Modification Form for Permit BIO-UWO-0229

Permit Holder: Christopher Guglielmo

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

Alice Boyle

Liam McGuire

Chad Seewagen

Alexander Gerson

Edwin Price

Additional Personnel
(Please list additional personnel here)

Silke Nebel

	Please stroke out any approved Biohazards to be removed below	Write additional Biohazards for approval below. *
Approved Microorganisms		Escherichia coli (ATCC 8739) Staphylococcus aureus (ATCC 6538)
Approved Cells		
Approved Use of Human Source Material		
Approved GMO		
Approved use of Animals	Various songbirds, bats	
Approved Toxin(s)		

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

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

Signature of Permit Holder: _____

Classification: 2

Date of Last Biohazardous Agents Registry Form: Dec 23, 2008

Date of Last Modification (if applicable): _____

BioSafety Officer(s): _____

Chair, Biohazards Subcommittee: _____

Use of *Escherichia coli* (ATCC 8739) and *Staphylococcus aureus* (ATCC 6538)

Life-history theory proposes that birds face a trade-off between allocating their energy to flying or to mounting an immune response. Migrating birds, which undergo extreme physical challenges, would thus be forced to compromise either flight performance or immune-function. To address this problem of optimal energy allocation, we conduct wind-tunnel experiments that will show whether birds that undergo a migratory flight compromise their immune-response and whether mounting an immune response result in poorer endurance flight performance in migratory birds.

One of the assays used to assess immune function is the microbial-killing assay. Specifically, it is a functional measure of the capacity of blood to kill microorganisms in vitro. Whole blood is mixed with a known concentration of microorganism, allowed to interact with the microorganism for a set amount of time, and then visualized by plating the solution on agar. We use *Escherichia coli*, a strain of gram negative bacteria that is commensal in the intestinal tract, but can cause infection in the respiratory tract in birds and *Staphylococcus aureus*, a strain of gram positive bacteria that normally inhabits the skin but causes inflammation if it enters a wound.

Please find attached the information found on the ATCC website for these bacteria and the MSDS for ATCC microbial cultures (biosafety Level 1).

Bacteria

ATCC® Number:	**8739™**	Order this Item	Price:	**$150.00**

Organism:	*Escherichia coli* (Migula) Castellani and Chalmers
Designations:	Crooks
Isolation:	feces
Depositor:	IC Gunsalus
History:	ATCC <<--IC Gunsalus<<--G.C. Crooks
Biosafety Level:	1
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.
Cross References:	Escherichia coli C str. ATCC 8739 finished genomeJGI Project ID4002730 Nucleotide (GenBank) : CP000946Escherichia coli ATCC 8739, complete genome
Comments:	Genome sequenced strain
Applications:	assay of [92287] assay of antimicrobial preservatives [4101] [11020] [21514] [21603] bioresistance testing [92589] detection of [92381] [92805] [92834] efficacy testing [92779] media testing [11019] [21509] [21511] [21613] [92345] [92390] [92845] preparatory test control [21613] quality control strain [92096] testing [92304] [92305] [92307] [92349] [92403] testing antimicrobial handwashing formulations [32196] reduces dehydroascorbic acid [6118] quality control strain for Biosynth and Difco products
Related Products:	also available as SafeTsource™:ATCC 8739NA purified DNA: ATCC 8739D-5

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References:

4101: ASTM International Standard Test Method for Preservatives in Water-Containing Cosmetics. West Conshohocken, PA
6118: J. Biol. Chem. 141: 853, 1941.
11019: British Pharmacopoeia Commission Tests for microbial contamination. London, UK:British Pharmacopoeia Commission;British Pharmacopoeia Appendix XVI B, 2003
11020: British Pharmacopoeia Commission Efficacy of antimicrobial preservation. London, UK:British Pharmacopoeia Commission;British Pharmacopoeia Appendix XVI C, 2003
21509: European Pharmacopoeia Commission Microbial contamination of products not required to comply with the test for sterility (total viable aerobic count). Strasbourg, France:European Pharmacopoeia Commission;European Pharmacopoeia EP 2.6.12, 1997
21511: European Pharmacopoeia Commission Microbial contamination of products not required to comply with the test for sterility (tests for specified micro-organisms). Nutritive and selective properties of the media and validity of the test for specified micro-organisms. Strasbourg, France:European Pharmacopoeia Commission;European Pharmacopoeia EP 2.6.13, 1997
21514: European Pharmacopoeia Commission Efficacy of antimicrobial preservation. Strasbourg, France:European Pharmacopoeia Commission;European Pharmacopoeia EP 5.1.3, 1997
21603: U.S. Pharmacopeia General Chapters:<51> ANTIMICROBIAL EFFECTIVENESS TESTING. Rockville, MD:U.S. Pharmacopeia;USP USP28-NF23, 2005
21613: U.S. Pharmacopeia Dietary Supplement Chapters: <2021> MICROBIAL ENUMERATION TESTS-NUTRITIONAL AND DIETARY SUPPLEMENTS . Rockville, MD:U.S. Pharmacopeia;USP USP28-NF23, 2005
32185: Jones CB, Platt JH. Propofol composition containing edetate. US Patent 5,714,520 dated Feb 3 1998
32196: Fendler EJ, et al. Antimicrobial cleansing composition containing chlorhexidine, an amphoteric surfactant, and an alkyl polyglucoside. US Patent 5,719,113 dated Feb 17 1998
92096: Applied Biosystems MicroSeq Pharmaceutical Panel #1. :Applied Biosystems;MicroSeq
92287: Efficacy of Preservation on Non-Eye Area Water-Miscible Cosmetic and Toiletry Formaulations. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 998.10.
92304: Microbial limit test. Tokyo, Japan:Japanese Pharmacopoeia;JP Jp14e.part I.35.
92305: Microbial limit test for crude drugs. Tokyo, Japan:Japanese Pharmacopoeia;JP JP14e.part I.36.
92307: Preservatives-effectiveness test. Tokyo, Japan:Japanese Pharmacopoeia;JP JP14e.part II.12.
92345: Food microbiology. Method 12.3: Microbiology of

