

Modification Form for Permit BIO-RRI-0057

Permit Holder: Vincent Morris

Approved Personnel

(Please stroke out any personnel to be removed)

Nicole Hague

Ian MacDonald

Additional Personnel

(Please list additional personnel here)

Please stroke out any approved Biohazards to be removed below

Write additional Biohazards for approval below. *

Approved Microorganisms

E.coli - dh5 Alpha, Influenza C

Approved Cells

rodent (C57B/6), rodent (mmpq), rodent (C57B1/6), mouse melanoma, B16F1, B16F10, MDAMB231, Cloudman S91 mouse melanoma cells

HMVTF established human melanoma cell line, uninfected (vaginal)

Approved Use of Human Source Material

Approved GMO

pcDNA 3.1 Hygro, pcDNA 3.1 neo

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 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: Jan 5, 2010

Date of Last Modification (if applicable): _____

BioSafety Officer(s): _____

Chair, Biohazards Subcommittee: _____



Protecting people
Preventing harm
Preparing for threats

[You are not logged on.](#)

General Cell Collection Detail

General Cell Collection: HMVII

Catalogue No.: 92042701
Cell Line Name: HMVII
Keywords: Human vaginal malignant melanoma
Cell Line Description: Established from a vaginal malignant melanoma of a 65 year-old female with blood type B. Cells produce melanin and can support the replication of influenza C virus.
Species: Human
Tissue: Vagina
Morphology: Epithelial
Growth Mode: Adherent
Passage No: 145
Subculture Routine: Split sub-confluent cultures (70-80%) 1:3 to 1:6 i.e. seeding at 2-4x10,000 cells/cm² using 0.25% trypsin or trypsin/EDTA, 5% CO₂; 37°C.
Culture Medium: Ham's F10 or RPMI 1640 + 2mM Glutamine + 10-20% Foetal Bovine Serum (FBS).
Karyotype: Not specified
Products: Melanin
Depositor: Prof T Kasuga, Tokyo Medical and Dental University, Bunkyo-ku
Originator: Yes
Country: JAPAN
References: J Gen Virol 1989;70:1653
Additional Bibliography: Not specified
Patents: None specified by Depositor
Research Council Deposit: No
Release Conditions: No

The HPA Culture Collections represent deposits of cultures from world-wide sources. While every effort is made to ensure details distributed by HPA Culture Collections are accurate, HPA Culture Collections cannot be held responsible for any inaccuracies in the data supplied. References where quoted are mainly attributed to the establishment of the cell culture and not for any specific property of the cell line, therefore further references should be obtained regarding cell culture characteristics. Passage numbers where given act only as a guide and HPA Culture Collections does not guarantee the passage number stated will be the passage number received by the customer.

Cultures supplied by HPA Culture Collections are for research purposes only. Enquiries regarding the commercial use of a cell line are referred to the depositor of the cell line. Some cell lines have additional special release conditions such as the requirement for a material transfer agreement to be completed by the potential recipient prior to the supply of the cell line. Please view the [Terms & Conditions of Supply](#) for more information.

Delivery State:

- Frozen £375.00
 Growing £525.00
 DNA-5µg (100ng/µl) £50.00

Quantity Required:

Copyright © HPA 2008. All rights reserved.



ABSTRACT OF RESEARCH INVOLVING INFLUENZA C VIRUS

Background: Skin melanoma is the 6th most common cancer among white men and women in the United States, and its incidence has been increasing for the last 3 decades. Melanoma patients have increased serum levels of sialic acid proportional to their tumor burden. Also human melanomas have an increased in O-acetylation of their sialic acids compared with normal skin. Influenza C attached to O-acetyl N-acetylneuramic acid (sialic acid). Thus influenza C virus can infect and replicate in melanoma cells in vitro. The purpose of our research is to determine if influenza C virus can infect and destroy melanoma tumors and metastases in mice in vivo.

Hypothesis: Influenza C virus can infect and destroy melanoma cell primary tumors and metastases in vivo.

Objective: Use Influenza C virus to destroy melanoma cells in vivo.

Experimental Approach:

1. Inject melanoma cells intradermally into a syngeneic mouse.
2. After the tumor appears, inject influenza C virus into the tumor.
3. Compare the growth and metastasis of the tumor in the influenza C virus injected mouse with the uninfected but tumor injected mouse.

Expected Results: We expect that the virus will infect and kill the melanoma cells in the infected mouse while the melanoma tumor will continue to grow and metastasize in the mouse not injected with influenza C. Since the virus is being injected intradermally into the tumor, we expect to find a dose that will kill the melanoma tumor cells but not cause illness in the mouse, since influenza C is transmitted through the respiratory tract.

