THE UNIVERSITY OF WESTERN ONTARIO
BIOHAZARDOUS AGENTS REGISTRY FORM
Revised Biohazards Subcommittee: September, 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: PETER CADIEUX
SIGNATURE: [signature]
DEPARTMENT: SURGERY, UWO + LHRI
ADDRESS: LHRI - FO-102a office FO-102 labs
PHONE NUMBER: x 61093 office x 65203 labs
EMAIL: pcadieux@uwo.ca

Location of experimental work to be carried out: Building(s) LHRI Room(s) FO-102 FO-107

*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.

GRANT TITLE(S):
1) THE EFFECTS OF TRICLOSAN ON UROPATHOGEN SENSITIVITY TO ANTIBIOTICS.
2) EFFECTS OF NOVEL COATINGS INSPIRED BY MARINE MUSSELS ON URETERAL STENT ENCRUSTATION AND UROPATHOGEN ADHERENCE IN VIVO.
3) THE POTENTIAL RELATIONSHIP BETWEEN MICROORGANISMS AND RHEUMATOID ARTHRITIS.

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

FUNDING AGENCY/AGENCIES: ADF (UWO), LHRI (IRF), LHRI (AST), INDUSTRY (NEXTRUS CORP.)

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

MAAIKE VANTECEK - RESEARCH TECHNICIAN
LEE GOWEAU - STUDENT
GEOFF WIGNALL - ENDOUROLOGY FELLOW

*** 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: PLEASE SEE ATTACHED

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?
	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	

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)? CLINICAL ISOLATES + ATCC STRAINS

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	T24 Bladder A498 KIDNEY	ATCC
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***

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?	Source/ Supplier	Health Canada or CFIA Containment Level
Escherichia coli DH5α	No	No	No			1
Escherichia coli XL-1Blue	No	No	No			1
Lactobacillus plantarum 14917T	No	No	No			1
Lactobacillus plantarum 14431	No	No	No			1
Lactobacillus plantarum 10012	No	No	No			1
Lactobacillus plantarum 8014	No	No	No			1
Lactobacillus reuteri 23272T	No	No	No			1
Lactobacillus reuteri RC14	No	No	No			1
Lactobacillus rhamnosus GR1	No	No	No			1
Lactobacillus rhamnosus 7469T	No	No	No			1
Lactobacillus rhamnosus GG	No	No	No			1
Enterococcus faecalis 23241	Yes	No	No			2
Enterococcus faecalis 1131	Yes	No	No			2
Enterococcus sp. (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2

Enterococcus sp. (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2
Enterococcus sp. (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2
Escherichia coli GR12	Yes	No	No			2
Escherichia coli C1212	Yes	No	No			2
Escherichia coli C1214	Yes	No	No			2
Escherichia coli 67	Yes	No	No			2 17
Escherichia coli 431	Yes	No	No			2
Escherichia coli 917	Yes	No	No			2
Escherichia coli Co1	Yes	No	No			2
Escherichia coli Hu734	Yes	No	No			2
Escherichia coli (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2
Klebsiella pneumoniae 3α	Yes	No	No			2
Klebsiella pneumoniae 280	Yes	No	No			2
Klebsiella sp. (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2
Proteus mirabilis 28cii	Yes	No	No			2

Proteus mirabilis 296	Yes	No	No			2
Proteus mirabilis (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2
Pseudomonas aeruginosa AK1	Yes	No	No			2
Pseudomonas aeruginosa PAO1	Yes	No	No			2
Pseudomonas aeruginosa (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2
Staphylococcus aureus Newman	Yes	No	No			2
Staphylococcus aureus Oxford	Yes	No	No			2
Staphylococcus epidermidis 26585	Yes	No	No			2
Staphylococcus epidermidis 3059	Yes	No	No			2
Staphylococcus sp. Coagulase Negative (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2
Staphylococcus sp. Coagulase Negative (from UTI patient)	Yes	No	No		Isolated from urinary tract infection patient	2

3.0 Use of Human Source Materials

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

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

Human Source Material	**Source/Supplier /Company Name**	**Is Human Source Material 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 ~~(urine)~~	CLINICAL STUDIES	O Yes O No ● SOME	SOME BACTERIAL STRANS (OPPORTHODENS	O 1 ● 2 O 3
Human Blood (fraction) or other Body Fluid (URINE)	CLINICAL STUDIES	O Yes O No ● SOME	OR UNKNOWN BACTERIAL STRANS)	O 1 ● 2 O 3
Human Organs (unpreserved)		O Yes O No		O 1 O 2 O 3
Human Tissues (unpreserved)		O Yes O No		O 1 O 2 O 3
Human Organs (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? ● YES O NO
If no, please proceed to Section 5.0

4.2 Will genetic sequences from the following be involved:

- HIV O YES ● NO
  if YES specify_____
- HTLV 1 or 2 or genes from any CDC class 1 pathogens O YES ● NO
  if YES specify_____
- Other human or animal pathogen and or their toxins ● YES O NO
  if YES specify OXALATE DECARBOXYLASE FROM BACILLUS SUBTILIS (GENE IS NOT HAZARDOUS)

4.3 Will intact genetic sequences be used from

- SV 40 Large T antigen O YES ● NO If YES specify_____
- Known oncogenes O YES ● NO If YES specify_____

4.4 Will a live viral vector(s) or (bacterial plasmid) be used for gene transduction ● YES O NO
If YES name bacterial plasmids.
Please attach a Material Safety Data Sheet or equivalent.

4.5 List specific vector(s) to be used: pMSP3535, pTRKL2 Shuttle vectors for Gram positive organisms

4.6 Will virus be replication defective O YES O NO N/A

4.7 Will virus be infectious to humans or animals O YES O NO N/A

4.8 Will this be expected to increase the Containment Level required O YES ● NO

[redacted]

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

[redacted]

PERHAPS IN THE FAR REACHING FUTURE BUT NOT WITHIN YEARS AT LEAST.