Bacteria

ATCC® Number:	**6538™**	Order this Item	Price:	**$150.00**

Organism:	*Staphylococcus aureus* subsp. *aureus* Rosenbach
Designations:	FDA 209
Isolation:	human lesion
Depositor:	FDA
History:	ATCC <<--FDA<<--AMC
Biosafety Level:	2
Shipped:	freeze-dried
Growth Conditions:	ATCC medium18: Trypticase soy agar **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.
Cross References:	Nucleotide (GenBank) : DQ212950Staphylococcus aureus strain ATCC 6538 16S ribosomal RNA gene, partial sequence.
Comments:	This strain is recommended by ATCC for use in the tests described in military specification MIL G-13734B where only the taxon is specified.
Applications:	Filtration Efficiency Testing [92561] detection of [92783] efficacy testing [92779] [92583] [92584] [92587] inhibition testing [92839] [92580] media testing [21613] [11018] [11019] [21509] [92845] [92390] [21511] preparatory test control [21613] quality control strain testing [92304] [92402] [92307] [92403] [92305] testing antimicrobial agents [92595] [92592] testing antimicrobial handwashing formulations [92590] testing disinfectants [92356] [21580] [21496] [21579] [92280] [6664] [6669] [92357] [21478] [92588] [23722] [92593] [21582] [21475] [21581] [92362] [21584] testing sanitizers [92360] [92363] [92588] [4085] [92361] [92358] [92593] testing bactericides [92835] [92784] [92445] [92837] [92733] [92444] [92830] [92789] quality control strain for Biosynth products
Related Products:	also available as SafeTsource™:ATCC 6538NA purified DNA: ATCC 6538D-5

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1968: Connolly P, et al. The use of impedance for preservative efficacy testing of pharmaceuticals and cosmetic products. J. Appl. Bacteriol. 76: 68-74, 1994. PubMed: 8144407
4085: ASTM International StandardTest Method for Efficacy of Sanitizers Recommended for Inanimate Non-Food Contact Surfaces. West Conshohocken, PA
4101: ASTM International Standard Test Method for Preservatives in Water-Containing Cosmetics. West Conshohocken, PA
6664: AOAC International Germicidal and detergent sanitizing action of disinfectants. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 960.09.
6669: AOAC International Bacteriostatic activity of laundry additive disinfectants. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 972.04.
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11019: British Pharmacopoeia Commission Tests for microbial contamination. London, UK:British Pharmacopoeia Commission;British Pharmacopoeia Appendix XVI B, 2003
11020: British Pharmacopoeia Commission Efficacy of antimicrobial preservation. London, UK:British Pharmacopoeia Commission;British Pharmacopoeia Appendix XVI C, 2003
21443: AATCC Antibacterial Finishes on Textile Materials: Assessment of. Research Triangle Park, NC:American Association of Textile Chemists and Colorists;AATCC Test Method 100-2004.
21445: AATCC Antibacterial Activity Assessment of Textile Materials: Parallel Streak Method. Research Triangle Park, NC:American Association of Textile Chemists and Colorists;AATCC Test Method 147-2004.
21446: AATCC Antimicrobial Activity Assessment of Carpets. Research Triangle Park, NC:American Association of Textile Chemists and Colorists;AATCC Test Method 174-1998.
21475: AOAC International Testing disinfectants against Staphylococcus aureus, phenol coefficient method. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 955.12.
21478: AOAC International Chlorine (available) in disinfectants, germicidal equivalent concentration. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 955.16.
21496: AOAC International Testing disinfectants against Staphylococcus aureus, hard surface carrier test method. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 991.48.
21500: European Pharmacopoeia Commission Microbial

MSDS FOR ATCC MICROBIAL CULTURES (Biosafety Level 1)

ATCC cultures are not hazardous as defined by OSHA 1910.1200. However, as living microorganisms they are potential biohazards.

ATCC Emergency Telephone: (703) 365-2710 (24 hours)
Chemtrec: (800) 424-9300
To be used only in the event of an emergency involving a spill, leak, fire, exposure or accident.

Description

ATCC microbial cultures consist of all bacteria, fungi, plant and animal viruses, and molecular biology materials such as hosts, vectors, clones and libraries.

Either frozen, freeze-dried or growing cells shipped on solid or liquid culture medium (a mixture of components that may include, but is not limited to: inorganic salts, vitamins, amino acids, carbohydrates and other nutrients dissolved in water).

SECTION I
Hazardous Ingredients

Frozen cultures may contain 5 to 10% Dimethyl sulfoxide (DMSO).

SECTION II
Physical data

Liquid or solid suspensions; frozen liquid suspensions; freeze-dried.

SECTION III
Health hazards

This culture is not known to cause disease in healthy human adults or animals.

