements multiples

Place of entry into Canada/Lieu d'entrée au Canada:
Toronto

FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:
(Description of things(s)/Description de la ou des choses)
1. Product Description: RECOMBINANT ANTHRAX PROTECTIVE ANTIGEN (PA) (CATALOG # 171A), RECOMBINANT ANTHRAX LETHAL FACTOR (LF) (CATALOG # 172A) AND INACTIVE LETHAL FACTOR (LF) (CATALOG # 176A) FROM BACILLUS ANTHRACIS.

(TO BE USED IN ROOM 119, SDRI, UNIVERSITY OF WESTERN ONTARIO, LONDON, ON.) Proposed End Use: "In Vitro" Scientific Name: Biocontainment Level: 2

A PERSON WHO IMPORTS A THING UNDER THIS PERMIT SHALL COMPLY WITH ALL THE CONDITIONS SET OUT HEREIN/TOUTE PERSONNE QUI IMPORTE UNE CHOSE EN VERTU DE CE PERMIS DEVRA RESPECTER TOUTES LES CONDITIONS DÉCRITES CI-DESSOUS

Selected Conditions / Conditions Choisies

RECOMBINANT ANTHRAX PROTECTIVE ANTIGEN (PA) (CATALOG # 171A), RECOMBINANT ANTHRAX LETHAL FACTOR (LF) (CATALOG # 172A) AND INACTIVE LETHAL FACTOR (LF) (CATALOG # 176A) FROM BACILLUS ANTHRACIS.

(TO BE USED IN ROOM 119, SDRI, UNIVERSITY OF WESTERN ONTARIO, LONDON, ON.)

1. The original or a copy of the signed original of this permit and any other necessary import / export documentation pertaining to the shipment of animal(s) or thing(s) must be provided for inspection at the first port of entry or to a Canadian Food Inspection Agency Import Service Center.

2. The conditions in this permit can only be changed or amended by a CFIA inspector. Any change to the permit by an unauthorized person will render the permit invalid.

Canada

Public Health Agency of Canada
Centre for Emergency Preparedness and Response

Agence de santé publique du Canada
Centre de mesures et d'interventions d'urgence

Permit no.-Permis no.

P-12359

Permit to import human pathogen(s)

Permis d'importation d'agent(s) anthropopathogène(s)

Under the authority of the Human Pathogens Importation Regulations.

Sous le régime du Règlement sur l'importation des agents anthropopathogènes.

Importer-Name, address and postal code - **Importateur**-Nom, adresse et code postal

Facsimile-Télécopieur

Telephone no.- No. de téléphone

University of Western Ontario
SDRI Room 119
1400 Western Rd.
London, ON N6G 2V4

(519) 661-2046

(519) 850-2961

Attn.: Dr. Sung O. Kim

Supplier-Name and address - **Fournisseur**-Nom et adresse

Name(s) of Port(s) of Entry- To Clear Customs at Port(s) of entry
Nom(s) de(s) point(s) d'entrée -Dédouanement au(x) point(s) d'entrée

List Biological Laboratories, Inc.
540 Division St., Campbell, CA 95008, USA

Toronto

Description of Pathogen(s)-For the importation of- **Description de(s) agent(s) anthropopathogène(s)**-Pour l'importation de

Protective Antigen and Lethal Factor recombinants from Bacillus anthracis*.

*Pathogen(s) indicated on this permit also require an accompanying valid CFIA permit for importation -
*Les agents anthropopathogènes indiqués sur ce permis doivent aussi être accompagnés d'un permis d'importation de l'ACIA.

On the following terms and conditions as marked:-Selon les conditions indiquées:

1. Work involving any of the imported material shall be limited to *in vitro* laboratory studies.	■	Les travaux auxquels la matière importée est destinée doivent se limiter à des études de laboratoire *in vitro*.
2. Domestic animals, including poultry, cattle, sheep, swine and horses, shall not be directly or indirectly exposed to infection by any of the imported material.	■	Les animaux domestiques, y compris les volailles, bovins, ovins, porcins et chevaux, ne doivent pas être exposés, directement ou indirectement, à l'infection par la matière importée.
3. All animals exposed to infection by any of the imported material shall be so exposed and held only in isolated insect-and rodent-proof facilities.	☐	Les animaux exposés à l'infection par la matière importée doivent y être exposés et être gardés uniquement dans des installations isolées à l'abri des insectes et des rongeurs.
4. All equipment, animal pens, cages, bedding, waste and other articles under the importer's control, that come in direct or indirect contact with any of the imported material, shall be sterilized by autoclaving or incinerated.	■	L'équipement, les enclos pour animaux, les cages, les litières, les déchets et tout autre article sous la responsabilité de l'importateur qui viennent en contact direct ou indirect avec la matière importée doivent être stérilisés par autoclavage ou incinérés.
5. Packaging materials, containers and all unused portions of the imported material shall be sterilized by autoclaving or incinerated.	☐	Le matériel d'emballage, les récipients et toute partie inutilisée de la matière importée doivent être stérilisés par autoclavage ou incinérés.
6. No work on the imported material shall be done, except work conducted or directed by the importer in the facilities described in the application for this permit. NO HUMAN PATHOGEN BELONGING TO RISK GROUP 3 OR 4 MAY BE REMOVED TO ANOTHER LOCATION, OR TRANSFERRED INTO THE POSSESSION OF A PERSON OTHER THAN THE IMPORTER, WITHOUT THE PERMISSION OF THE DIRECTOR.	■	La matière importée ne peut servir qu'aux travaux effectués ou dirigés par l'importateur dans les installations décrites dans la demande de permis. AUCUNE AGENT ANTHROPOPATHOGÈNE DU GROUPE DE RISQUE 3 OU 4 NE PEUT ÊTRE TRANSPORTÉ, SANS LA PERMISSION DU DIRECTEUR, VERS UN AUTRE LIEU OU ÊTRE MIS EN LA POSSESSION D'UNE AUTRE PERSONNE QUE L'IMPORTATEUR.
7. On completion of the importer's work involving the imported human pathogen, the pathogen and all its derivatives shall be destroyed.	■	Au terme des travaux de l'importateur auxquels a servi l'agent anthropopathogène importé, celui-ci et tous ses dérivés doivent être détruits.
8. Primary isolation, identification and/or manipulation may be done in level 2 containment (physical requirements) using containment level 3 operational requirements. No culturing of Risk Group 3 pathogens shall be done.	☐	On peut accomplir l'isolation, l'identification primaire, et/ou la manipulation au niveau de confinement 2 (exigences physiques) en utilisant les exigences opérationnelles de niveau de confinement 3. Aucune culture d'agent anthropopathogène du Groupe de risque 3 ne sera entreprise.
9. NO IMPORTED MATERIAL MAY BE REMOVED TO ANOTHER LOCATION, OR TRANSFERRED INTO THE POSSESSION OF A PERSON OTHER THAN THE IMPORTER, WITHOUT THE PERMISSION OF THE DIRECTOR.	☐	AUCUNE MATIÈRE IMPORTÉE NE PEUT ÊTRE TRANSPORTÉE, SANS LA PERMISSION DU DIRECTEUR, VERS UN AUTRE LIEU OU ÊTRE MISE EN LA POSSESSION D'UNE AUTRE PERSONNE QUE L'IMPORTATEUR.
10. The Director must approve all new work with the imported material involving construction of recombinants that requires an increase of containment from level 2.	■	Tous nouveaux travaux de manipulation génétique (recombiné) avec la matière importée qui demandera que le niveau 2 de confinement soit augmenté exigera l'approbation du Directeur.

11. **This permit is valid only for:** / **Le présent permis n'est valide que pour:**

☐ a) a single entry into Canada **or** / une seule entrée au Canada **ou**

■ b) importations at intervals of / les importations effectuées à intervalles de — during the period beginning on / au cours de la période commençant le **March 20, 2006** — and ending on / et se terminant le **March 31, 2007**

Authorization-Signature of Director
Autorisation-Signature du Directeur

Paul J. Payette, Ph.D.

Date March 20, 2006

Note: Transporting and otherwise dealing with imported material are subject to federal, provincial and municipal laws (if any), to the extent that, those laws apply in respect of that material.

Remarque: Les opérations relatives à la matière importée, y compris le transport, sont assujetties aux lois fédérales, provinciales et aux règlements municipaux applicables.

Canada

Western

TOXIN USE RISK ASSESSMENT

Name of Toxin:	protective antigen factor
Proposed Use Dose:	5 µg
Proposed Storage Dose:	1000 µg
LD_{50} (species):	5000 µg

Calculation:

5000 µg/kg x 50 kg/person

Dose per person based on LD_{50} in µg = 250000

LD_{50} per person with safety factor of 10 based on LD_{50} in µg = 25000

Comments/Recommendations:

Western

TOXIN USE RISK ASSESSMENT

Name of Toxin:	lethal factor
Proposed Use Dose:	5 µg
Proposed Storage Dose:	1000 µg
LD_{50} (species):	5000 µg

Calculation:

5000 µg/kg x 50 kg/person

Dose per person based on LD_{50} in µg = 250000

LD_{50} per person with safety factor of 10 based on LD_{50} in µg = 25000

Comments/Recommendations:

-------- Original Message --------
Subject: Re: Biological Agents Registry Form: Dr. S.O. Kim
Date: Wed, 09 Nov 2011 10:08:31 -0500
From: Sung Kim <Sung.Kim@schulich.uwo.ca>
To: Jennifer Stanley <jstanle2@uwo.ca>

Regarding Pseudomonas, I have already obtained CFIA permit. Permit #: A-2008-00355-4
SK

Section 11.0