5.0 Human Gene Therapy Trials

5.1 Will human clinical trials using the viral vector in 4.0 be conducted? 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 O NO O PENDING

6.0 Animal Experiments

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

6.2 Name of animal species to be used SPRAGUE DAWLEY RATS, NEW ZEALAND WHITE RABBITS

6.3 AUS protocol # RAT - PENDING (FIRST REVIEW CURRENTLY) RABBIT - 2007-06-07

6.4 If using murine cell lines, have they been tested for murine pathogens? O YES O NO N/A

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 O YES ● NO
- Pound source cats O YES ● NO
- Cattle, sheep or goats O YES ● NO
- Non- Human Primates O YES ● NO If YES specify species _____
- Wild caught animals O YES ● NO If YES specify species _____ colony # _____
- Birds O YES ● NO
- Others (wild or domestic) O YES ● 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_____

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

8.4 Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

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9.0 Import Requirements

9.1 Will the agent be imported? O 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? O YES O NO

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

9.4 Has the import permit been sent to OHS? O YES O 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
- Employee Health and Safety Orientatioin

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 _____

~~WE ARE IN THE PROCESS OF COMPLETING~~ JW THIS

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

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

11.3 If yes, please give the date and permit number: BIO-LHRI-0040 October 30, 2008 This number was supplied by Jennifer Stanley July 31/06 but date is unknown as to last approval given.

12.0 Approvals

UWO Biohazard Subcommittee

Signature_____ Date_____

Safety Officer for Institution where experiments will take place

Signature_____ Date October 30/2008

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

Signature_____ Date_____

Expiry Date (3 years from Approval): _____

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

----- Original Message -----
From: Peter A Cadieux <pcadieux@uwo.ca>
Date: Tuesday, July 14, 2009 12:25 pm
Subject: Re: Biohazard Agents Registry Form: Cadieux
To: Jennifer Stanley <jstanle2@uwo.ca>

> Hi Jennifer,
>
> All of the uropathogen strains are being used in the study of bacterial biofilms, mostly related to urinary tract infections on devices such as stents and catheters (all strains of E.coli, S.aureus, K.pneumoniae, E.faecalis, P. mirabilis, S.epidermidis, P. aeruginosa, Coagulase-negative Staphs). We only grow them in small volumes at a time, normally no more than 5mL. Several of these are also being grown to collect DNA to use as PCR controls for some studies looking into infection in clinical samples. Again, small cultures. The lactobacilli we are currently not using (level 1 anyway) but may grow in the future for DNA analysis or to see if they can inhibit pathogenic bacterial biofilms. Hope this helps.
>
> I just remembered that we have just received two new bacterial strains that we are using in dental biofilm studies. They both came from ATCC through Cedarlane. Can you add them to our form? They are:
>
> Streptococcus mutans 25175 (Level 1)
> Haemophilus actinomycetemcomitans 43718 (strain Y4) (Level 2)
>

Product Description

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Cell Biology

ATCC® Number:	**HTB-4™** Order this item	**Price:**	**$244.00**
Designations:	T24	**Depositors:**	C O'Toole
Biosafety Level:	1	**Shipped:**	frozen
Medium & Serum:	See Propagation	**Growth Properties:**	adherent
Organism:	*Homo sapiens* (human)	**Morphology:**	epithelial
Source:	**Organ:** urinary bladder **Disease:** transitional cell carcinoma		
Cellular Products:	tumor specific antigen		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Cell Culture Products

Applications:	transfection host (Roche FuGENE® Transfection Reagents technology from amaxa)
Tumorigenic:	Yes, in hamster cheek pouch No, in nude mice
Antigen Expression:	HLA A1, A3, B18, Bw35, Cw4, DRw2, Dw4
DNA Profile (STR):	Amelogenin: X CSF1PO: 10,12 D13S317: 12 D16S539: 9 D5S818: 10,12 D7S820: 10,11 THO1: 6 TPOX: 8,11 vWA: 17
Cytogenetic Analysis:	hypodiploidy to hypopentaploidy; stemline 86; 2 to 4 telocentrics; 3 to 4 minutes, hypotetraploid to hypertetraploid with abnormalities including dicentrics, breaks, pulverization, minutes and telocentric markers
Isoenzymes:	AK-1, 1; ES-D, 1; G6PD, B; GLO-I, 1; Me-2, 1-2; PGM1, 1; PGM3, 1

Age: 81 years

Gender: female

Ethnicity: Caucasian

Comments: Leukocytes and sera from patients with transitional cell carcinoma were cytotoxic to T24 and related lines.
Cells have a 19 hour generation time.
Contains the ras (H-ras) oncogene.

Propagation: **ATCC complete growth medium:** The base medium for this cell line is ATCC-formulated McCoy's 5a Medium Modified, Catalog No. 30-2007. To make the complete growth medium, add the following components to the base medium: fetal bovine serum to a final concentration of 10%.
Temperature: 37.0C

Subculturing: Remove medium, and rinse with 0.25% trypsin, 0.03% EDTA solution. Remove the solution and add an additional 1 to 2 ml of trypsin-EDTA solution. Allow the flask to sit at room temperature (or at 37C) until the cells detach.
Add fresh culture medium, aspirate and dispense into new culture flasks.
Subcultivation ratio: A subcultivation ratio of 1:3 to 1:8 is recommended

Medium renewal: 2 to 3 times per week

Preservation: Culture medium, 95%; DMSO, 5%

Related Products: recommended serum: ATCC 30-2020

References:

21849: O'Toole C . Human bladder cancer lines: HLA Class I and Class II antigen expression and susceptibility to cytostatic and cytotoxic effects in vitro. *In:* Webber, M.M.; Sekely, L.I., eds., editor. In vitro models for cancer research. vol. IV: Boca Raton, FL: CRC Press; pp. 103-125.
22365: O'Toole C , et al. Cellular immunity to human urinary bladder carcinoma. I. Correlation to clinical stage and radiotherapy. Int. J. Cancer 10: 77-91, 1972. PubMed: 4196436
22443: Williams BY , Schonbrunn A . Bombesin receptors in a human duodenal tumor cell line: binding properties and function. Cancer Res. 54: 818-824, 1994. PubMed: 8306345
22510: Bubenik J , et al. Cellular and humoral immune responses to human urinary bladder carcinomas. Int. J. Cancer 5: 310-319, 1970. PubMed: 5452065
22536: Fogh J , et al. Absence of HeLa cell contamination in 169 cell lines derived from human tumors. J. Natl. Cancer Inst. 58: 209-214, 1977. PubMed: 833871
22539: Fogh J , et al. One hundred and twenty-seven cultured human tumor cell lines producing tumors in nude mice. J. Natl. Cancer Inst. 59: 221-226, 1977. PubMed: 327080
22849: Bubenik J , et al. Established cell line of urinary bladder carcinoma (T24) containing tumour-specific antigen. Int. J. Cancer 11: 765-773, 1973. PubMed: 4133950
23226: Pollack MS , et al. HLA-A, B, C and DR alloantigen expression on forty-six cultured human tumor cell lines. J. Natl. Cancer Inst. 66: 1003-1012, 1981. PubMed: 7017212
23256: Carey TE , et al. Cell surface antigens of human malignant melanoma: mixed hemadsorption assays for humoral immunity to cultured autologous melanoma cells. Proc. Natl. Acad. Sci. USA 73: 3278-3282, 1976. PubMed: 1067619
24381: Fogh J . Cultivation, characterization, and identification of human tumor cells with emphasis on kidney, testis, and bladder tumors. Natl. Cancer Inst. Monogr. 49: 5-9, 1978. PubMed: 571047
25065: Bellet D , et al. Malignant transformation of nontrophoblastic cells is associated with the expression of chorionic gonadotropin beta genes normally transcribed in trophoblastic cells. Cancer Res. 57: 516-523, 1997. PubMed: 9012484
26316: Bubenik J , et al. Cellular immunity to renal carcinomas in man. Int. J. Cancer 8: 503-513, 1971. PubMed: 5137312
32266: Bender CM , et al. Inhibition of DNA methylation by 5-Aza-2'-deoxycytidine suppresses the growth of human tumor cell lines. Cancer Res. 58: 95-101, 1998. PubMed: 9426064
33025: Ponton A , et al. The CD95 (APO-1/Fas) receptor activates NF-kappaB independently of its cytotoxic function. J. Biol. Chem. 271: 8991-8995, 1996. PubMed: 8621545

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T24 bladder & cells Word Search Clear Search

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ATCC® Number:	**HTB-44™** Order this item	**Price:**	**$294.00**
Designations:	A-498	**Depositors:**	W Nelson-Rees
Biosafety Level:	1	**Shipped:**	frozen
Medium & Serum:	See Propagation	**Growth Properties:**	adherent
Organism:	*Homo sapiens* (human)	**Morphology:**	epithelial
Source:	**Organ:** kidney **Disease:** carcinoma		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Cell Culture Products

Tumorigenic:	Yes, in nude mice; forms undifferentiated carcinoma; also forms tumors in anti thymocyte serum treated newborn mice
DNA Profile (STR):	Amelogenin: X CSF1PO: 11,12 D13S317: 12 D16S539: 12 D5S818: 11,13 D7S820: 10,11 THO1: 6,9.3 TPOX: 8,11 vWA: 18
Isoenzymes:	AK-1, 1; ES-D, 2; G6PD, B; GLO-I, 2; Me-2, 1; PGM1, 1-2; PGM3, 1
Age:	52 years
Gender:	female
Comments:	S. Aaronson isolated this line using techniques as described for ATCC HTB-41.
Propagation:	**ATCC complete growth medium:** The base medium for this cell line is ATCC-formulated Eagle's Minimum Essential Medium, Catalog No. 30-2003. To make the complete growth medium, add the following components to the base medium: fetal bovine serum to a final concentration of 10%. **Temperature:** 37.0C **Atmosphere:** air, 95%; carbon dioxide (CO2), 5%

Subculturing: **Protocol:**

1. Remove and discard culture medium.
2. Briefly rinse the cell layer with 0.25% (w/v) Trypsin - 0.53 mM EDTA solution to remove all traces of serum which contains trypsin inhibitor.
3. Add 2.0 to 3.0 ml of Trypsin-EDTA solution to flask and observe cells under an inverted microscope until cell layer is dispersed (usually within 5 to 15 minutes).
   Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37C to facilitate dispersal.
4. Add 6.0 to 8.0 ml of complete growth medium and aspirate cells by gently pipetting.
5. Add appropriate aliquots of the cell suspension to new culture vessels.
6. Incubate cultures at 37C.

Subcultivation ratio: A subcultivation ratio of 1:3 to 1:8 is recommended

Medium renewal: Twice per week

Preservation: **Freeze medium:** culture medium, 95%; DMSO, 5%
Storage temperature: liquid nitrogen vapor phase

Related Products: Recommended medium (without the additional supplements or serum described under ATCC Medium): ATCC 30-2003
recommended serum: ATCC 30-2020
0.25% (w/v) Trypsin - 0.53 mM EDTA in Hank' BSS (w/o Ca++, Mg++): ATCC 30-2101
Cell culture tested DMSO: ATCC 4-X

References:

22536: Fogh J , et al. Absence of HeLa cell contamination in 169 cell lines derived from human tumors. J. Natl. Cancer Inst. 58: 209-214, 1977. PubMed: 833871
22539: Fogh J , et al. One hundred and twenty-seven cultured human tumor cell lines producing tumors in nude mice. J. Natl. Cancer Inst. 59: 221-226, 1977. PubMed: 327080
23093: Faust JB , Meeker TC . Amplification and expression of the bcl-1 gene in human solid tumor cell lines. Cancer Res. 52: 2460-2463, 1992. PubMed: 1568216
23218: Giard DJ , et al. In vitro cultivation of human tumors: establishment of cell lines derived from a series of solid tumors. J. Natl. Cancer Inst. 51: 1417-1423, 1973. PubMed: 4357758
24381: Fogh J . Cultivation, characterization, and identification of human tumor cells with emphasis on kidney, testis, and bladder tumors. Natl. Cancer Inst. Monogr. 49: 5-9, 1978. PubMed: 571047