SECTION IV
Fire and explosion

Not applicable

SECTION V
Reactivity data

Stable. Hazardous polymerization will not occur.

SECTION VI

Method of disposal

Spill: Contain the spill and decontaminate using suitable disinfectants such as chlorine bleach or 70% ethyl or isopropyl alcohol.

Waste disposal: Dispose of cultures and exposed materials by autoclaving at 121°C for 20 minutes. Dispose of sealed vials of freeze-dried material by dry heat sterilization at 170°C for four hours.

Follow all Federal, State and local regulations.

SECTION VII

Special protection information

For Biosafety Level 1 Microbial Cultures

Handle as a potentially biohazardous material under at least Biosafety Level 1 containment.

SECTION VIII

Special precautions or comments

ATCC recommends that all ATCC microbial cultures be handled by qualified microbiologists using appropriate safety procedures and precautions. Detailed discussions of laboratory safety procedures are provided in **Laboratory Safety: Principles and Practice** (Fleming et al., ASM Press, Washington, DC, 1995), and in the U.S. Government Publication, **Biosafety in Microbiological and Biomedical Laboratories** (CDC, 1999). This publication is available in its entirety in the Center for Disease Control Office of Health and Safety's web site at http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm.

Information on the classification of human etiologic agents on the basis of hazard can be found as Appendix B in the NIH **Guidelines for Research Involving Recombinant DNA Molecules** at http://grants.nih.gov/grants/policy/recombinentdnaguidelines.htm.

THE ABOVE INFORMATION IS CORRECT TO THE BEST OF OUR KNOWLEDGE. ALL MATERIALS AND MIXTURES MAY PRESENT UNKNOWN HAZARDS AND SHOULD BE USED WITH CAUTION. THE USER SHOULD MAKE INDEPENDENT DECISIONS REGARDING THE COMPLETENESS OF THE INFORMATION BASED ON ALL SOURCES AVAILABLE. ATCC SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR CONTACT WITH THE ABOVE PRODUCT.

February 2002

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Bacteria

ATCC® Number: 8739™ Order this Item
Price: $155.00

Organism: *Escherichia coli* (Migula) Castellani and Chalmers

Designations: Crooks

Isolation: feces

Depositor: IC Gunsalus

History: ATCC <<--IC Gunsalus<<--G.C. Crooks

Biosafety Level: 1

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.

Cross References: Escherichia coli C str. ATCC 8739 finished genomeJGI Project ID4002730
Nucleotide (GenBank) : CP000946Escherichia coli ATCC 8739, complete genome

Comments: Genome sequenced strain

Applications:
assay of [92287]
assay of antimicrobial preservatives [4101] [11020] [21514] [21603]
bioresistance testing [92589]
detection of [92381] [92805] [92834]
efficacy testing [92779]
media testing [11019] [21509] [21511] [21613] [92345] [92390] [92845]
preparatory test control [21613]
quality control strain [92096]
testing [92304] [92305] [92307] [92349] [92403]
testing antimicrobial handwashing formulations [32196]
reduces dehydroascorbic acid [6118]
quality control strain for Biosynth and Difco products

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References:

4101: ASTM International Standard Test Method for Preservatives in Water-Containing Cosmetics. West Conshohocken, PA
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21511: European Pharmacopoeia Commission Microbial contamination of products not required to comply with the test for sterility (tests for specified micro-organisms). Nutritive and selective properties of the media and validity of the test for specified micro-organisms. Strasbourg, France:European Pharmacopoeia Commission;European Pharmacopoeia EP 2.6.13, 1997
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21603: U.S. Pharmacopeia General Chapters:<51> ANTIMICROBIAL EFFECTIVENESS TESTING. Rockville, MD:U.S. Pharmacopeia;USP USP28-NF23, 2005
21613: U.S. Pharmacopeia Dietary Supplement Chapters: <2021> MICROBIAL ENUMERATION TESTS-NUTRITIONAL AND DIETARY SUPPLEMENTS . Rockville, MD:U.S. Pharmacopeia;USP USP28-NF23, 2005
32185: Jones CB, Platt JH. Propofol composition containing edetate. US Patent 5,714,520 dated Feb 3 1998
32196: Fendler EJ, et al. Antimicrobial cleansing composition containing chlorhexidine, an amphoteric surfactant, and an alkyl polyglucoside. US Patent 5,719,113 dated Feb 17 1998
92096: Applied Biosystems MicroSeq Pharmaceutical Panel #1. :Applied Biosystems;MicroSeq
92287: Efficacy of Preservation on Non-Eye Area Water-Miscible Cosmetic and Toiletry Formaulations. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 998.10.
92304: Microbial limit test. Tokyo, Japan:Japanese Pharmacopoeia;JP Jp14e.part I.35.
92305: Microbial limit test for crude drugs. Tokyo, Japan:Japanese Pharmacopoeia;JP JP14e.part I.36.
92307: Preservatives-effectiveness test. Tokyo, Japan:Japanese Pharmacopoeia;JP JP14e.part II.12.
92345: Food microbiology. Method 12.3: Microbiology of food and animal feeding stuffs -- Horizontal method for the enumeration of coagulase-positive staphylococci (Staphyloccus aureus and other species)--Detection and MPN technique for low numbers. Sydney, NSW, Australia:Standards Australia;Standards Australia AS 5013.12.3:2004.
92349: Antimicrobial products - Test for antimicrobial activity and efficacy. Tokyo, Japan:Japanese Standards Association;JIS Z 2801, 2000
92381: Microbiology of food and animal feeding stuffs-- Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species)--Part3: Detection and MPN technique for low numbers. Geneva (Switzerland):International Organization for Standardization/ANSI;ISO ISO 6888-3:2003.
92390: Microbiology of food and animal feeding stuffs--Guidelines on preparation and production of culture media-- Part 2: Practical guidelines on performance testing of culture media.. Geneva (Switzerland):International Organization for Standardization/ANSI;ISO ISO 11133-2:2003.
92403: Ophthalmic optics--Contact lens care products--Antimicrobial preservative efficacy testing and guidance on determining discard date. Geneva (Switzerland):International Organization for Standardization/ANSI;ISO ISO 14730:2000.
92589: Standard Practice for Evaluating Water-Miscible Metalworking Fluid Bioresistance and Antimicrobial Pesticide. West Conshohocken, PA:ASTM International;ASTM Standard Test Method E 2275-03E01.
92779: Cosmetics - Microbiology - Enumeration and detection of aerobic mesophilic bacteria. London, UK:British Standards Institution;British Standard BS ISO 21149:2006.
92805: Cosmetics --- Microbiology --- Detection of Escherichia coli. London, UK:British Standards Institution;British Standard BS ISO 21150:2006.
92834: Microbiology of food and animal feeding stuffs --- Horizontal method for the determination of low numbers of presumptive Bacillus cereus --- Most probable number technique and detection method. London, UK:British Standards Institution;British Standard BS EN ISO

