Modification Form for Permit BIO-UWO-0015

Permit Holder: David Heinrichs

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

~~Chris Malo~~

Fred Beasley

Additional Personnel
(Please list additional personnel here)

Cristina Marolda
John Cooper
Catherine Chung
Jonnson Cheung
Hanbo Zhang
Sung Ho Um
Daniel Passos

	Please stroke out any approved Biohazards to be removed below	Write additional Biohazards for approval below. *
Approved Microorganisms	S. aureus, S. epidermidis, S. haemolyticus, E.coli DH5 alpha	S. lugdunensis S. saprophyticus
Approved Cells		
Approved Use of Human Source Material	blood (whole) blood agar plates, blood (fraction) transferrin/hemoplex	
Approved GMO	Phage specific to bacteria	
Approved use of Animals	Mice	
Approved Toxin(s)		

* *PLEASE ATTACH A MATERIAL SAFETY DATA SHEET OR EQUIVALENT FOR NEW BIOHAZARDS.*
** *PLEASE ATTACH A BRIEF DESCRIPTION OF THE WORK THAT ENCOMPASSES 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: Apr 2, 2008

Date of Last Modification (if applicable): _____

BioSafety Officer(s): _____

Chair, Biohazards Subcommittee: _____

My laboratory studies staphylococcal bacteria, including S. aureus and the less-pathogenic coagulase-negative staphylococci (e.g. S. epidermidis, S. haemolyticus, S. saprophyticus, S. lugdunensis). Most of our studies involve the growth of bacteria in volumes (<10 ml) suitable to extract genomic DNA to be used for PCR amplication and cloning of amplicons. We also make many genomic mutations and study the effects of mutations on physiology of the bacterium. Culture volumes are usually between 200 uL and 10 mL.

Staphylococcus lugdunensis

From Wikipedia, the free encyclopedia

Staphylococcus lugdunensis is a member of the genus Staphylococcus, consisting of Gram-positive bacteria with spherical cells that appear in clusters. It was first described in 1988 and was recorded as a cause of serious human infections such as endocarditis, osteomyelitis, and septicaemia. It occurs as a commensal on human skin. In the past it was frequently misidentified as *S. hominis*, *S. aureus*, or other species.

FOR POST-OPERATIVE PATIENTS

S. lugdunensis may produce a bound coagulase (that is, the enzyme is bound to the cells), a property which it shares with *S. aureus*, but unlike *S. aureus* it does not produce a free coagulase. In the laboratory it can give a positive slide-coagulase test but a negative tube-coagulase test.

Staphylococcus lugdunensis	
Scientific classification	
Kingdom:	Bacteria
Phylum:	Firmicutes
Class:	Cocci
Order:	Bacillales
Family:	Staphylococcaceae
Genus:	*Staphylococcus*
Species:	***S. lugdunensis***
Binomial name	
Staphylococcus lugdunensis	
Freney *et al.* 1988	

S. lugdunensis is fairly easy to identify because unlike the great majority of staphylococci it decarboxylates ornithine. (Very occasional strains of other species may do the same.)

Colonies of *S. lugdunensis* are usually hemolytic, sticky, yellow or tan and about 2–4 mm in diameter after a 48-hour incubation. They usually have a characteristic odour.

Retrieved from "http://en.wikipedia.org/wiki/Staphylococcus_lugdunensis"
Categories: Staphylococcaceae | Gram positive bacteria | Bacteria stubs

Staphylococcus saprophyticus

From Wikipedia, the free encyclopedia

Staphylococcus saprophyticus is a coagulase-negative species of *Staphylococcus* bacteria. *S. saprophyticus* is often implicated in urinary tract infections. *S. saprophyticus* is resistant to the antibiotic Novobiocin, a characteristic that is used in laboratory identification to distinguish it from *S. epidermidis*, which is also coagulase- negative.

The organism is rarely found in healthy humans but is commonly isolated from animals and their carcasses.

It is implicated in 10-20% of urinary tract infections (UTI). In females between the ages of ca. 17-27 it is the second most common cause of UTIs. It may also reside in the urinary tract and bladder of sexually active females. *S. saprophyticus* is phosphatase-negative, urease and lipase positive.