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Cell Biology

ATCC® Number:	**CRL-2616™** Order this item	**Price:**	**$294.00**
Designations:	VK2/E6E7	**Depositors:**	D Anderson RN Fichorova JG Rheinwald
Biosafety Level:	2 [Cells contain human Papilloma viral sequences]	**Shipped:**	frozen
Medium & Serum:	See Propagation	**Growth Properties:**	adherent
Organism:	*Homo sapiens* (human)	**Morphology:**	epithelial
Source:	**Organ:** vagina **Tissue:** mucosa **Cell type:** epithelial; HPV-16 E6/E7 transformed		
Cellular Products:	cytokeratins 8 (CK8), 10 (CK10), 13 (CK13), 18 (CK18) and 19 (CK19) [52983],macrophage colony-stimulating factor (M-CSF); transforming growth factor beta1; interleukin 8 (IL-8); prostaglandin E2; the secretory leukoproteinase inhibitor; polymeric immunoglobulin receptor [52984]		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Cell Culture Products

Restrictions:

The line is available with the following restrictions: 1. This cell line was deposited at the ATCC by Dr. Deborah Anderson of The Brigham and Women's Hospital, Inc. and is provided for academic research purposes only. Neither the cell line nor products derived from it may be sold or used for commercial purposes, including screening of compounds. Nor can the cells be distributed to third parties for purposes of sale, or producing for sale, cells or their products. The cells are provided as a service to the research community. They are provided without warranty of merchantability or fitness for a particular purpose or any other warranty, express or implied. 2. All products derived from the cells or genetically altered forms of the cells cannot be commercialized without express written permission from the The Brigham and Women's Hospital, Inc. 3. Any proposed commercial manufacture, use, or sale of the these cells, or their products must first be approved and the terms for such commercial manufacture, use, or sale must first be negotiated with The Brigham and Women's Hospital, Inc., Office of Corporate Sponsored Research and Licensing, 75 Francis Street, Boston, MA 02115 (617) 525-6010.

Isolation:

Isolation date: 1996
(The VK2/E6E7 (ATCC CRL-2616) cell line was established in 1996 from the normal vaginal mucosal tissue taken from a premenopausal woman undergoing anterior-posterior vaginal repair surgery. Cells at passage 3 were immortalized by transduction with the retroviral vector LXSN-16E6E7 in the presence of polybrene. Clones were selected in medium containing

G418.) [52983]

Age: 32 years adult

Gender: female

Comments: The VK2/E6E7 (ATCC CRL-2616 cell line was established in 1996 from the normal vaginal mucosal tissue taken from a premenopausal woman undergoing anterior-posterior vaginal repair surgery. [52983]
The ectocervical Ect1/E6E7 (ATCC CRL-2614) and endocervical End1/E6E7 (ATCC CRL-2615) cell lines were established in 1996 from normal epithelial tissue taken from a premenopausal woman undergoing hysterectomy for endometriosis. [52983]
Cells at passage 3 were immortalized by transduction with the retroviral vector LXSN-16E6E7 in the presence of polybrene. Clones were selected in medium containing G418. [52983]
The endocervical cell line expresses characteristics of simple columnar epithelium, whereas the ectocervical and vaginal cell lines express characteristics of stratified squamous nonkeratinizing epithelia. [52984]
Without stimulation, all three cell lines produce macrophage colony-stimulating factor (M-CSF), transforming growth factor beta1, interleukin 8 (IL-8), prostaglandin E2, the secretory leukoproteinase inhibitor, and the polymeric immunoglobulin receptor. [52984]
The endocervical cell line (End1/E6E7), but not the others, also produce the lymphopoietic cytokines IL-6, IL-7, and consistently detectable levels of the chemokine known as "regulated-upon-activation, normal T cell expressed and secreted" (RANTES). [52984]
Stimulation with interferon gamma and tumor necrosis factor alpha (TNF alpha) induces or significantly up-regulates expression of several of the cytokines and chemokines as well as major histocompatibility complex (MHC) class II antigens in the lines. [52984]
Piliated, but not nonpiliated, Neisseria gonorrhoea strain F62 variants actively invade these epithelial cell lines. Invasion of these cells by green fluorescent protein-expressing gonococci is characterized by colocalization of gonococci with F actin. [53415]
These cell lines may provide the basis for valid, reproducible in vitro models for studies on cervicovaginal physiology and infections and for testing pharmacological agents for intravaginal application.

Propagation: **ATCC complete growth medium:** Keratinocyte-Serum Free medium (GIBCO-BRL 17005-042) with 0.1 ng/ml human recombinant EGF, 0.05 mg/ml bovine pituitary extract, and additional calcium chloride 44.1 mg/L (final concentration 0.4 mM)
Temperature: 37.0C
Atmosphere: air, 95%; carbon dioxide (CO2), 5%

Subculturing: **Protocol:** The cells should not be allowed to become confluent, subculture at 60 to 90% of confluence. Remove medium, and rinse with 0.25% trypsin, 0.53mM EDTA solution. Remove the solution and add an additional 1 to 2 ml of trypsin-EDTA solution. Allow the flask to sit at room temperature (or at 37C) until the cells detach. Neutralize the trypsin by adding a 1:1 mixture of Dulbecco's modified Eagle's medium and Ham's F12 medium containing 10% fetal bovine serum. Centrifuge the cell suspension at 1000 rpm for 10 minutes, resuspend the pellet in fresh serum-free growth medium, aspirate and dispense into new flasks. Cells will not attach well for 24 hours after subculture.