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Bacteria

ATCC® Number: 6538™ Order this Item **Price:** $155.00

Organism: *Staphylococcus aureus* subsp. *aureus* Rosenbach

Designations: FDA 209

Isolation: human lesion

Depositor: FDA

History: ATCC <<--FDA<<--AMC

Biosafety Level: 2

Shipped: freeze-dried

Growth Conditions: ATCC medium18: Trypticase soy agar
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.

Cross References: Nucleotide (GenBank) : DQ212950Staphylococcus aureus strain ATCC 6538 16S ribosomal RNA gene, partial sequence.

Comments: This strain is recommended by ATCC for use in the tests described in military specification MIL G-13734B where only the taxon is specified.

Applications:
Filtration Efficiency Testing [92561]
detection of [92783]
efficacy testing [92583] [92584] [92587] [92779]
inhibition testing [92580] [92839]
media testing [11018] [11019] [21509] [21511] [21613] [92390] [92845]
preparatory test control [21613]
quality control strain
testing [92304] [92305] [92307] [92402] [92403]
testing antimicrobial agents [92592] [92595]
testing antimicrobial handwashing formulations [92590]
testing disinfectants [6664] [6669] [21475] [21478] [21496] [21579] [21580] [21581] [21582] [21584] [23722] [92280] [92356] [92357] [92362] [92588] [92593]
testing sanitizers [4085] [92358] [92360] [92361] [92363] [92588] [92593]
testing bactericides [92444] [92445] [92733] [92784] [92789] [92830] [92835] [92837]
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4085: ASTM International StandardTest Method for Efficacy of Sanitizers Recommended for Inanimate Non-Food Contact Surfaces. West Conshohocken, PA
4101: ASTM International Standard Test Method for Preservatives in Water-Containing Cosmetics. West Conshohocken, PA
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6669: AOAC International Bacteriostatic activity of laundry additive disinfectants. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 972.04.
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11019: British Pharmacopoeia Commission Tests for microbial contamination. London, UK:British Pharmacopoeia Commission;British Pharmacopoeia Appendix XVI B, 2003
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21443: AATCC Antibacterial Finishes on Textile Materials: Assessment of. Research Triangle Park, NC:American Association of Textile Chemists and Colorists;AATCC Test Method 100-2004.
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21475: AOAC International Testing disinfectants against Staphylococcus aureus, phenol coefficient method. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 955.12.
21478: AOAC International Chlorine (available) in disinfectants, germicidal equivalent concentration. Gaithersburg, MD:AOAC International;AOAC "Official Methods of Analysis of the AOAC International" 955.16.
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21511: European Pharmacopoeia Commission Microbial contamination of products not required to comply with the test for sterility (tests for specified micro-organisms). Nutritive and selective properties of the media and validity of the test for specified micro-organisms. Strasbourg, France:European Pharmacopoeia Commission;European Pharmacopoeia EP 2.6.13, 1997
21514: European Pharmacopoeia Commission Efficacy of antimicrobial preservation. Strasbourg, France:European Pharmacopoeia Commission;European Pharmacopoeia EP 5.1.3, 1997
21579: US General Services Administration Disinfectant, general purpose (liquid phenolic type). Washington, DC:US General Services Administration;Commercial Item Description A-A-1438A, 1997
21580: US General Services Administration Disinfectant-detergent, general purpose (phenolic type). Washington, DC:US General Services Administration;Commercial Item Description A-A-1439A, 1998
21581: US General Services Administration Disinfectant-detergent, general purpose (iodophor). Washington, DC:US General Services Administration;Commercial Item Description A-A-1440, 1981
21582: US General Services Administration Disinfectant, general purpose (quaternary ammonium compound). Washington, DC:US General Services Administration;Commercial Item Description A-A-1441B, 2005
21584: US General Services Administration Disinfectant-detergent, general purpose (quaternary ammonium compound). Washington, DC:US General Services Administration;Commercial Item Description A-A-1443A, 1998
21603: U.S. Pharmacopeia General Chapters:<51> ANTIMICROBIAL EFFECTIVENESS TESTING. Rockville, MD:U.S. Pharmacopeia;USP USP28-NF23, 2005
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All prices are listed in U.S. dollars and are subject to change without notice. A discount off the current list price will be applied to most cultures for nonprofit institutions in the United States. Cultures that are ordered as test tubes or flasks will carry an additional laboratory fee. Fees for permits, shipping, and handling may apply.
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Public Health Agency of Canada | Agence de la santé publique du Canada