Some of the symptoms of this bacteria are burning sensation when passing urine, the urge to urinate more often than usual, the 'dripping effect' after urination, weak bladder, bloated feeling with sharp razor pains in the lower abdomen around the bladder and ovary areas and razor-like pains during sexual intercourse.

Staphylococcus saprophyticus

Scientific classification

Kingdom:	Bacteria
Phylum:	Firmicutes
Class:	Cocci
Order:	Bacillales
Family:	Staphylococcaceae
Genus:	*Staphylococcus*
Species:	***S. saprophyticus***

Binomial name

Staphylococcus saprophyticus
(Fairbrother 1940)
Shaw *et al.* 1951

Background

Until the last decade, coagulase-negative staphylococci occurring in urine specimens were usually regarded as a contaminant. In the early 1970s, more than ten years after the original demonstration of *Staphylococcus saprophyticus* in urine specimens, this species became recognized as a frequent cause of urinary tract infections (UTI). In young women, *S. saprophyticus* is, after *Escherichia coli*, the second-most-frequent causative agent of acute UTI. Patients with UTI caused by *S. saprophyticus* usually present with symptomatic cystitis. Signs and symptoms of renal involvement are also often registered. The urine sediment of a patient with UTI caused by *S. saprophyticus* has a characteristic appearance microscopically. Chemical screening methods for bacteriuria do not always succeed in diagnosing UTI caused by *S. saprophyticus*. Even when such an infection occurs above the neck of the bladder, low numbers of colony-forming units (less than 10(5) cfu/ml) of *S. saprophyticus* are comparatively often found in the bladder and voided urine. *S. saprophyticus* is usually susceptible to antibiotics commonly prescribed for patients with UTI, with the exception of nalidixic acid. The bacterium has a capacity for selective adherence to human urothelium. It causes direct hemagglutination. The adhesin for *S. saprophyticus* is a lactosamine structure. This staphylococcal species produces an extracellular enzyme complex that can inhibit growth of both gram-positive and gram-negative bacteria. Quinolones are commonly used in treatment of *S. saprophyticus* urinary tract infections.

1510 - UWO - 0015

THE UNIVERSITY OF WESTERN ONTARIO
BIOHAZARDOUS AGENTS REGISTRY FORM
Revised Biohazards Subcommittee: January, 2007

This form must be completed by each Principal Investigator holding a grant administered by the University of Western Ontario where the use of biohazardous infectious agents are described in the experimental work proposed. The form must also be completed if animal work is proposed involving the use of biohazardous agents or animal carrying zoonotic agents infectious to humans. 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 (Stevenson-Lawson Building, Room 60) for forward to the Biohazard Subcommittee. For questions regarding this form, please contact the Biosafety Coordinator at extension 81135. If there are changes to the information on this form (excluding grant title and funding agencies) modifications must be completed and sent to Occupational Health and Safety. See website: www.uwo.ca/humanresources

PRINCIPAL INVESTIGATOR DAVID E. HEINRICHS
SIGNATURE
DEPARTMENT Microbiology
ADDRESS 215 SDRI
PHONE NUMBER 83984
EMAIL deh@uwo.ca

Location of experimental work to be carried out: Building(s) SDRI Room(s) 215, 211, 209
*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 it being sent to Occupational Health and Safety (See Section 12.0, Approvals). For research being done at Lawson Health Research Institute, London Regional Cancer Centre, Child and Parent Research Institute or Robarts Research Institute, University Biosafety Committee members can also sign as the Safety Officer.

TITLE OF GRANT(S):
Iron acquisition in S. aureus — CIHR
Siderophores in the staphylococci — NSERC

PLEASE ATTACH A BRIEF DESCRIPTION OF YOUR WORK, SUCH A THE RESEARCH GRANT SUMMARY(S) THAT EXPLAINS THE BIOHAZARDS USED. PROJECTS SUBMITTED WITHOUT A SUMMARY WILL NOT BE REVIEWED.