Subcultivation ratio: A subcultivation ratio of 1:3 to 1:5 is recommended

Medium renewal: Every 2 to 3 days

Preservation: **Freeze medium:** A 1:1 mixture of Dulbecco's modified Eagle's medium and Ham's F12 medium, 85%; fetal bovine serum, 10%; DMSO, 5%
Storage temperature: liquid nitrogen vapor phase

Doubling Time: 24 hrs

References:
52983: Fichorova RN , et al. Generation of papillomavirus-immortalized cell lines from normal human ectocervical, endocervical, and vaginal epithelium that maintain expression of tissue-specific differentiation proteins. Biol. Reprod. 57: 847-855, 1999. PubMed: 9314589
52984: Fichorova RN , Anderson DJ . Differential expression of immunobiological mediators by immortalized human cervical and vaginal epithelial cells. Biol. Reprod. 60: 508-514, 1999. PubMed: 9916021
53415: Fichorova RN , et al. Distinct proinflammatory host responses to Neisseria gonorrhoeae infection in immortalized human cervical and vaginal epithelial cells. Infect. Immun. 69: 5840-5880, 2001. PubMed: 11500462
53416: Fichorova RN , et al. The molecular basis of nonoxynol-9-induced vaginal inflammation and its possible relevance to human immunodeficiency virus type 1 transmission. J. Infect.

Dis. 184: 418-428, 2001. PubMed: 11471099

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VK2 E6/E7 & vaginal & cells Word Search | Clear Search |

Home Page Archive

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

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Last Updated: 2001-04-23 ▲ Important Notices

Office of Laboratory Security

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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

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MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: ***Proteus*** **spp.**

SYNONYM OR CROSS REFERENCE: *P. mirabilis, P. vulgaris, P. penneri, P. hauseri*

CHARACTERISTICS: Gram-negative, motile, aerobic rod shaped bacilli, urease positive, characteristic swarming; part of the normal flora of the GI tract

SECTION II - HEALTH HAZARD

PATHOGENICITY: Chronic urinary tract infections, bacteremia, pneumonia and focal lesions in debilitated patients or those receiving intravenous infusions, neonatal meningoencephalitis, empyema, osteomyelitis, cystitis, pyelonephritis, prostatitis

EPIDEMIOLOGY: Worldwide; important cause of nosocomial infections acquired after antimicrobial therapy

HOST RANGE: Humans

INFECTIOUS DOSE: Unknown

MODE OF TRANSMISSION: Produces infections after leaving normal habitat in intestinal tract

INCUBATION PERIOD: Not well established

COMMUNICABILITY: Not transmitted from person-to-person

SECTION III - DISSEMINATION

RESERVOIR: Soil, water, sewage and part of normal flora of intestinal tract

ZOONOSIS: None

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Sensitive to very high concentrations of penicillin; usually sensitive to aminoglycosides and cephalosporins but drug susceptibility testing to specific antimicrobials needs to be done

DRUG RESISTANCE: Resistant to tetracycline; high level of ciprofloxacin resistance noted where use of agent is unrestricted; *P. mirabilis* is resistant to nitrofurantoin; *P. penneri* is more resistant to penicillin than the other strains

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, glutaraldehyde, iodines, phenolics, formaldehyde

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 well out of host, especially in areas where animal protein is decomposing (sewage, soil, water)

SECTION V - MEDICAL

SURVEILLANCE: Monitor for symptoms; culture of organism from blood, urine or exudates

FIRST AID/TREATMENT: Administer antibiotic therapy if necessary

IMMUNIZATION: None

PROPHYLAXIS: None

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: No reported laboratory-acquired infections with this organism

SOURCES/SPECIMENS: Blood, urine, wound exudates

PRIMARY HAZARDS: Accidental parenteral inoculation, exposure of mucous membranes and to droplets and aerosols, ingestion

SPECIAL HAZARDS: None

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: Biosafety level 2 practices, containment equipment and facilities are recommended

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

OTHER PRECAUTIONS: None

SECTION VIII - HANDLING INFORMATION

SPILLS: Allow aerosols to settle; wearing protective clothing, gently cover spill with absorbent 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, incineration

STORAGE: In sealed containers that are appropriately labelled

SECTION IX - MISCELLANEOUS INFORMATION

Date prepared: April, 2001

Prepared by: Office of Laboratory Security, PHAC

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MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: *Lactobacillus* spp.

SYNONYM OR CROSS REFERENCE: *L. acidophilus, L. bifidus, L.bulgaricus, L. casei, L. viridescens, L. helveitcus, L. plantarum*

CHARACTERISTICS: Gram-positive large rods, non-spore forming, anaerobic or microaerophilic, occur singly or in pairs

SECTION II - HEALTH HAZARD

PATHOGENICITY: Very rarely pathogenic; part of normal flora in man and animals (mouth, vagina, and intestinal tract); in the oral cavity, associated with dental caries but no known etiologic role; have been reported to cause endocarditis, neonatal meningitis and bacteremia

EPIDEMIOLOGY: Worldwide

HOST RANGE: Normal flora of humans and animals

INFECTIOUS DOSE: Not known

MODE OF TRANSMISSION: Not known

INCUBATION PERIOD: Not known

COMMUNICABILITY: Not transmitted from person-to-person

SECTION III - DISSEMINATION

RESERVOIR: Widespread in nature, humans and animals

ZOONOSIS: None

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Susceptible to antibiotics

DRUG RESISTANCE: vancomycin-resistant strains have been isolated

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite and 70% ethanol, glutaraldehyde, formaldehyde, iodines

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

SURVIVAL OUTSIDE HOST: Feces - 2 days; cheese - 105 years;

SECTION V - MEDICAL

SURVEILLANCE: None

FIRST AID/TREATMENT: Wash area in contact with warm water and soap (omit soap for mucous membrane exposure); drug therapy (penicillin and aminoglycosides)

IMMUNIZATION: None

PROPHYLAXIS: None

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: No reported cases of laboratory

infections with *Lactobacillus* spp.