Canada

Staphylococcus aureus - Material Safety Data Sheets (MSDS)

MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: ***Staphylococcus aureus***

SYNONYM OR CROSS REFERENCE: Staphylococcal diseases, impetigo, toxic shock syndrome, food poisoning, intoxication

CHARACTERISTICS: Gram positive cocci, usually in clusters; coagulase positive; non-spore forming; non-motile; many strains produce exotoxins including staphylococcal enterotoxins A,B,C,D,E, toxic shock syndrome toxin (TSST-1) and exfoliative toxins A, and B

SECTION II - HEALTH HAZARD

PATHOGENICITY: Opportunistic pathogen, normal flora; produces a variety of syndromes with a range of clinical manifestations; clinically different in general community, newborns, menstruating women, and hospitalized patients; food intoxication is characterized by abrupt/violent onset, severe nausea, cramps, vomiting, and diarrhea using lasting 1-2days; animal bites can result in localized infections; may cause surface or deep/system infections in both community and hospital settings; surface infections include impetigo, folliculitis, abscesses, boils, infected lacerations; deep infections include endocarditis, meningitis, septic arthritis, pneumonia, osteomyelitis; systemic infection may cause fever, headache malaise, myalgia; newborns are susceptible to scalded skin syndrome (SSS) caused by exfoliative toxins; my be colonized during delivery resulting in sepsis meningitis; toxic shock syndrome is an acute multi-system illness caused by TSST-1 a super antigen; characterized by sudden onset, high fever, vomiting, profuse watery diarrhea, myalgia, hypotension erythematous rash

EPIDEMIOLOGY: Occurs worldwide; particularly in areas where personal hygiene is suboptimal; in hospitals by development of antibiotic-resistant strains

HOST RANGE: Humans; to a lesser extent, warm-blooded animals

INFECTIOUS DOSE: Virulence of strains varies greatly

MODE OF TRANSMISSION: Contact with nasal carriers (30-40% of population); from draining lesions or purulent discharges; spread person-to-person; ingestion of food containing staphylococcal enterotoxin (food may be contaminated by food handlers hands); from mother to neonate during delivery

INCUBATION PERIOD: Variable and indefinite, commonly 4-10 days; disease may not occur until several months after colonization; interval between eating food and onset of symptoms is usually 2-4 hours (30 min to 8 hours)

COMMUNICABILITY: As long as purulent lesions continue to drain or carrier state persists; auto-infection may continue for the period of nasal colonization or duration of active lesions

SECTION III - DISSEMINATION

RESERVOIR: Human; patients with indwelling catheters or IVs act as reservoirs for nosocomial infections; food borne - occasionally cows with infected udders

ZOONOSIS: Yes - direct or indirect contact with infected animals

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Many strains are multi-resistant to antibiotics and are of increasing importance; methicillin resistant (MRSA) strains have caused major outbreaks world-wide; Vancomycin resistant (VRSA) are being increasingly isolated; sensitivity must be determined for each strain

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite, iodine/alcohol solutions, glutaraldehyde, formaldehyde

PHYSICAL INACTIVATION: Organisms are destroyed by heat (moist heat - 121° C for at least 15 min, dry heat - 160-170° C for at least 1 hour; enterotoxins are heat resistant, stable at boiling temperature

SURVIVAL OUTSIDE HOST: Carcass and organs - up to 42 days; floor - less than 7 days; glass - 46 hours; sunlight - 17 hours; UV - 7 hours; meat products - 60 days; coins - up to 7 days; skin from 30 min to 38 days

SECTION V - MEDICAL

SURVEILLANCE: Monitor for skin inflammation if wounded by a sharp instrument; isolation of organism from wound or blood, CSF, urine; isolation of> 10^5 organisms or enterotoxin from suspected food

FIRST AID/TREATMENT: Fluid replacement for food poisoning; in localized skin infections, drain abscesses; antibiotic therapy for severe infections

IMMUNIZATION: None

PROPHYLAXIS: None

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: 29 reported cases up to 1973 with 1 death

SOURCES/SPECIMENS: Clinical specimens - blood, abcesses, lesion exudates, CSF, respiratory specimens, feces, urine

PRIMARY HAZARDS: Injuries from contaminated sharp instruments; ingestion; aerosols

SPECIAL HAZARDS: Direct contact with open cuts and lesions of skin

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety level 2 practices, containment equipment and facilities for activities with cultures or potentially infectious clinical materials

PROTECTIVE CLOTHING: Laboratory coat: gloves when skin contact is unavoidable

OTHER PRECAUTIONS: Thorough handwashing before leaving the laboratory and after handling infectious materials

SECTION VIII - HANDLING INFORMATION

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

DISPOSAL: Decontaminate before disposal; steam sterilization, chemical disinfection

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: 2001-04-23

THE UNIVERSITY OF WESTERN ONTARIO
BIOHAZARDOUS AGENTS REGISTRY FORM
Revised Biohazards Subcommittee: April, 2008
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 or in charge of a laboratory/facility where the use of Level 1, 2 or 3 biohazardous agents are 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. This form must also be updated at least every 3 years or when there are changes to the biohazards being used.