Significance: These experiments will demonstrate the principal that viruses can be used to kill cancer cell in tumors and metastases in vivo.

Modification Form for Permit BIO-UWO-0174

Permit Holder: Vincent Morris

Approved Personnel

(Please stroke out any personnel to be removed)

Nicole Hague

Ian MacDonald

Additional Personnel

(Please list additional personnel here)

Please stroke out any approved Biohazards to be removed below

Write additional Biohazards for approval below. *

Approved Microorganisms

E.coli - dH5 Alpha

Influenza C

Approved Cells

rodent (C57B/6), rodent (mmpq), rodent (C57B1/6), mouse melanoma, B16F1, B16F10, MDAMB 231, Cloudman S91 mouse melanoma cells

Approved Use of Human Source Material

Approved GMO

pcDNA 3.1 Hygro, pcDNA 3.1 neo

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 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: L2 2

Date of Last Biohazardous Agents Registry Form: Aug 24, 2007

Date of Last Modification (if applicable): Dec 21, 2009

BioSafety Officer(s): J. Stanley January 5, 2010 RD

Chair, Biohazards Subcommittee: S. McElderry

Proposed locations
* In vitro work: Dr Madrena's level 2 tissue culture (Robarts) 2220 RD
* In vivo work: level 2 animal room (ACUS)

Section 1 -- Product and Company Information

Product Name: Influenza C Virus, C/Taylor/1233/47

Catalog Number: NR-3183

Company:

American Type Culture Collection
10801 University Boulevard
Manassas, Virginia, 20110-2204, USA

Telephone: 800-638-6597 or 703-365-2700

Fax: 703-365-2745

24 hour Emergency Number: 703-365-2710 or 800-424-9300 (Chemtrec - transport only)

Product Use: This material is authorized for research, non-commercial purposes only. It is not intended for use on human subjects.

Section 2 -- Composition/Information on Ingredient

Substance Name: Influenza C Virus, C/Taylor/1233/47 in allantoic fluid.

CAS #: Not applicable

Alternate CAS #: Not applicable

UN #: 3373

RTECS #: Not available

Synonym or Cross Reference: None known

Section 3 -- Hazards Identification

Health Hazards: Influenza C Virus, C/Taylor/1233/47 contains no hazardous chemicals as defined by the Occupational Safety and Health Standards, 29 CFR Part 1910.1200. The OSHA Hazcom Standard is available online at http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099.

Biosafety: Handle as potentially biohazardous material under at least Biosafety Level 2 containment.

Section 4 -- First Aid Measures

In case of any exposure, seek medical attention.

Eye Exposure: With clean hands remove any contact lenses. Immediately flush with copious amounts of water, including under the eyelids, for at least 15 minutes. Then report to your safety officer and seek medical attention.

Dermal Exposure: Remove contaminated clothes. Rinse skin with plenty of water and soap if available. Then report to your safety officer and seek medical attention.

Inhalation Exposure: If victim is having trouble breathing or stops breathing seek emergency medical help. Do not perform CPR unless it can be done safely and you are a certified individual.



ABSTRACT OF RESEARCH INVOLVING INFLUENZA C VIRUS

Background: Skin melanoma is the 6th most common cancer among white men and women in the United States, and its incidence has been increasing for the last 3 decades. Melanoma patients have increased serum levels of sialic acid proportional to their tumor burden. Also human melanomas have an increased in O-acetylation of their sialic acids compared with normal skin. Influenza C attached to O-acetyl N-acetylneuramic acid (sialic acid). Thus influenza C virus can infect and replicate in melanoma cells in vitro. The purpose of our research is to determine if influenza C virus can infect and destroy melanoma tumors and metastases in mice in vivo.

Hypothesis: Influenza C virus can infect and destroy melanoma cell primary tumors and metastases in vivo.

Objective: Use Influenza C virus to destroy melanoma cells in vivo.

Experimental Approach:

1. Inject melanoma cells intradermally into a syngeneic mouse.
2. After the tumor appears, inject influenza C virus into the tumor.
3. Compare the growth and metastasis of the tumor in the influenza C virus injected mouse with the uninfected but tumor injected mouse.

Expected Results: We expect that the virus will infect and kill the melanoma cells in the infected mouse while the melanoma tumor will continue to grow and metastasize in the mouse not injected with influenza C. Since the virus is being injected intradermally into the tumor, we expect to find a dose that will kill the melanoma tumor cells but not cause illness in the mouse, since influenza C is transmitted through the respiratory tract.