SOURCES/SPECIMENS: Dairy products and other food, feces, specimens from the mouth, vaginal swabs

PRIMARY HAZARDS: Hazard of infection from this organism is low, however, it is prudent to avoid accidental inoculation and ingestion

SPECIAL HAZARDS: None

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: No special design features beyond those suitable for a well designed and functional laboratory with good microbiology practices; this level of containment does not allow for any additional risk that may present for those persons with pre-existing disease, compromised immunity or who are pregnant

PROTECTIVE CLOTHING: Laboratory coat; gloves when contact with infected material is unavoidable

OTHER PRECAUTIONS: None

SECTION VIII - HANDLING INFORMATION

SPILLS: Allow aerosols to settle; wearing protective clothing, gently cover spill with absorbent 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

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Office of Laboratory Security

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MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: ***Klebsiella* spp.**

SYNONYM OR CROSS REFERENCE: *K. pneumoniae*, Friedlander's pneumonia, *K. oxytoca, K. ozaenae*

CHARACTERISTICS: Family Enterobacteriaceae, gram negative small rods, nonmotile, facultatively anaerobic, occurring singly, capsulated and in mucoid colonies

SECTION II - HEALTH HAZARD

PATHOGENICITY: Frequent cause of nosocomial urinary and pulmonary infections; wound infections; secondary infection in lungs of patients with chronic pulmonary disease; enteric pathogenicity (enterotoxin); ozena (atrophy of nasal mucosa) and rhinoscleroma

EPIDEMIOLOGY: Worldwide; 2/3 of all infection due to *Klebsiella spp.* are hospital-acquired; causes 3% of all acute bacterial pneumonia; common source of nosocomial outbreaks

HOST RANGE: Humans, animals (horses, cattle)

INFECTIOUS DOSE: Not known

MODE OF TRANSMISSION: Feces are the most significant source of patient infection; contact with contaminated equipment in hospitals (catheters, I.V. etc, respiratory devices)

INCUBATION PERIOD: Not clearly identified

COMMUNICABILITY: Not directly transmitted from person-to-person

SECTION III - DISSEMINATION

RESERVOIR: Soil, water, human skin, nasopharynx and bowel of humans and intestinal tract of animals

ZOONOSIS: None

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Generally susceptible to aminoglycosides and cephalosporins (7% resistant to ceftazidime); resistant to carbenicillin, ampicillin and quinolones

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, 2% glutaraldehyde, iodines, phenolics, formaldehyde

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

SURVIVAL OUTSIDE HOST: Glass coverslips - 4 hrs; lanolin hand cream - several days; bronchodilator solution - days; sawdust in barn - days

SECTION V - MEDICAL

SURVEILLANCE: Monitor for symptoms; confirmation by sputum samples

FIRST AID/TREATMENT: Administer antibiotic therapy where necessary

IMMUNIZATION: None

PROPHYLAXIS: Not usually administered

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: 1 reported laboratory acquired infection with *K. pneumoniae* up to 1976

SOURCES/SPECIMENS: Respiratory specimens, sputum, pleural exudate; blood, feces, urine, wounds, abscesses, cerebrospinal fluid

PRIMARY HAZARDS: Direct contact of mucous membranes with contaminated objects; inhalation of infectious aerosols; accidental parenteral inoculation; ingestion

SPECIAL HAZARDS: None

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 direct contact with infectious materials is unavoidable

OTHER PRECAUTIONS: None

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 (30 min) before clean up

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

STORAGE: In sealed containers that are appropriately labelled

SECTION IX - MISCELLANEOUS INFORMATION

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Prepared by: Office of Laboratory Security, PHAC

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Bacteria

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Designations:	3R7089 strain Oxford [NCIB 6571; NCTC 6571; NRRL B-314]		
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Biosafety Level:	2	**Shipped:**	freeze-dried
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Related Products

Applications:	assay of [92303] assay of chlortetracycline (aureomycin) [6673] [11016] assay of demeclocycline (demethylchlortetracycline) [11016] assay of oxytetracycline (terramycin) [11016] assay of tetracycline [11016] assay of tobramycin [21512] assay of tylosin [11016] [21605] reference material [92338] [92343] testing [92313]
References:	6673: AOAC International. Chlortetracycline HCl in feeds, turbidimetric method. Gaithersburg, MD: AOAC International; AOAC "Official Methods of Analysis of the AOAC International" 977.37. 11016: British Pharmacopoeia Commission. Biological assay of antibiotics. London, UK: British Pharmacopoeia Commission; British Pharmacopoeia Appendix XIV A, 2003. 21512: European Pharmacopoeia Commission. Microbiological assay of antibiotics. Strasbourg, France: European Pharmacopoeia Commission; European Pharmacopoeia EP 2.7.2, 1997. 21605: U.S. Pharmacopeia. General Chapters; <81> ANTIBIOTICS-MICROBIAL ASSAYS. Rockville, MD: U.S. Pharmacopeia; USP USP28-NF23, 2005. 92303: Microbial assay for antibiotics. Tokyo, Japan: Japanese Pharmacopoeia; JP JP14e.part I.34. 92313: Iodophors for use in the dairying industry. Sydney, NSW, Australia: Standards Australia; Standards Australia AS 1398-1998. 92338: Water microbiology. Method 16: Bactericidal efficiency of water disinfecting tablets. Sydney, NSW, Australia: Standards Australia; Standards Australia AS/NZS 4276.16:1999. 92343: Water microbiology. Method 20: Examination for coagulase positive staphylococci,

including Staphylococcus aureus, by memebrane filtration. Sydney, NSW, Australia: Standards Australia; Standards Australia AS/NZS 4276.20:2003.