Containment Levels will be required in accordance with Laboratory Biosafety Guidelines, 3rd edition, 2004, Health Canada (HC) or Containment Standards for Veterinary Facilities, 1st edition 1996, Canadian Food Inspection Agency (CFIA).

Completed forms are to be returned to Occupational Health and Safety, OHS (Stevenson-Lawson Building, Room 295) for distribution to the Biohazard Subcommittee. For questions regarding this form, please contact the Biosafety Officer at extension 81135. If there are changes to the information on this form (excluding grant title and funding agencies), modifications must be submitted to Occupational Health and Safety. See website: www.uwo.ca/humanresources/biosafety/

PRINCIPAL INVESTIGATOR Christopher G. Guglielmo
SIGNATURE Christ G Guglielmo
DEPARTMENT Biology
ADDRESS 1151 Richmond st N, London, ON N6A 5B7
PHONE NUMBER x81204
EMAIL cguglie2@uwo.ca

Location of experimental work to be carried out: Building(s) BGS Room(s) 3012, 3009

*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 Occupational Health and Safety (See Section 12.0, Approvals). For research being done at Lawson Health Research Institute, London Regional Cancer Program, Child and Parent Research Institute, or Robarts Research Institute, a University Biosafety Committee member can also sign as the Safety Officer for the Institution.

FUNDING AGENCY/AGENCIES: NSERC
GRANT TITLE(S): Physiological Mechanisms and ecological consequences of Metabolic fuel selection in migratory Birds and Bats

PLEASE ATTACH A BRIEF DESCRIPTION OF YOUR WORK THAT EXPLAINS THE BIOHAZARDS USED AND HOW THEY WILL BE USED. PROJECTS SUBMITTED WITHOUT A SUMMARY WILL NOT BE REVIEWED.

Names of all personnel working under Principal Investigators supervision in this location:

Edwin Price
Alexander Gerson
Chad Seewagen
Liam McGuire
Raymond Thomas
Alice Boyle

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

1.0 Microorganisms

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

1.2 Please complete the table below:

Name of Biological agent(s)*	Is it known to be a human pathogen? YES/NO	Is it known to be an animal pathogen? YES/NO	Is it known to be a zoonotic agent? YES/NO	Maximum quantity to be cultured at one time? (in Litres)	Source/ Supplier	Health Canada or CFIA Containment Level
	O Yes O No	O Yes O No	O Yes O No			O 1 O 2 O 3
	O Yes O No	O Yes O No	O Yes O No			O 1 O 2 O 3
	O Yes O No	O Yes O No	O Yes O No			O 1 O 2 O 3
	O Yes O No	O Yes O No	O Yes O No			O 1 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? O YES ⊗NO
If no, please proceed to Section 3.0

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

Cell Type	Is this cell type used in your work?	Source of Primary Cell Culture Tissue	AUS Protocol Number
Human	O Yes O No		Not applicable
Rodent	O Yes O No		
Non-human primate	O Yes O No		
Other (specify)	O Yes O No		

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

Cell Type	Is this cell type used in your work?	Specific cell line(s)*	Supplier / Source
Human	O Yes O No		
Rodent	O Yes O No		
Non-human primate	O Yes O No		
Other (specify)	O Yes 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 HC or CFIA containment level required O 1 O 2 O 3

3.0 Use of Human Source Materials

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

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

Human Source Material	Source/Supplier /Company Name	Is Human Source Material Known to Be Infected With An Infectious Agent? YES/NO	Name of Infectious Agent (If applicable)	HC or CFIA Containment Level (Select one)
Human Blood (whole) or other Body Fluid		O Yes O No		O 1 O 2 O 3
Human Blood (fraction) or other Body Fluid		O Yes O No		O 1 O 2 O 3
Human Organs or Tissues (unpreserved)		O Yes O No		O 1 O 2 O 3
Human Organs or Tissues (preserved)		O Yes O No		O 1 O 2 O 3

4.0 Genetically Modified Organisms and Cell lines

4.1 Will genetic modifications be made to the microorganisms, biological agents, or cells described in Sections 1.0 and 2.0? O YES ⊗ 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

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

4.3 Will genetic modification(s) involving viral vectors be done? O YES, complete table below O NO

Virus Used for Transduction *	Vector(s) *	Source of Vector	Gene Transfected	Describe the change that results

* Please attach a Material Safety Data Sheet or equivalent.