Significance: These experiments will demonstrate the principal that viruses can be used to kill cancer cell in tumors and metastases in vivo.

Oral Exposure: If a person is unconscious never give them anything to drink and seek emergency medical help. Do not induce vomiting unless directed by medical personnel. If victim begins to vomit, turn on side or stomach to prevent backflow into respiratory tract.

Section 5 – Fire Fighting Measures

Flammability: Not Flammable

Suitable Extinguishing Media: Water spray, carbon dioxide, dry chemical powder, Halon (where regulations permit), or appropriate foam.

Firefighting

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent inhalation, ingestion, skin and eye contact.

Specific Hazard(s): Material is not flammable. Responders should take into consideration the biohazard risk associated with responding to a fire in the area where the material may be stored or handled.

Section 6 – Accidental Release Measures

Procedure(s) of Personal Precaution(s): At a minimum use PPE listed in Section 8. Wear laboratory coat, gloves and eye protection. Avoid all contact.

Methods for Cleaning Up

Patient/Victim: Wash with soap and water. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Do not take clothing home.

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

Note: The use of additional PPE may be necessary for cleaning solutions.

Section 7 – Handling and Storage

Handling/User Exposure: Handle in accordance with at least Biosafety Level 2 practices. Keep closed or covered when not in use. Wear appropriate PPE. Avoid direct contact. Avoid tasks that may create aerosols.

Suitable Storage: The product should be stored at -60°C or colder immediately upon arrival.

Special Requirements: Follow established laboratory procedures when handling material.

Section 8 – Exposure Controls/PPE

AVOID DIRECT CONTACT

Work should be conducted under at least Biosafety Level 2. Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. [Biosafety in Microbiological and Biomedical Laboratories](#), 5th ed. Washington, DC: U.S. Government Printing Office, 2007. This text is available online at <http://www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm>.

Engineering Controls: If possible, use in a containment device such as Class I or II biological safety cabinet with easy access to a safety shower and eyewash. Avoid handling the material in a manner likely to create aerosols. Dispose all sharps in an approved sharps container.

Respiratory Protection: Consult your organization's Respiratory Protection Program and OSHA 1910.134 for respiratory protection guidance.

Personal Protective Equipment: Laboratory coat, gloves and safety glasses with side-shields should be worn.

General Hygiene Measures: Avoid direct contact with skin, eyes, nose or mouth. Do not swallow or inhale. Wash hands at completion of work.

Section 9 – Physical/Chemical Properties

Appearance/Physical State:	Liquid (shipped as frozen solid)
Molecular Weight:	Not available
Boiling Point/Range:	Not available
Melting Point/Range:	Not available
Specific Gravity:	Not available
Density:	Not available
Solubility:	Not available

Section 10 – Stability and Reactivity

Stability: Chemically stable when dried and under ambient conditions. Refer to Section 7 for storage and handling information.

Conditions to Avoid: Not available

Materials to Avoid: Not available

Section 11 – Toxicological Information

Route of Exposure

Eye Contact: Possible route of infection. Avoid eye contact.

Skin Contact: Data not available. Avoid skin contact.

Skin Absorption: Data not available. Avoid skin absorption.

Inhalation: Inhalation of aerosolized virus is a likely route of infection. Fomites may play a role in transmission. Avoid inhalation.

Ingestion: The fecal oral route is a route of infection in birds and a possibility in humans. Fomites may play a role in transmission. Avoid ingestion.

Parenteral Exposure: Data not available. Avoid parenteral exposure.

Sensitization

Skin: Not known to occur.

Respiratory: Not known to occur.

Target Organ(s) or System(s)

See below

Signs and Symptoms of Exposure

Influenza C Virus does infect humans. However, it is a milder infection than Influenza A and B Viruses. Either asymptomatic infections or mild upper respiratory infections with symptoms similar to the common cold. Lower respiratory tract complications are rare. Influenza C Virus has never been associated with a large human epidemic.

Toxicity Data: Not available

Effects of Long Term or Repeated Exposure: Data not available

Chronic Exposure--Teratogen: Data not available

Chronic Exposure--Mutagen: Data not available

Chronic Exposure--Reproductive Hazard: Data not available

Section 12 -- Ecological Information

Ecotoxicological Information: No ecological information available

Section 13 -- Disposal Considerations

Decontaminate all wastes before disposal (steam sterilization, chemical disinfection, and/or incineration).