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Staphylococcus aureus & Oxford Word Search Clear Search

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Bacteria

ATCC® Number:	**25904™** Order this item	**Price:**	**$185.00**
Organism:	*Staphylococcus aureus* subsp. *aureus* Rosenbach		
Designations:	Newman D2C [NCTC 10833]		
Depositor:	J Hawiger	**History:**	ATCC<<--J Hawiger <<--E. Duthie
Biosafety Level:	2	**Shipped:**	freeze-dried
Growth Conditions:	ATCC medium 44: Brain heart infusion agar or brain heart infusion Temperature: 37.0C		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Products

Cross References:	GenBank: AJ290973: Staphylococcus aureus map-ND2C gene.
Comments:	clumping factor-positive variant of Staphylococcus aureus strain Newman D2 measurement of fibrinogen and fibrin degradation products in serum [46018]
References:	46018: Hawiger J, et al. Measurement of fibrinogen and fibrin degradation products in serum by staphylococcal clumping test. J. Lab. Clin. Med. 75: 93-108, 1970. PubMed: 4243578

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Staphylococcus aureus & Newma Word Search Clear Search

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Bacteria

ATCC® Number:	**39018™** Order this item	**Price:**	**$225.00**
Organism:	*Pseudomonas aeruginosa* (Schroeter) Migula		
Designations:	PAO-PR1	**Isolation:**	derived from existing strain (derived from PAO-1)
Depositor:	Oregon Health Sciences University	**History:**	ATCC<<--Oregon Health Sciences University <<--B.H. Iglewski
Biosafety Level:	2	**Shipped:**	freeze-dried
Growth Conditions:	ATCC medium 18: Trypticase soy agar Temperature: 30.0C		
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.		

This material is cited in a U.S. and/or other Patent or Patent Application, and may not be used to infringe on the patent claims.

Related Products

Applications:	produces a nontoxic, immunologically cross-reactive toxin A protein, CRM 66 [1471] [3795]
References:	1471: Cryz SJ Jr., et al. Isolation and characterization of a Pseudomonas aeruginosa mutant producing a nontoxic, immunologically crossreactive toxin A protein. Proc. Natl. Acad. Sci. USA 77: 7199-7203, 1980. PubMed: 6261247 3795: Iglewski BM, Cryz SJ Jr. Nontoxic, immunologically crossreactive toxin A protein from Pseudomonas aeruginosa. US Patent 4,470,924 dated Sep 11 1984

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Pseudomonas aeruginosa & PAC Word Search Clear Search

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Bacteria

ATCC® Number:	**43894™** Order this item	**Price:**	**$185.00**
Organism:	*Escherichia coli* (Migula) Castellani and Chalmers		
Designations:	CDC EDL 932	**Isolation:**	human feces from outbreak of hemorrhagic colitis, Michigan
Depositor:	CDC		
Biosafety Level:	2	**Shipped:**	freeze-dried
Growth Conditions:	ATCC medium 18: Trypticase soy agar Temperature: 37.0C		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Products

Antigenic Properties:	serotype O157:H7
Applications:	media testing [92390] [92845] produces Shiga-like toxin I [1349] [58158] produces Shiga-like toxin II [1349] [58158] produces extracellular polysaccharide (exopolysaccharide; polysaccharide (extracellular)) [6502]
References:	1349: Wells JG, et al. Laboratory investigation of hemorrhagic colitis outbreaks associated with a rare Escherichia coli serotype. J. Clin. Microbiol. 18: 512-520, 1983. PubMed: 6355145 6502: Junkins AD, Doyle MP . Demonstration of exopolysaccharide production by enterohemorrhagic Escherichia coli. Curr. Microbiol. 25: 9-17, 1992. PubMed: 1369498 32961: Kudva IT, et al. Escherichia coli O157:H7 in microbial flora of sheep. J. Clin. Microbiol. 34: 431-433, 1996. PubMed: 8789031 58158: Marques LR, et al. Production of Shiga-like toxin by Escherichia coli. J. Infect. Dis. 154: 338-341, 1986. PubMed: 3522760 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. 92845: 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 - Annex B: Recommended test microorganisms for commonly used culture media. London, UK: British Standards Institution; British Standard DD CEN ISO/TS 11133:2003.

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Escherichia coli & 917 Word Search Clear Search

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Bacteria

ATCC® Number:	**35386™** Order this item	**Price:**	**$225.00**
Organism:	*Escherichia coli* (Migula) Castellani and Chalmers		
Designations:	ECOR 67	**Isolation:**	goat, Indonesia
Depositor:	H Ochman	**History:**	ATCC<<--H Ochman <<--R. Milkman RM217T
Biosafety Level:	1	**Shipped:**	freeze-dried
Growth Conditions:	ATCC medium 3: Nutrient agar or nutrient broth Temperature: 37.0C		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Products

Comments:	reference strain [9410]
References:	9410: Ochman H, Selander RK . Standard reference strains of Escherichia coli from natural populations. J. Bacteriol. 157: 690-693, 1984. PubMed: 6363394

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Escherichia coli & 67 Word Search Clear Search

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Bacteria

ATCC® Number:	**23241™** Order this item	**Price:**	**$225.00**
Organism:	*Enterococcus faecalis* (Andrewes and Horder) Schleifer and Kilpper-Balz; deposited as *Streptococcus faecalis* Andrewes and Horder		
Designations:	G-K [B-14]	**Isolation:**	urine of patient with pyelonephritis
Depositor:	RG Wittler	**History:**	ATCC<<--RG Wittler <<--L. Guze
Biosafety Level:	2	**Shipped:**	freeze-dried
Growth Conditions:	ATCC medium 260: Trypticase soy agar with defibrinated sheep blood Temperature: 37.0C		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Products

Comments:	Parent strain of Streptococcus faecalis L-Phase variant G-K L (ATCC 23242)
References:	9649: Montgomerie JZ, et al. The effects of antibiotics on the protoplast and bacterial forms of Streptococcus faecalis. J. Lab. Clin. Med. 68: 543-551, 1966. PubMed: 4958832 10118: Guze LB, et al. Pyelonephritis. I. Observations on the course of chronic non-obstructed enterococcal infection in the kidnev of the rat. Yale J. Biol. Med. 33: 372-385, 1961. PubMed: 13710079 10663: Cohen RL, et al. Modified biochemical tests for characterization of L-phase variants of bacteria. Appl. Microbiol. 16: 1655-1662, 1968. PubMed: 4302280

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Enterococcus faecalis & 23241 Word Search Clear Search

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Bacteria

ATCC® Number: 53103™ Order this item **Price:** $185.00

Organism: *Lactobacillus rhamnosus* (Hansen) Collins et al.; deposited as *Lactobacillus acidophilus* (Moro) Hansen and Mocquot

Designations: GG [Gorbach-Goldin] **Isolation:** human feces

Depositor: New England Medical Center Hospitals, Inc.