4.4 Will genetic sequences from the following be involved?

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

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

5.0 Human Gene Therapy Trials

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

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

5.3 How will the virus be administered? _____

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

5.5 Has human ethics approval been obtained? O YES, number: _____ O NO O PENDING

6.0 Animal Experiments

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

6.2 Name of animal species to be used Various Songbirds, and bats

6.3 AUS protocol # 2006-011-04, 2005-060-08, 2006-014-02, 2008-013-02

6.4 Will any of the agents listed be used in live animals O YES, specify: _____ ☒ NO

7.0 Use of Animal species with Zoonotic Hazards

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

- Pound source dogs O YES ☒ NO
- Pound source cats O YES ☒ NO
- Cattle, sheep or goats O YES ☒ NO
- Non- Human Primates O YES, please specify species _____ ☒ NO
- Wild caught animals ☒ YES, please specify species & colony # songbirds and bats O NO
- Birds ☒ YES O NO
- Others (wild or domestic) ☒ YES, please specify Bats O NO

8.0 Biological Toxins

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

8.2 If YES, please name the toxin(s)_____
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_____

9.0 Import Requirements

9.1 Will the agent be imported? ☒ YES, please give country of origin Costa Rica O NO
If no, please proceed to Section 10.0

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

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

9.4 Has the import permit been sent to OHS? ☒ YES, please provide permit #A-2008-01340-3 O NO

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

10.0 Training Requirements for Personnel Named on Form

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

- Biosafety
- Laboratory and Environmental/Waste Management Safety
- WHMIS
- 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 biohazardous agents in Sections 1.0 to 9.0 have been trained.

SIGNATURE Christyl L Sutherland

11.0 Containment Levels

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

→ no bsc
→ inspection Dec 23/08

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

O YES, permit # if on-campus_____
☒ NO
O NOT REQUIRED

My previous lab was certified, I do not know of a permit #.

12.0 Procedures to be Followed

12.1 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. I will ensure that workers have an up-to-date Position Hazard Communication Form, found at http://www.wph.uwo.ca/

SIGNATURE Christyl L Sutherland Date: June 5, 2008

13.0 Approvals

UWO Biohazard Subcommittee: SIGNATURE: G.M. Kidder
Date: 23 Dec. 2008

Safety Officer for Institution where experiments will take place: SIGNATURE: J. Hurley
Date: Dec 23/08

Safety Officer for University of Western Ontario (if different from above): SIGNATURE:_____
Date:_____

Approval Number: BIO-UWO-0229 Expiry Date (3 years from Approval): Dec. 23, 2011

Special Conditions of Approval:

use N95 fit-tested mask
puncture proof (leather) gloves.
contact Workplace Health re medical surveillance.

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

BIOHAZARDOUS AGENTS REGISTRY FORM – WORK DESCRIPTION

Christopher G. Guglielmo

June 5, 2008

The research conducted in my laboratory involves the use of wild caught birds and bats of unknown health status. We do not specifically study biohazardous agents or zoonotic diseases, however, because these animals are caught from the wild we treat them as level 2 biosafety hazards. Some of the research involves taking blood, tissue and/or whole specimens in the field and then analyzing them in the lab. In other cases birds are kept in captivity for up to several months of study and then their tissues are analyzed in the lab.

I and the majority of my students and post-docs work exclusively with birds. Liam McGuire, who I co-supervise with Dr. Brock Fenton, is studying several species of native bats, and has been vaccinated against rabies. I do not believe it is necessary for the rest of the personnel to be vaccinated against this pathogen.

The vast majority of my work takes place in Canada and the United States and does not require import or other permits from CFIA. The work of Alice Boyle is taking place in Costa Rica and did require a CFIA import permit to bring her samples back to Canada in May 2008. I have attached a copy of this permit to this application.

Canadian Food Inspection Agency
Goverment of Canada

Agence canadienne d'inspection des aliments
Gouvernement du Canada

Permit No./N° de permis:
A-2008-01340-3
ORIGINAL
2008/04/28
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 DR. ALICE BOYLE/UNIVERSITY OF WESTERN ONTARIO DEPARTMENT OF BIOLOGY 1151 RICHMOND ST. N LONDON, ONTARIO N6A5B7 Applicant Name: DR. CHRISTOPHER GUGLIELMO	**Exporter/Exportateur** DR. ALICE BOYLE APARTADO 676-2050 SAN PEDRO, HEREDIA COSTA RICA
Quarantine/Destination/Quarantaine DR. ALICE BOYLE/UNIVERSITY OF WESTERN ONTARIO DEPARTMENT OF BIOLOGY 1151 RICHMOND ST. N LONDON, ONTARIO N6A5B7	**Producer/Producteur**
Valid/Valide from/du 2008/04/28 year/month/day année/mois/jour **to/au** 2008/07/28 year/month/day année/mois/jour	**Country of Origin/ Pays d'Origine** COSTA RICA

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

Place of entry into Canada/Lieu d'entrée au Canada:
Toronto - International Airport (Pe

FOR THE IMPORTATION OF:/POUR L'IMPORTATION DE:
(Description of things(s)/Description de la ou des choses)
1. Product Description: IN-VITRO LABORATORY RESEARCH SAMPLES: UP TO 300 AVIAN TOENAIL & BLOOD/PLASMA SAMPLES Treatment
Description: SAMPLES STERILIZED AND PRESERVED WITH 70% ETHANOL IN SEALED PLASTIC TUBES

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

IN-VITRO LABORATORY RESEARCH SAMPLES: UP TO 300 AVIAN TOENAIL & BLOOD/PLASMA SAMPLES

1. The original of this permit and any other necessary export documentation pertaining to the shipment 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. Accompanying export documentation must be issued in either English or French.

4. The animal(s), germplasm or thing(s) described on this permit must be shipped by the most direct and appropriate route from the point of export to the address of destination in Canada. Transshipment through another country requires written authorization from the Canadian Food Inspection Agency.