Dispose of in accordance with applicable regulations.

Section 14 -- Transport Information

Contact BEI Resources for transport information.

Section 15 -- Regulatory Information

Influenza C Virus, C/Taylor/1233/47 is not a Select Agent and hence is not required to be registered with the CDC.

Section 16 -- Other Information

Disclaimer of expressed and implied warranties

The above information was compiled from sources believed to be reliable and is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. ATCC[®], BEI Resources and the U.S. Government shall not be held liable for any damage resulting from handling or from contact with the above product. See the appropriate Product Information Sheet, Certificate of Analysis and invoice for additional terms and conditions of sale.

Abbreviations

ATCC -- American Type Culture Collection
BEI Resources -- Biodifense and Emerging Infections Research Resources Repository
CAS # -- Chemical Abstract System Registry Number
CDC -- Center for Disease Control
CFR -- Code of Federal Regulations
CPR -- CardioPulmonary Resuscitation
EPA -- Environmental Protection Agency
HEPA -- High Efficiency Particulate Air (Filter)
HHS -- Health and Human Services
OSHA -- Occupational Safety & Health Administration
PPE -- Personal Protective Equipment
RTECS # -- Registry of Toxic Effects of Chemical Substances Number
UN # -- United Nations Committee of Experts on the Transport of Dangerous Goods Number
USDA -- United States Department of Agriculture

MORRIS

Subject: Fwd: Re: Influenza C project - Madrenas & Morris
From: Jennifer Stanley <jstanle2@uwo.ca>
Date: Tue, 22 Dec 2009 11:42:38 -0500
To: rsn@uwo.ca

----- Original Message -----

Subject: Re: Influenza C project - Madrenas & Morris
Date: Tue, 22 Dec 2009 11:37:23 -0500
From: Vincent L Morris <vmorris@uwo.ca>
To: Jennifer Stanley <jstanle2@uwo.ca>

To Jennifer:

Tissue culture will be done in room 2220 RRI.

Thanks again for all your help.

Vince

----- Original Message -----

From: Jennifer Stanley <jstanle2@uwo.ca>
Date: Monday, December 21, 2009 1:44 pm
Subject: Influenza C project - Madrenas & Morris
To: Joaquin Madrenas <madrenas@robarts.ca>
Cc: Vincent L Morris <vmorris@uwo.ca>, rsn@uwo.ca

> Hello there Dr. Madrenas:
>
> I understand that you and Dr. Morris are collaborating on a
> project
> involving Influenza C, and that the in vitro work will be done
> at
> Robarts. Can you let me know where in Robarts? The two
> locations I have
> under your name (inspected in July of this year) are Rooms 2278
> and
> 2276. Is the work done in one of these rooms or is it
> going to be done
> in another location...perhaps a shared tissue culture space?
>
> Regards,
>
> Jennifer

Re: Fwd: Re: Biohazards Subcommittee Protocols

MORRIS

Subject: Re: Fwd: Re: Biohazards Subcommittee Protocols
From: Gerald M Kidder <gmk@uwo.ca>
Date: Thu, 24 Dec 2009 12:22:24 -0500
To: Jennifer Stanley <jstanle2@uwo.ca>

Good- consider it approved at CL2.

----- Original Message -----

From: Jennifer Stanley <jstanle2@uwo.ca>
Date: Thursday, December 24, 2009 11:25 am
Subject: Fwd: Re: Biohazards Subcommittee Protocols
To: "avpres@uwo.ca" <avpres@uwo.ca>

>
> Hi Jerry
> It sounds like Dr. Siu is okay with the Morris protocol at Level 2. If so then this is the third "okay" vote
> Jennifer
>
> ----- Original Message -----
> Subject: Re: Biohazards Subcommittee Protocols
> Date: Thu, 24 Dec 2009 11:24:11 -0500
> From: Jennifer Stanley <jstanle2@uwo.ca>
> To: S Siu <srscons@on.aibn.com>
> CC: Tyrrel de Langley <tyrrel@uwo.ca>, Stephen Barr <stephen.barr@uwo.ca>, SRS Consultants <srsadmin@on.aibn.com>, Susan Koval <skoval@uwo.ca>, Gregory
>
> Hi Dr. Siu - Morris will be doing this project at Level 2. There is no restriction on the number of reviews at this point, but we

Gerald M. Kidder, Ph.D.
Associate Vice-President (Research)
Support Services Building, room 5183
The University of Western Ontario
London, ON N6A 3K7