FUNDING AGENCY/AGENCIES CIHR / NSERC

Names of all personnel working under Principal Investigators supervision in this location:
i) FRED BEASLEY
ii) CHRIS MELO
iii) NAGINI MURTOI
iv) ENRIQUE VINES
v) XIANG RUAN
ALI KHAN
SUZANA BJAC

*** 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)? ✓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?
S. aureus	✓Yes No	✓Yes No	Yes ✓No	2 L
S. epidermidis	✓Yes No	✓Yes No	Yes ✓No	20 mL
S. haemolyticus	✓Yes No	✓Yes No	Yes ✓No	20 mL
E. coli DH5α	✓Yes No	✓Yes No	Yes ✓No	6 litres

1.3 For above named organism(s) or biological agent(s) circle HC or CFIA Containment Level required. 1/2/3

1.4 Source of microrganism(s) or biological agent(s)? STOCK COLLECTION

2.0 Cell Culture

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

2.2 Please indicate the type of primary cells (ie. 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
Human	Yes No	
Rodent	Yes No	
Non-human primate	Yes No	
Other (specify)		

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	Yes No		
Rodent	Yes No		
Non-human primate	Yes No		
Other (specify)	Yes No		

2.4 For above named cell types(s) circle HC or CFIA containment level required 1 2 3

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

3.0 Use of Human Source Materials

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

3.2 Indicate if the following will be used in the laboratory

- Human blood (whole) or other bodily fluids ☒YES ☐NO If YES, Specify BLOOD AGAR PLATES.
- Human blood (fraction) or other bodily fluids ☒YES ☐NO If YES, Specify TRANSFERRIN / HEMOPEXIN / HAEMOGLOBIN
- Human organs (unpreserved) ☐YES ☐NO If YES, Specify_____
- Human tissues (unpreserved) ☐YES ☐NO If YES, Specify_____

3.3 Is human source known to be infected with and infectious agent ☐YES ☒NO
If YES , please name infectious agent _____

3.4 For above named materials circle HC or CFIA containment level required. 1 (2) 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 ? ☒YES ☐NO
If no, please proceed to Section 5.0

4.2 Will genetic sequences from the following be involved:

- HIV ☐YES ☒NO
if YES specify_____
- HTLV 1 or 2 or genes from any CDC class 1 pathogens ☐YES ☒NO
if YES specify_____
- Other human or animal pathogen and or their toxins ☐YES ☒NO
if YES specify_____

4.3 Will intact genetic sequences be used from

- SV 40 Large T antigen ☐YES ☒NO If YES specify_____
- Known oncogenes ☐YES ☒NO If YES specify_____

4.4 Will a live vector(s) (viral or bacterial) be used for gene transduction ☒YES ☐NO
If YES name virus PHAGE → SPECIFIC TO BACTERIA

4.5 List specific vector(s) to be used:_____

4.6 Will virus be replication defective ☐YES ☐NO

4.7 Will virus be infectious to humans or animals ☐YES ☐NO

4.8 Will this be expected to increase the Containment Level required ☐YES ☐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 using the viral vector in 4.0 be conducted? ☐ 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? ☐ YES ☐ 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? ☐ YES ☐ NO

6.0 Animal Experiments

6.1 Will any of the agents listed be used in live animals? ☒ YES ☐ NO
If no, please proceed to section 7.0

6.2 Name of animal species to be used MOUSE

6.3 AUS protocol # 2005-039-05

6.4 If using murine cell lines, have they been tested for murine pathogens? ☐ YES ☐ 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 bodily fluids including blood be used:

- Pound source dogs ☐ YES ☒ NO
- Pound source cats ☐ YES ☒ NO
- Sheep or goats ☐ YES ☒ NO
- Non- Human Primates ☐ YES ☒ NO If YES specify species _____
- Wild caught animals ☐ YES ☒ NO If YES specify species _____
  colony # _____

8.0 Biological Toxins

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

8.2 If YES, please name the toxin_____

8.3 What is the LD_{50} (specify species) of the toxin_____

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

9.0 Import Requirements

9.1 Will the agent be imported? ☐ YES ☒ NO
If no, please proceed to Section 10.0
If yes, country of origin_____

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

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

9.4 Has the import permit been sent to OHS? ☐ YES ☐ NO
If yes, Permit # _____

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

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 _____

11.0 Containment Levels

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

11.2 Has the facility been certified by OHS for this level of containment? ☑ YES ☐ NO

11.3 If yes, please give the date and permit number: B10-UWO-0015

12.0 Approvals

UWO Biohazard Subcommittee

Signature_____ Date 4 Feb. '08

Safety Officer for Institution where experiments will take place

Signature_____ Date Feb 1, 2008

Safety Officer for University of Western Ontario (if different than above)

Signature_____ Date_____

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