5. The animal(s) or thing(s) imported under this permit must NEVER be removed from the premises of destination listed on this permit, unless written

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Agence canadienne d'inspection des aliments
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THE HEALTH OF ANIMALS ACT AND REGULATIONS/LOI ET RÈGLEMENT SUR LA SANTÉ DES ANIMAUX

Importer/Importateur	Exporter/Exportateur
DR. ALICE BOYLE/UNIVERSITY OF WESTERN ONTARIO DEPARTMENT OF BIOLOGY 1151 RICHMOND ST. N LONDON, ONTARIO N6A5B7 Applicant Name: DR. CHRISTOPHER GUGLIELMO	DR. ALICE BOYLE APARTADO 676-2050 SAN PEDRO, HEREDIA COSTA RICA

Selected Conditions / Conditions Choisies (Continued/Suite)

authorization is obtained from the Canadian Food Inspection Agency.

6. The material authorized for importation by this permit is to be used in in vitro studies ONLY and must not to be introduced into laboratory, domestic or wild animals (including birds or fish) unless written authorization is obtained from the Canadian Food Inspection Agency.

7. The animal(s) or thing(s) authorized for importation by this permit must be used ONLY for testing or analysis in contained facilities at the address of destination. Movement of the imported material or its derivatives from the address of destination indicated on this permit or use of the imported animal(s) or thing(s) or derivatives for purposes other than testing or analysis in contained facilities is NOT permitted without written authorization from the Canadian Food Inspection Agency.

8. The material authorized for importation by this permit must be stored and handled in a manner appropriate to prevent contamination of animals, other animal products, or products destined for the food chain.

9. Upon completion of the tests or experiments, the imported material as described on this permit and any derivatives thereof must be autoclaved, incinerated or alternatively disposed of under the supervision of an inspector of the Canadian Food Inspection Agency.

10. Records of the name and address of any place to which the imported product is sold or distributed must be maintained for two (2) years following importation. These records must be made available for inspection by the Canadian Food Inspection Agency upon request.

11. The importer is responsible for all costs incurred or associated with any testing or treatment of the animal(s) or thing(s) that may be required under the import permit or under the authority of the Health of Animals Act or the Health of Animals Regulations. The importer shall pay all fees for services required in respect of the importation under the National Animal Health Program Cost Recovery Fees Regulations in place at the time of importation.

12. Consideration of an application necessary for issuance of a permit to import the described animal or thing is subject to Class 1 fees.

13. The issuance of this permit does not relieve the owner or the importer of the obligation to comply with any other relevant federal, provincial or municipal legislation or requirement.

14. Failure to comply with the conditions contained in this permit or with the provisions of the Health of Animals Act and Regulations may result in the cancellation of this permit and will result in the forfeiture to the Crown of the animal(s) or thing(s) imported or in the removal of the animal(s) or thing(s) from Canada, all without compensation to, and at the expense of the importer. No person shall import any animal(s) or thing(s) into Canada from any country unless the animal(s) or thing(s) meet the conditions that are shown on the export certificate issued by the exporting country. The importer(s) are responsible for the animal(s) or thing(s) imported, their health, fitness, soundness, freedom from disease, active or latent and genetic or other defects. Where the Canadian Food Inspection Agency (CFIA) carries out tests and takes precautions when animal(s) or thing(s) are imported into Canada to reduce the risk of the introduction and spread of disease in Canada, such tests and precautions do not constitute and are not a warranty, guarantee, assurance, undertaking or anything similar that

Canada

Canadian Food Inspection Agency
Goverment of Canada

Agence canadienne d'inspection des aliments
Gouvernement du Canada

Permit No./N° de permis:
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IMPORT PERMIT PERMIS D'IMPORTATION

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

Importer/Importateur	**Exporter/Exportateur**
DR. ALICE BOYLE/UNIVERSITY OF WESTERN ONTARIO DEPARTMENT OF BIOLOGY 1151 RICHMOND ST. N LONDON, ONTARIO N6A5B7 Applicant Name: DR. CHRISTOPHER GUGLIELMO	DR. ALICE BOYLE APARTADO 676-2050 SAN PEDRO, HEREDIA COSTA RICA

Selected Conditions / Conditions Choisies (Continued/Suite)

the animals imported are healthy, fit, sound, free from disease, active or latent or genetic or other defects and such tests and precautions do not relieve or lessen the importer's responsibility as set out above. The importer, his heirs, executors, successors and assigns release and discharges Her Majesty the Queen in right of Canada and the CFIA of and from all claims and demands, damages, actions or causes of action arising or to arise by reason of the importation of the animals and agrees to indemnify and save harmless Her Majesty the Queen in right of Canada and the CFIA from and against all actions, damages, claims and demands which may be brought in respect of or arising out of the importation of such animal(s) or thing(s), their health, fitness, soundness, freedom or otherwise from disease, active or latent, genetic or other defects.

Additional Conditions Additionnelles

IN-VITRO LABORATORY RESEARCH SAMPLES: UP TO 300 AVIAN TOENAIL & BLOOD/PLASMA SAMPLES

1. The Official Export Certificate must be issued by an official veterinarian of the central veterinary service of Costa Rica. The export document must clearly describe the animal(s) or thing(s), the country of origin and must also contain a statement that describes any treatment the product(s) received in the country of origin. An acceptable treatment for the toenail & blood plasma samples is sterilization and preservation with 70% ethanol in sealed plastic tubes.

2. The samples must be taken only from clinically healthy birds.

Authorized By:/Approuvé par:
SUSAN WRAY, D.V.M.

For the Minister of Agriculture and Agri-Food
Pour le ministre d'agriculture et agroalimentaire

Canada