Biosafety Level: 1 **Shipped:** freeze-dried

Growth Conditions: ATCC medium 416: Lactobacilli MRS broth
Temperature: 37.0C

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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Related Products

Applications:	inhibits colon disorders [3852] [5386] produces antibacterial agent [1585]
References:	1585: Silva M, et al. Antimicrobial substance from a human Lactobacillus strain. Antimicrob. Agents Chemother. 31: 1231-1233, 1987. PubMed: 3307619 3852: Gorbach SL, Goldin BR . Lactobacillus strains and methods of selection. US Patent 4,839,281 dated Jun 13 1989 5386: Gorbach SL, Goldin BR . L. acidophilus strains. US Patent 5,032,399 dated Jul 16 1991

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Lactobacillus rhamnosus & GG Word Search Clear Search

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Bacteria

ATCC® Number: 8014™ Order this item **Price:** $145.00

Organism: *Lactobacillus plantarum* (Orla-Jensen) Bergey et al.; deposited as *Lactobacillus arabinosus* Fred et al.

Designations: 17-5 [BUCSAV 217; BUCSAV 449; Glaxo 664; ICPB 2080; NCDO 82; NCIB 6376; NCIB 8014; NCIB 8030]

Depositor: E McCoy

Biosafety Level: 1 **Shipped:** freeze-dried

Growth Conditions: ATCC medium 416: Lactobacilli MRS broth
Temperature: 37.0C

Permits/Forms: In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.

Related Products

Cross References:
GenBank: X62346: L.plantarum plasmid 8014-2 DNA (from Bc1I to HincII site).
GenBank: AF189765: Lactobacillus plantarum alpha-galactosidase (melA) gene, complete cds.
GenBank: U97139: Lactobacillus plantarum 16S/23S ribosomal RNA large intergenic spacer region, tRNA-Ile and tRNA-Ala genes, complete sequence.
GenBank: X99978: Lactobacillus plantarum citrulline biosynthetic gene cluster (carAB operon and argC, J, B, D, F-ccl operon) and usg and dsg partial sequences.

Comments:
each NCIB culture from a different depositor
bacteriophage host
accumulation of biotin [6553]
D-biotin conversion and metabolism [10275] [34645] [58634]
biotin transport and accumulation [11064] [34646]
formation of acetylmethylcarbinol [7469]
effect of pantothenate derivatives on growth and coenzyme-A synthesis [7301]
sulfur nutrition [6175] [7482]
nitrate reduction [6263]
effect of oleic acid on free biotin uptake [7553]
ribitol-5-phosphate dehydrogenase [7316]
synthesis of ribitol teichoic acids [10745]
energy-producing pathways [7540] [10737]
DNA base composition (45.1 moles % GC) [9315]

Applications:
produces lactic acid from coconut water [58392]
assay of amino acids [6665]
assay of biotin [92233]
assay of calcium pantothenate [21607] [92233]

assay of niacinamide (nicotinamide) [21610]
assay of nicotinic acid (niacin) [5216] [21480] [21610]
assay of pantothenic acid [21480]
assay of tryptophan (L-tryptophan)
metabolizes mevalonic acid [7531]
produces lactic acid (lactate) [58392]
quality control strain [92408]

References:

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21607: U.S. Pharmacopeia. General Chapters: <91> CALCIUM PANTOTHENATE ASSAY. Rockville, MD: U.S. Pharmacopeia; USP USP28-nf23, 2005.
21610: U.S. Pharmacopeia. General Chapter: <441> NIACIN OR NIACINAMIDE ASSAY. Rockville, MD: U.S. Pharmacopeia; USP USP28-NF23, 2005.
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58634: Birnbaum J, Lichstein HC . Metabolism of biotin and analogues of biotin by microorganisms. II. Further studies on the conversion of D-biotin to biotin vitamers by Lactobacillus plantarum. J. Bacteriol. 92: 913-920, 1966. PubMed: 5926758
92233: Dietary Supplements: Oil-and Water-Soluble Vitamins with Minerals Tablets. Rockville, MD: U.S. Pharmacopeia; USP USP28-NF23, 2005.
92408: Applied Biosystems MicroSeq Food Panel #1. Applied Biosystems; MicroSeq

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Lactobacillus plantarum & 8014 Word Search Clear Search

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Bacteria

ATCC® Number: **10012™** Order this item **Price:** **$225.00**

Organism: *Lactobacillus plantarum* (Orla-Jensen) Bergey et al.; deposited as *Streptobacterium plantarum* Orla-Jensen

Designations: [10 S; NCDO 352; NCIB 8016]

Depositor: J Alsberg **History:** ATCC<<--J Alsberg <<--R. Kuhn 10 S (Streptobacterium plantarum)

Biosafety Level: 1 **Shipped:** freeze-dried

Growth Conditions: ATCC medium 416: Lactobacilli MRS broth
Temperature: 37.0C

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Applications: assay of 4-aminobenzoic acid (p-aminobenzoic acid) [45880]

References:

5435: Chemie 55: 1.
6072: J. Appl. Bacteriol. 18: 274, 1955.
6753: Ber. Dtsch. Chem. Ges. 74: 1617, 1941.
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Bacteria

ATCC® Number:	**14431™** Order this item	**Price:**	**$225.00**
Organism:	*Lactobacillus plantarum* (Orla-Jensen) Bergey et al.		
Designations:	T-1043-5	**Isolation:**	grass silage
Depositor:	CW Langston		
Biosafety Level:	1	**Shipped:**	freeze-dried
Growth Conditions:	ATCC medium 416: Lactobacilli MRS broth Temperature: 37.0C		
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.		

Related Products

Comments:	Catalase positive
References:	59178: Langston CW, Bouma C . A study of the microorganisms from grass silage. II. The Lactobacilli. Appl. Microbiol. 8: 223-234, 1960.

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